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<th><strong>Title</strong></th>
<th>A method and apparatus for processing data</th>
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<tr>
<td><strong>International Patent Classification(s)</strong></td>
<td><strong>A61B 5/00</strong> (2006.01)  <strong>G06F 19/00</strong> (2006.01)</td>
</tr>
<tr>
<td><strong>Application No:</strong></td>
<td>2004286507</td>
</tr>
<tr>
<td><strong>Date of Filing:</strong></td>
<td>2004.11.04</td>
</tr>
<tr>
<td><strong>WIPO No:</strong></td>
<td>WO05/043443</td>
</tr>
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<td><strong>Priority Data</strong></td>
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</tr>
<tr>
<td><strong>Number</strong></td>
<td>528418</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>2003.11.04</td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td>NZ</td>
</tr>
<tr>
<td><strong>Publication Date:</strong></td>
<td>2005.05.12</td>
</tr>
<tr>
<td><strong>Accepted Journal Date:</strong></td>
<td>2010.10.28</td>
</tr>
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A METHOD AND APPARATUS FOR PROCESSING DATA

The present invention relates to a method of processing data generated by a user comprising the steps of receiving the electronic data in a first format, associating an identifier with the data when in said first format, transmitting the identifier and the electronic data when in said first format to a storage means, manipulating the data from the first format into a second format, and then displaying the data when in said second format on a display means. The present invention is particularly suited to processing data derived from measurable human characteristics, such as weight, height, and gender.

Future dates data nominated based on current date (e.g. monthly) calculated. The length of time determined is then displayed graphically via display means.
Published:
— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
A METHOD AND APPARATUS FOR PROCESSING DATA

TECHNICAL FIELD

The present application relates to a method and apparatus for processing data and in particular, though not solely, for processing electronic data derived from measurable animal characteristics, and more particularly, human characteristics.

BACKGROUND ART

To ensure the maintenance of human health and welfare there is often a need to monitor and record a variety of measurable human characteristics, such as height, weight, blood pressure and the like.

Standard methods of recording such measurable characteristics include physically writing the measured values on paper and/or manually entering the measured values into a database storage system.

It is common for the services of a third party (such as a health worker) to be retained for the purposes of monitoring characteristics associated human health and welfare. For example, the majority of people rely on their own family physician to maintain personal records relating to their health and to advise them of the implications of any measured values.

However, there are a number of drawbacks inherent with this method, including the restricted access that a person has to a physician and the records held by the physician. Furthermore, there is a significant financial cost associated with making regular visits to a physician in order to enable the physician to physically examine a person to obtain the required measured values. Further time is also required to subsequently record and interpret the values and make medical recommendations with a view to the enhancing a person’s health and wellbeing.

Moreover, the person being examined generally has no inherent ability to check that the measured values obtained and recorded by the physician are correct; nor is there any general capacity for a person to add personal addendums to the medical records and/or access the stored records at any time.

As overweight and obesity are an increasing problem in all ages a common physical characteristic measured and monitored is weight. To help combat overweight and obesity there are numerous Internet web sites that promote the sale of products and/or regimented programs which if purchased claim to successfully result in weight loss.
Medical research in this area has established that there is a need to catch excessive weight gain as early in life as possible and typically encourage from an early age regimes of increased physical activity and healthy eating in an attempt to reverse this trend.

Historically, there has been a resistance to focusing on the weight of a child as a result of the fear that such a focus may induce abnormal eating behaviour and be generally detrimental to the child's physical and/or mental wellbeing.

Most physicians recommend that children are weighed once a year and preferably by a health professional who subsequently plots the child's weight on a weight percentile chart and on a body mass index (BMI) percentile chart. Body mass index is calculated using the equation BMI = weight in kg/(height in metres)$^2$. Accordingly, it is also necessary to measure the child's height prior to establishing that child's associated BMI value.

As the calculation of a BMI value is a function of both height and weight each time a child is examined a new height and weight must be taken and the BMI value calculated and interpreted using the BMI percentile chart.

Using this obtained data physicians can determine whether the child is considered to be overweight. Specifically, it is generally considered in the medical profession that if a child's associated BMI value is over the 85th percentile then that child is considered overweight. Similarly, it is also considered that if a child's associated BMI value is over the 95th percentile then that child is considered obese. Accordingly, since the percentile BMI is given for the exact age of each child that child's weight must be at (or under) the 85th percentile to be considered not to be overweight.

As children grow they are generally not encouraged to lose weight, but rather to maintain their weight as they grow until their weight is in proportion to their height. However, there is no effective way for parents of young children to actively monitor whether their child/children exceeds or falls short of the 85th percentile (or some other) BMI.

It is therefore an object of the present invention to provide a method and apparatus for processing electronic data which goes at least some way toward overcoming the above disadvantages or which will provide the public and/or industry with a useful choice.

All references, including any patents or patent applications, cited in this specification are hereby incorporated by reference. No admission is made that any reference constitutes prior art. The discussion of the reference states what their authors assert, and the applicants reserve the right to challenge the accuracy and pertinency of the cited documents. It will be clearly understood that, although a number of prior art publications are referred to herein, this
reference does not constitute an admission that any of these documents forms parts of the common general knowledge in the art, in New Zealand or in any other country.

It is acknowledged that the term 'comprise' may, under varying jurisdictions, be attributed with either an exclusive or an inclusive meaning. For the purpose of this specification, and unless otherwise noted, the term 'comprise' shall have an inclusive meaning - i.e. that it will be taken to mean an inclusion of not only the listed components it directly references, but also other non-specified components or elements. This rationale will also be used when the term 'comprised' or 'comprising' is used in relation to one or more steps in a method or process.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

**DISCLOSURE OF INVENTION**

Accordingly, in a first aspect the present invention may be broadly said to consist in a method of processing electronic data generated by at least one user, comprising the steps of

(i) receiving electronic data in a first format, said received data including an indication of a user's current height and weight,

(ii) associating an identifier with the data when in said first format,

(iii) transmitting the identifier and the electronic data when in said first format to a storage means,

(iv) manipulating the data in the first format to indicate a user's predicted height at a specific time in the future and predicting the user's weight at said specific time in the future,

(v) calculating a specific length of time for a user to maintain a constant weight, and

(vi) displaying the specific length of time on a display means.

Preferably, the received data includes an indication of a user's current age and/or gender.

Preferably, the current height data received is translated into an indication of a user's predicted height at specific time periods in the future.

Preferably, the predicted height values calculated are used to predict the weight of the user at specific time periods in the future.

Preferably, the predicted future height values and current weight of the user are used to determine a specific length of time that the user must maintain a constant weight.
Preferably, the constant weight to be maintained falls within a predetermined threshold at a specific time in the future.

Preferably, the user is provided with an indication of a specific time in the future that the current weight will fall within the predetermined threshold.

Preferably, the electronic data is received at predetermined regular time intervals.

Alternatively, the electronic data is received at irregular time intervals.

Preferably, the identifier uniquely identifies the specific time period at which the electronic data was received.

Preferably, the identifier uniquely identifies the user.

In a second aspect the present invention may be said to broadly consist in an apparatus for carrying out the method according to the first aspect comprising

(i) receiving means adapted to receive electronic data in a first format, said received data including an indication of a user's current height and weight,

(ii) associating means adapted to associate an identifier with the data when in said first format,

(iii) transmitting means adapted to transmit the identifier and the electronic data when in said first format to a storage means,

(iv) manipulating means adapted to manipulate the data in the first format to indicate a user's predicted height at a specific time in the future and predicting the user's weight at said specific time in the future, and calculate a specific length of time for a user to maintain a constant weight, and

(v) display means adapted to display the specific length of time.

In a further aspect the present invention may be said to broadly consist in a computer readable medium containing computer executable instructions adapted to carry out the method according to the first aspect.

In a further aspect the present invention may be said to broadly consist in computer software comprising computer executable instructions adapted to carry out the method according to the first aspect.

In a further aspect the present invention may be said to broadly consist in an electronic device having computer software comprising computer executable instructions adapted to carry out the method according to the first aspect.

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In a further aspect the present invention may be said to broadly consist in an electronic device having computer software comprising computer executable instructions adapted to carry out the method according to the first aspect.

For the purposes of the foregoing description those skilled in the art should appreciate that a computer system may be formed from a programmable logic unit or other processing device on which computer software may be run. Computer software may be defined as a set of instructions able to be interpreted by a computer system and capable of performing a task.

A computer system loaded with appropriate computer software may be employed to implement the method of the present invention. Those skilled in the art will appreciate that computer hardware loaded with appropriate software can be used to codify, process and arrange a variety of information formats (such as video and image formats) and translate such content into a form capable of being displayed on a display means, such a computer screen.

Such video and image content information may incorporate image sequences of a kind similar to digital videos, streaming video, flash animations, 3D animations or any moving picture expert group standard. Furthermore, the video format information may also incorporate still images of a kind similar to graphic image file (gif), joint photographic expert group (jpeg) Macintosh picture (pict), tagged image file (tiff) or image pack file formats.

Those skilled in the art should appreciate that the form and scope of the video format content and audio format content may vary according to the requirements of users of the present invention.

According to a yet a further aspect of the present invention there is provided a computerised system for the recordal and assessment of measurement data comprising the steps of:

(i) providing a client with a prompt to enter a dataset at a predetermined time;

(ii) facilitating the entering of said dataset by the client;

(iii) assigning a time identifier and a client identifier to the dataset to create a data object; and

(iv) electronically storing the data object in a memory;

(v) comparing one or more data objects with one or more datasets, data objects, or predetermined values to reveal a number of relationships;

(vi) providing the client with an indication of the relationships; and
(vii) repeating steps i) through vi).

The term "providing the client with a prompt" may incorporate any method of notifying a client including, but not limited to, electronic message (email), short message service (SMS) by a cellular network, by pre-recorded telephone message or any other suitable means of communications.

In preferred embodiments the prompt provided to the client may be in the form of an electronic message (email).

The term "client" may interchangeably and/or concurrently mean an individual or user for whom and by whom a dataset is entered and/or another individual for whom a dataset is entered by said client.

The predetermined time may be a time since a previous dataset was entered. The length of time between datasets may either be determined by the client or be a default time based on, for example, the client's age. If the client is a newborn infant then the predetermined time may be measured in weeks whereas for an adult the predetermined time may be measured in months.

In preferred embodiments the predetermined time may be selected by the client from a range of possible choices.

The dataset may include measurements such as height, weight, body fat, and circumference of various body parts. However it should be appreciated that the dataset may also include any dimension capable of measurement. The dataset may also include indications of temperature, menstrual cycle, bodily functions such as number of bowel movements, number of exercise sessions per day, number of minutes of exercise per session or per day, medications taken or missed, energy intake per day, percentage of energy from fat, and any other indications which may have an impact on values recorded in the dataset.

In preferred embodiments the dataset may include measurements for height, weight, body fat measured using callipers or other devices known in the art, and circumferences of head, neck, shoulder, chest, bust, waist, hips, buttocks, upper thighs, lower thighs, calves, ankles, feet, biceps, forearm, and wrists.

The client may be entering a dataset related to measurement of themselves or a dependent, for example a child, although one of skill in the art will understand that any measurement data may be entered.
In preferred embodiments the client may be entering data relating to a dependent infant or child or to themselves.

Generally, the time identifier may relate to the time of the day or to a date.

In preferred embodiments the time of the day at which measurement takes place may be fixed and the time identifier may consequently relate solely to the date.

Generally, the client identifier may be a unique code, for example, a number, for each set of data relating to an individual, each individual in control of a set of such data, or each individual member of a group controlled by one individual. The client identifier may also identify any number of identities listed against a client.

In a preferred embodiment the client identifier may be a unique identifier for each set of data objects relating to an individual.

Generally, the data object will comprise one or more datasets, one or more time identifiers, one or more client identifiers, and any other information relating to the clients including, but not limited to, IP address information, email address information, payment and/or invoice details, as well as information regarding past trends in the relationship between data objects, datasets, and/or predetermined values.

In preferred embodiments the data object may comprise any and/or all information regarding the data entered by the client, a time identifier, and a client identifier.

Generally, the phrase “electronically storing the data object in a memory” may incorporate any method known in the art for storing data electronically including, but not limited to, random excess memory (RAM), hard-drives, disk-drives, compact discs (CD) and the like.

In preferred embodiments the phrase “electronically storing the data object in a memory” may involve the storage of the data object on the hard-drive of a server or suchlike.

In further preferred embodiments the phrase “electronically storing the data object in a memory” may incorporate storing the data object on the hard drive of a central server which also runs the program for the measurement data recordal and assessment system of the present invention.

 Generally, the step of comparing one or more data objects with one or more datasets, objects, or predetermined values, may include, but is not limited to, the comparison of like elements of the one or more data objects with a dataset of the same client, one or more data objects of the same and/or other clients, or predetermined values.
In preferred embodiments the step of comparing may include comparing the latest and one or more previous data objects of a client with averages calculated with reference to other client's data objects or predetermined values known in the anthropometric arts to reveal a trend in a particular direction.

The term "relationship", may include a trend in any number of dimensions with respect to the dataset or data objects.

In preferred embodiments the predetermined values may relate to averages for a population with outliers indicating deviation possibly requiring attention or intervention.

Generally, the relationship between the one or more data objects and the one or more datasets, objects, or predetermined values may be within or outside the set of "normal" relationships.

Generally, the term "normal" in reference to relationships may include those relationships for which there is no, marginal, or a slight chance of said relationship being likely to affect the health of the client.

Generally, the step of "providing the client with an indication of the relationship" may involve providing an indication of a percentile for said client's position within the population, information regarding the likely consequences of being outside any "normal" relationships, and recommendations as to the seeking of professional assistance and/or steps that may be taken to redress any relationship imbalance.

In preferred embodiments the indication of the relationship provided to the client may be in the form of an electronic message (email) setting out any relationships which are outside the bounds of what might be considered "normal" along with advice to seek further professional assistance and/or steps which may be taken to redress any relationship imbalance.

In preferred embodiments, the step of providing the client with an indication of the relationship may be assisted by the use of a table of data combinations covering all possible values which may be encountered, by the provision of visual digital images which change shape in keeping with the graphical changes of interest to the client, thus enhancing the client's ability to understand the information contained within each graph, by relating it to visual representations more akin to their daily life and experience.

In a second aspect the present invention provides for measurement information captured and stored using the method according to the first aspect of the present invention to be accessed
by a third party for the purposes of assessing whether certain goods or services may be suitable for a certain client.

Accordingly, embodiments of the present invention may demonstrate advantages over the prior art such as: lowering costs for maintaining measurement records, improving access to measurement records, improving the interpretation of measurement records, and encouraging a proactive attitude to regular measurement thereby increasing client awareness of the relationship between measurement data and health.

Other advantages will become apparent upon review of the drawings and preferred embodiments discussed below.

10 BRIEF DESCRIPTION OF DRAWINGS

Further aspects of the present invention will become apparent from the following description which is given by way of example only and with reference to the accompanying drawing in which:

Figure 1: is a schematic flow diagram showing the steps involved in estimating future height in accordance with a preferred embodiment of the present invention,

Figure 2: is a schematic flow diagram showing the steps involved in calculating the specific length of time that the user must maintain a constant weight in accordance with a preferred embodiment of the present invention,

Figure 3: is a stature and weight versus age graph used for calculating a specific length of time that a user must maintain a constant weight,

Figure 4: is a sample body mass index graph used for calculating the specific length of time that the user must maintain a constant weight,

Figure 5: is a graphical representation showing the specific length of time that the user must maintain a constant weight in accordance with a preferred embodiment of the present invention,

Figure 6: shows a table of combinations of height and weight;

Figure 7: shows a visual representation of length for babies and toddlers, using the stretchy person concept.
**BEST MODES FOR CARRYING OUT THE INVENTION**

The present invention provides a method of processing data which has been generated or sourced from measurable human characteristics.

Such data may be processed using a computer system loaded with appropriate computer software. The data may preferably be input to the computing system by a user via standard known computing peripheral devices, such as a keyboard and/or a mouse. In further embodiments, the data may be input to the computing system via medical sensing instruments or other external devices which have been connected to the computing system using standard connectivity means, such as the universal serial bus (USB) standard.

With reference to figures 1 – 5, an exemplary application of the present invention as it has been used for processing data and subsequently calculating from the processed data the specific length of time that a user must maintain a constant weight in order to have a "normal" weight will now be described.

For the purposes of this specification a user may be defined as any person interacting with a computing system having software adapted to perform the method of the present invention. Accordingly, a user may be a physician, the patient of a physician or any other person whose physical characteristics are measured and then subsequently applied as input to the method of the present invention.
In the context of the exemplary example to be described the characteristics of a user that are measured and subsequently provided as input to a computing system adapted to perform the method of the present invention include height, weight, age and sex.

However, those skilled in the art should appreciate that a variety of other user characteristics may also be measured and that reference to height, weight, age and sex only should not be seen as limiting. In particular, it should be understood that reference to these specific characteristics throughout this specification should only be seen as a requirement for calculating the specific length of time that a user must maintain a constant weight in order to have a "normal" weight. Accordingly, and by way of example only, it should be appreciated that in alternative embodiments a user's body temperature, pulse rate, cholesterol and/or blood pressure and/or other health parameter may be of interest and may be supplied as input as required or as desired.

Figure 1 shows a schematic flow diagram 1 showing the steps involved in estimating future height of a user in accordance with a preferred embodiment of the present invention.

The first step (shown as box 2) requires the entry of the data in a first format to an input device associated with a computing system adapted to perform the method of the present invention. Such a first format may involve the data being in a raw or unprocessed state.

Accordingly, data derived from measurable characteristics of a user (or a dependent of the user such as a user's child) are received via the input device. The data values input include date of birth, gender and height of the subject user. Such data may be input in electronic format via prompts embedded within a web browser.

Once the electronic data has been received an identifier is associated with the received data. Such an identifier is adapted to uniquely identify the data and a variety of parameters associated with the data, including the specific time at which the data was received.

The entered data and the identifier are subsequently transmitted in a first or unprocessed format to a first storage means. This step is shown in Figure 1 as box 3. Such a storage means may be formed from or incorporate a database which provides an indexing and access facility enabling efficient retrieval of the electronic data from the first storage means once it has been transmitted and subsequently stored therein.

It is known that the height of most children follow a percentile line along an appropriate height percentile chart, such as that shown in Figure 3. Initially, a child's height and age at a known date is retrieved from the database. This step is shown as box 4 in Figure 1.
Using this height measurement the percentile in which the child’s height lies is calculated from the stature (height) versus age percentiles chart (shown in Figure 3) according to the following calculation (shown as box 5 in Figure 1):

First the Z-order is calculated using the formula

\[
\text{If } L \neq 0 \text{ Then } Z = ((X/M)^L) - 1 / LS \text{ and if } L = 0 \\
\text{Then } Z = \ln(X/M) / S
\]

wherein \( L \) = power in the Box-Cox transformation, \( M \) = median, \( S \) = generalized coefficient of variation and \( X \) = Physical measurement (e.g. weight, length, head circumference, calculated BMI value)

Once the Z-order is calculated, the actual percentile can be calculated by using the formula (shown as box 6 in Figure 1):

\[
\text{Percentile} = \text{NORMSDIST}(Z) \times 100
\]

wherein \( \text{NORMSDIST} \) = Normal Distribution

For example, if a child: is six years old, male and has a height of 1.19 metres then the \( L \) value is 1.137443, the \( M \) value is 115.6609 and the \( S \) value is 0.043815

The LMS values can be obtained from the source of the data used to construct the original growth chart such that \( Z = ((X/M)^L) - 1 / LS \) and the Z-order = 0.774376445 which results in the 78th percentile being derived.

Once this percentile value has been determined the future height of the subject child in subsequent years may be determined by the following calculation (shown as box 7 in Figure 1):

\[
\text{If } L \neq 0 \text{ Then } X = M(1 + LSZ)^{(1/L)} \text{ and if } L = 0 \\
\text{Then } X = M \exp(SZ)
\]

In the example given above, one year later when the subject child above is aged 7 years old, then the \( L \) value is 0.786246, the \( M \) value is 121.5072 and the \( S \) value is 0.04435 such that \( X = M(1 + LSZ)^{(1/L)} \). The resultant height (\( X \)) of that child will be 1.26 metres (this step is shown as box 8 in Figure 1).
Similarly, a number of future heights for subsequent ages of the child at specific dates may be determined by substituting the various ages into this formula (this step shown as box 7 in Figure 1).

Using these calculated heights at specific ages or dates in the future, the BMI formula (that is, \( \text{BMI} = \frac{\text{weight in kg}}{\text{height in metres}^2} \)) is then used to back calculate the weight for a child of the predicted heights at set ages, where the BMI is also a known variable. In particular, the known BMI value will equate to a predetermined threshold BMI value such as the 85th, 95th or other nominated percentile at that known time in the future.

Figure 4 is a sample body mass index (BMI) graph used for calculating the specific length of time that the user must maintain a constant weight.

Accordingly, and by way of example, the weight at any nominated BMI percentile equals the calculated height at that date in metres squared multiplied by the BMI percentile for the age of the child in question at that given future date.

This calculation is repeated using nominated ages (such as every six months) to give a series of weights for that child at various ages into the future. These weights values calculated represent, assuming normal growth along their own percentile as previously identified, the nominated percentile of interest weights.

These may be presented to a user of the program in graphical format as a weight versus age graph via display means. Such a weight versus age graph is shown in Figure 5.

This same calculation is also done using the known 95th percentile BMI tables to give a weight line for that child for the 95th percentile. The area above each line may preferably be emphasised by using a colour coding scheme. This gives personalised visual feedback to the user about their child’s or another user’s “critical weights”.

It should be appreciated that the above method uses the raw data input in a first format, associates this data with known BMI data and percentiles values and then translates this raw data into a second format capable of being visually and graphically represented so as to enable easy understanding.

In alternative embodiments, the 85th percentile BMI threshold may not be optimal. In such instances users will be encouraged to have at least one health examination during which the health professional can examine the child and nominate a “preferred weight” for that child, at that date.
In such a scenario the above processing method may be modified as necessary to interpret the "preferred weight" using the same principles as above, such as by performing the calculations directly on BMI for age percentile data obtained.

The nominated preferred weight may then be calculated as a BMI percentile. Using this data, the preferred weight at future ages can also be calculated by using the above methods. Such preferred weight data may be displayed on a display means as a "preferred weight" line, such as on a user's weight for age chart.

Figure 2 is a schematic flow diagram showing the steps involved in calculating the specific length of time that the user must maintain a constant weight in accordance with a preferred embodiment of the present invention.

Once the estimated or known height values for a child (or user) have been calculated these heights are provided as input (shown as box 10 of Figure 2) to predict the weight of the child at specific time periods in the future.

Furthermore, these predicted future height values and the current weight (shown as box 12 of Figure 2) of the user are then used to determine a specific length of time that the user must maintain a constant weight having regard to their current age (shown as box 11 of Figure 2).

In particular, a user's actual measured height may be measured at regular intervals (such as yearly) so that the user's actual height percentile can be recalculated. Once this new value is obtained, the above calculations will generate the child's new and up to date weights that correspond to their BMI percentile of interest (shown as box 13 in Figure 2). Such processed data may be transmitted to and stored in a location in a database for later access and retrieval.

From this data calculation it may be determined from the graph (such as that shown in Figure 5) the length of time a user must hold their weight steady as they grow taller so that they reach a preferred weight.

For example, if a child weighs 55kg and this is above the 85th percentile BMI calculated weight for the user's age and height then the information required the exact age (and date) at which the weight of 55kg is at the 85th percentile on the BMI chart (Figure 4).

A key important aspect is that there is no weight loss, nor assumption of weight loss, it is purely a feedback on how long the user needs to hold steady at this weight so that the weight is effectively grown into.
To achieve this, the method of the present invention calculates the individual height growth and weight of 55kg merge to give a BMI of exactly the 85th percentile for some future age.

If the user is now seven years old then that user’s height may be estimated at future six monthly intervals using the method described above. Using the BMI chart shown as Figure 4 the 85th percentile BMI weight for this child at six monthly intervals may be calculated.

Accordingly, when the child is aged seven years and six months and has an estimated height of 1.3 metres the 85th percentile weight at that height (from the BMI chart) is 50kg.

Similarly, when the child is aged eight years and has an estimated height of 1.35 metres the 85th percentile weight at that height (from the BMI chart) is 53kg and when the child is aged eight years and six months and has an estimated height of 1.40 metres the 85th percentile weight at that height (from the BMI chart) is 57kg.

Accordingly, it can be determined from the data calculated that the child’s weight at 55kg corresponds to the 85th percentile for his height somewhere between the age of eight years and eight years and six months because it is between these two ages that his weight at the 85th percentile rises from 53 to 57kg.

The rise in weight between each subsequent six month period (in this case between eight and eight years and six months) as it runs from 53 to 57kg may be represented as a straight line with a given slope. Further calculation of exactly where on that slope (that is, at what precise day in that six month period) the child’s weight will equal 55kg will identify the exact date (and therefore age, and length time in the future) that the child needs to hold his weight steady to so that the child is no longer above the 85th percentile.

The estimated time to return to the predetermined threshold BMI value is shown in Figure 2 as box 14.

An associated management system resident on a computer server running software adapted to execute the above method may therefore interpret the above information and display it in a second, preferably graphical format, on a display means.

A similar principle may be applied to a “preferred weight” or BMI value threshold supplied by a physician.

It should therefore be appreciated that the subject user never actually loses weight to get to a preferred weight. Using the same theory as for the estimated height, the above method may
be further adapted to calculate the percentile of this “ideal weight” as chosen by the physician, and project that weight into the future on a BMI percentile chart.

The outcome of the above calculations is shown graphically on the weight for age chart for that child, and also given in written or graphical format as the time (age, and date) required to reach a desired weight.

Accordingly, the above method enables users to get personalised feedback on their own BMI percentile expressed as a weight. Further, it automatically calculates the time that a user, such as a child, must hold their weight steady in order for that weight to fall within a predetermined threshold BMI value (such as the 85th percentile).

In the event that a users weight does increase the method may enable automatic recalculation using the new weight in such a manner that users are always presented with a relevant goal.

Such feedback, which is expressed in graphical format via a display means, showing a time frame in which a user/child should hold their weight constant allows eating and activity levels to be controlled in manner most appropriate for achieving the prescribed goal.

Moreover, the ability of the present invention to be provided as a website enabling users to interact with it on a daily basis and from the convenience of their own home, using home scales, is particularly advantageous.

Further, by using a calculated future height, weighing can be performed regularly and BMI accurately calculated, without having to measure height as well whenever feedback is sought.

The following description will now describe alternative examples of how the method of the present invention may be used to receive and then process data in a first format relating to measurable human characteristics to provide users with such data in a second format.

When a client first subscribes they are directed to a key data page in which they can select the individual body measurements they wish to keep track of. This includes, height or length, weight, body fat measures using calipers or other devices.

Various circumferences such as: head, neck, shoulder, chest, bust, waist, hips, buttocks, upper thighs, lower thighs, calves, ankles, biceps, forearms, wrists, other measurements such as foot size, length of limbs, trunk or parts thereof.

The ability to take the following measurements is given with particular regard to the ability of the client to then map these measurements against others, particularly weight: temperature, menstrual cycle, bodily functions, such as vomiting, number of exercise sessions per day,
number of minutes of exercise per session or per day, medications taken or missed, calories or kilojoules taken in per day, grams of fat or other, eaten per day, plus a choice of other measurements identified by the client.

In Figure 6 each numbered square refers to the unique ID of the interpretation related to that particular combination of height (or length) and weight.

All measurements recorded are able to be compared over time and will be able to be chosen by the user. For example, the may wish to compare weight in the first half of the menstrual cycle with that in the second, or number of minutes of exercise in one month compared with another.

There is also an ability to order these measurements using a chart so that the most relevant criteria to the user come up first in a “diary scanner” which is present in their “diary entry page” and in their “graph pages”.

There is also an option in the “key data page” for clients to record details of how they prefer to take their individual measurements, and, in the case of “weight”, the locations of different scales they may use. This personalised data is then made available to the client in their “diary entry page”. For example, “calf measurements done at 10cm from the floor when standing”. An ability, in the case of weight and height measurements, to identify in the graph page, those measurements taken by each measuring device, is provided so that clients are able to detect inconsistencies due to the devices rather than due to fluctuations in their actual dimensions. They may see this on a single graph as there is provided the ability for different devices to be coded as different colour plots on the graphs.

In the “key data page” clients may select the frequency with which they want to have reminder emails sent, from the program, to them, to remind them to do, and allow them to enter, up to date measurements. The reminder email is styled so as to be printed out so the client can take it with them to another place, if they will not be doing their measurements close to an entry site. The print out will contain that client’s measurements to be taken and their own reminder notes that they generated previously.

The “diary entry page” is the main data entry interface for the client.

It supplies the date and the ability to place a label for the day’s entries, which will be accessible by holding the cursor over any measurement from that date whilst in a graph view. For example, “start of egg diet”; a “diary notes” section where a client can add more details as free text, to enable them to more completely evaluate their measurements over time; a “free text” area with the ability to produce simple tables. The user then can choose to have that table appear on every subsequent diary entry page, with the same text as originally chosen. They
can choose to change the text in the table at any time (e.g. for instance if recording a strengthening program when they want to up the weights being lifted by, say 2kg). The ability to use headings such as “Eating” and “other”, with a cue to show if those spaces have been filled in on any particular day and these facilities allow the subscriber considerable freedom to design and streamline their own site.

To enable easy visual clues, the spaces for the user’s measurements to be entered are arranged in the corresponding place on a drawn mannequin, with left and right clearly marked (selectably a mirror image to the user). The mannequin is male or female, baby, child or adult, depending on choices made in the key data page.

At each measurement entry point around the mannequin, there is an ability to bring up a “mini graph” of a number of measurements for that point, by clicking on a button at that site. In the case of any measurements that have a right and left component (such as thighs, biceps), clicking on one side’s point brings up the results for both sides, to enable an immediate comparison of the sides, and a quick assessment of the direction of change. The actual values of the previous measurements will be displayed along with information regarding how long ago, in comparison to that day that they were taken. This allows a quick assessment of rate of change of that measurement.

There is an ability to insert a number of photos on a diary entry page (suggested as front, side and back) for a certain number of times per year, with the possibility of purchasing space for further photo storage if desired. The aim is to allow the user to have a photographic record to enhance the usefulness of their “diary”. They will also be offered the option of storing a facial photo on a regular basis. An accessory option will be to purchase space for photos taken to show the progression of a pregnancy, which can then be compared with the weight gain as entered, and also with previous pregnancies which may have been recorded on the subscriber’s site.

New diary entries may be in a colour other than black. On leaving the diary entry page, data is automatically saved. There is an ability to return to that page at a later date and alter data, but when this occurs, the changes will not be registered unless the client specifically enters that they want that data saved. This is to help prevent unintended entries occurring on the wrong page and being saved. By having to push the save button, the client will be warned to consider what they are changing once more.

The key to negotiating one’s way around the client diary is the “diary scanner”. This will be positioned to one side of the screen in most views, including the diary entry page and the graph pages. The components of the scanner to be viewed at any one time are initially selected in the
“key data” page. This scanner will show dates of all diary entries, and what types of entry were made on that day. One is able to scroll down to find dates, or type a date in to bring up the nearest dates of entry. If one then clicks on that date, that diary entry page will appear, or in the case of graph pages, key information such as the label for that day, and the text entry will appear. There is an ability to scroll crosswise across the diary scanner entries to read individual measurements taken on that date.

There is also a visual monthly calendar situated prominently on the diary entry and the graphing pages so that the client can quickly indicate periods which they want to see in graphical format. With a yearly format, listing all the months of each year, the user can highlight one, or a number of months, or years, and see the appropriate graph.

Users will have the ability to print out weights, measurements and other details entered into their site.

Similarly, photos are accessible in bulk, for immediate comparison, on a “diary photo page”. Here the user will be able to look at, and compare, photos over time. At each photo they will be able to immediately bring up their weight, label and diary entry for the day of that photo.

In the graph pages the measurement to be graphed will be on the y axis, with time on the x axis. Users can see the values for that measurement graphed alone and overlay various values to enable the user to see where they stand in relation to some known, or preset parameter, for example, with the body mass index values for people of their height (e.g., a BMI of 25 being considered the upper limit of “normal”), or an abdominal girth of 95cm may be overlaid as a line on the graph if that is what the client is aiming to achieve. To enable easier reading of the graphs, as one points to a value, the value on the y axis, and the date on the x axis will be highlighted. The label for that value, and the associated diary entry may also be visible.

An average weight or measurement may be calculated so as to be compared to some time in the past.

The body measurements graph page has a mannequin visible on it which enables the user to quickly choose the measurements they want to see in graph form. These graphs are arranged in terms of “central” “arms”, “legs” and “height” so that different parts of the body are grouped together in the graphing process. For example, by clicking on the “central” option, one will have brought up graphs for all the “central” measurements, such as shoulders, chest, waist etc. The graphs will illustrate the lowest and highest measurements that that client has recorded. These graphs may be printed off individually or as a group. Users may simultaneously view the
photo closest to any selected part of a graph and view graphs over a nominated time frame, such as over the past month, or past 6 months.

The provision of a "height" chart in this part of the program enables teenagers who may still be growing, to choose the adult diary entry format if it is more suitable to their needs. This page includes a facility to overlay appropriate height chart "norms" for that user, and the ability to calculate estimated final height using known formulae.

There is a page devoted to girth (waist) measurement as this value is important in health maintenance. Advice is given on how to work out most appropriate girth and there is an ability to set "girth goals" with individualised encouragement built in to the program. For example, Hello Mary, your girth is 105cm, at this stage, if you plan to lower your girth measurement (i.e. to make your waist smaller), you may be best to aim for a target of (here insert a value say, 5 cm smaller than current value). You can always set another target when you reach this goal. The user may then choose what they wish to do.

A "weight change" page is provided for users who intend either increasing or decreasing their weight. Their choice of weight loss or weight gain which they must indicate, influences the language they subsequently see on their site. For example, they are presented with either a "weight loss calculator" or a "weight gain calculator".

The calculator allows them to choose target weights or body mass indices, the amount of time over which they plan to do it, or alternatively, the amount of weight they plan to change by each time period, and the frequency with which they plan to weigh themselves. They can give this weight plan a label (e.g. my banana and cream weight gain program) and brief details of this plan and their progress will come up in their diary entry page. For example, the "weight change page" is really an extension of the "key data page" but with more fluidity.

By choosing all the values important to them, the client can then see and print out a copy of their nominated weight change program showing the graph of desired weight change. Over time, this can be overlaid on the actual values they are achieving. At any point in time they will be able to see the results of various computer generated calculations about the amount of weight change over selected times, the amount to go and/or the percent change.

Users may access a "weight change" summary page, where all weight change programs documented by the client are summarised along with key data such as name of plan, date started, date stopped, weight change achieved and/or time on plan comments.

In the "key data page", users have the option of nominating an approach tailored to males or females and babies and toddlers or children and teenagers. Depending on their choice their
diary page and graph pages will be configured in a way appropriate to that choice. Much is the same as for the adult pages except that in children and babies emphasis is placed on “growth” as measured by height, weight, head circumference, girth and body mass index.

Standardised growth charts giving the expected “normal” growth patterns of children from birth are freely available. There are charts also available which have been standardised for certain groups. Recently the “norms” for body mass index have been charted and are becoming more frequently referred to.

This invention includes a novel way of visually representing weight, height, body mass index and head circumference charts, which is intended to make the understanding of the information contained therein, more accessible to the person using the charts.

In assessing the normality of weight and height in an individual child, one must take both aspects into account as each influences the interpretation of the other. At present this is left up to the person viewing the chart. A table is provided giving all possible variations on height/weight combinations which may be entered. Each combination has been assigned its own explanation as to what that combination may mean for the child it belongs to. This means that clients get immediate, interpretive feedback on their child’s growth, including suggested options to follow next. The following step for parents is to understand the growth of their child over time, which involves yet another dimension of comparison.

It is intended that this dimension will be similarly dealt with using a table format to expose all possible combinations of growth and to then assign each combination an appropriate interpretation for user’s benefit. This preparation is on-going and initially it is intended that parents will have access to a “patterns of growth page” where different types of growth pattern are visually illustrated by graphs, and the user can then read the interpretation of whichever type they are interested and apply it to their child if they see fit. For example, there are four basic options for users to select when interpreting their child’s weight and height graphs over time, relative to known norms on growth charts.

They are: weight trending up (towards or through the centile lines), weight trending down, height trending up, and height trending down. Multiple graphical illustrations of each will be available and when one is chosen, the interpretation that may be placed on it, comes up to one side.

Rate of growth calculations may be made for all measurements, and ultimately, it is envisaged that rate of growth charts with interpretations will also be provided.
The first visual feature designed to be used is that of a stylised drawing of a person's view as they look down at a set of scales with a round clock face like presentation. Feet are visible on the scales. This illustration sits to one side of the actual weight chart to be interpreted. Different centiles are given different colours. When a weight value is clicked upon on the weight graph, the illustrated scales show the pointer at that particular weight but also show in colour "pie slices" how that weight sits in relation to the "centiles" on the chart.

The user can select the option of "activating" the weight chart so that weight change is highlighted sequentially from beginning to end, with the changes mirrored by weight and centile changes on the scales. Because the values for each centile change with age, one will see the coloured centile pie pieces moving slowly around, at the same time as the weight pointer (or "hand") is also moving.

In Figure 10 the client clicks a plot on the graph and this is represented in real time on the face of the scales. The numbers around the scales are automatically chosen to represent the values in question. The arrow represents the values in question. The arrow representing the weight can move to reflect changes initiated by clicking on the chart, as can the 'pie slices' of colour which may represent either centiles, or body mass index bands.

Likewise, a user can activate a plot movement on the weight chart up through all the centiles at one particular age, and see the visual representation of this on the colour scales. In this case, the centile "pie pieces" will stay static but the pointer will swing round and up to illustrate the increasing weight which the movement of the plot is implying. At the same time, the actual weight of the child in question, can be illustrated by a single pointer of a different colour remaining static on the "clock face" of the scale. This will be accompanied by an explanation of how this illustrates the concept of a child's weight in relation to others of the same age. The babies and toddlers visual explanation uses a scale with the clock face and the "holding bowl" with a baby in it but works by exactly the same principle as above.

In Figure 8 the arrows on the centile chart represent the paths for dynamic representation of the chart through the visual scales with baby. When a path is activated with a click the changes will be seen in real time on the baby scales. These details (child's name, age, weight) alter depending on which plot mark on the centile chart is selected to represent that mark. At the same time the arrow on the face of the scales points to the appropriate weight, and the coloured slices move to represent the centiles. The numbering on the scales reflects the appropriate values for the measurement in question.

A visual device to illustrate the changes possible in the height or length chart has also been devised. This consists of a page in which the classical height chart with centiles is present.
Again, colour is used to identify centile areas. To one side is a stylised illustration of a wall, with a child standing against it facing forwards. The mid section of the body is represented by a "stretchy spring" and to one side of the child the height from the floor at set intervals is marked, with an indicator from the child's head to the appropriate mark, horizontally. On the wall behind are horizontal coloured bands illustrating the position of the various centiles as they are on the standardised charts.

It is a key feature of this system that there is colour coding of the centile bands throughout, and this coding of colour extends to all visual pictorial representations as well. This means, for instance, that once a client understands the concept in one view, they can visually relate that concept to the same colour in another view. To see the picture in action, the client selects the value of interest from the chart, and the child automatically stretches to that height at the same time as the coloured "centile background" changes to reflect the position of that height as it is in the chart.

One can also choose a discrete point in time and activate the plotter on the chart to move vertically up through the centiles at that point. This would be represented on the stylised height drawing as the head of the child stretching up through the static colour background with the feet remaining on the ground (i.e. the child is getting taller). In this view the actual height of the child concerned can be superimposed on the stylised drawing represented by a different coloured head and shoulders to the "moving" child. This view is used to explain to the client how, visually, that child stands in relation to all children of exactly his or her age, and is devised to make clearer, the concept of what the growth charts tell us about where a child is compared with others.

In Figure 9 in the case of an adult, the height will remain static. Change in BMI can be illustrated by change in size and colour of person, or by using BMI centile 'pie slices' on the scales instead of weight 'pie slices' (numbers on scale could still be weight). Extra layers of clothing add or subtract from a person as their height weight combination moves them into a different BMI range. All 3 charts alter plots in unison to show what is happening. E.g. the height may remain static and the weight may increase. As the weight increases, BMI centile will be crossed and size and colour outline of the person will change to reflect change in the BMI chart.

In Figure 11 the client can click on a line (or similar) to activate an illustration of the heights of others the same age compared with the index case. The stretchy person at right moves in unison with the arrow and the index case height is marked. If this course is activated the stretchy person will be seen to move and grow at the same rate. The coloured bands on the wall behind will drift up to represent the change in the percentile concurrently. There will be
annotations to explain e.g. that only about 3 in 100 children the same age as the index cases are as tall as the top stretchy person. The index case height gives a visual indication of the child's height compared to other children of the same age.

The baby and toddler's stylised length illustration is the same in concept but utilises the picture of a small child viewed side on lying on a length board. This child has his or her head steady at one end, a 'stretchy spring' middle, and feet at the end which moves away from the head horizontally to illustrate growth in length. The actual length is illustrated numerically underneath the baby in a tape measure format, as is the position of that length on the centile chart, again using colour coding to link the information back to the original length percentile.

In Figure 7 the foot board moves as stretchy child changes length depending on representation of chart selected by client. The tape measure shows the actual length as per centile chart. The board colours represent the centile bands for corresponding length percentile chart. These can move to dynamically represent the child's growth along or through the centiles over time. It shows the length percentile chart (as per height percentile chart).

To illustrate the concept of the growth in the head circumference of a baby or child, it is intended to supply the classical head circumference chart, with the data from the child entered on it. Along side it will be a stylised illustration of an unrolled tape measure, with coloured segments corresponding to the centiles on the chart. At the appropriate places above the tape will be 'top down' views of heads ranging from smaller to larger as appropriate. When a plot is selected from the chart (e.g. for the child's current head circumference) that point will show up on the stylised tape measure as a marker line across that point. If one selects a cross section representation of the graph, a further marker point will appear to the left of the tape and track horizontally across to the right, highlighting visually the increasing head size that this indicates.

A further option, to illustrate the growth of that child's head over time, will be available, in which the plots on the chart are highlighted from left to right at the same time as the marker, and the numbers below the tape, and the colours on the tape, change to show that change in a more visually understandable format.

In Figure 12 the plot is to activate a visual representation at right so that it changes in synch with the chart plots to represent growth in H.C. of the index case i.e. the red marker would move right as would the colour bands representing the centiles.

A body mass index page will also be available. This page will supply in chart form, the body mass index of the client, its changes over time (either up, down or static, or some combination of these) and an optional overlay of body mass index reference charts for age (which are freely
A table has been devised by this author to identify each of the various changes in body mass index which may occur, over time, in an individual, and to then supply an appropriate interpretation of these changes, to the client. This is based on identification, by the program, of individual values, and on the recognition of values that are cutting across or through, body mass index centiles.

In Figure 13 the snapshot of height at a single point in time illustrating the red line through the centile chart. A snapshot of weight at a single point in time illustrating the red line through the weight centile chart.

To help illustrate the concept of the body mass index a visual representation will be available on the page, showing, for those still growing in height, a stylised person on a set of scales with height markings visible vertically up one side of the picture, and weight illustrated through a clock face scale. When a point is selected on the body mass index chart, this point is illustrated through the height and weight of the stylised person in the picture. The person is the colour represented by the colour of their body mass index chosen by the author to retain a coherence throughout the program. Plots on the body mass index chart can be chosen to illustrate change in the body mass index for that person. This change is reflected visually in the picture by the stylised person shrinking in and out in size and up or down in height, to illustrate the change. If the centile of the body mass index changes in this time, the colour outline of the person changes to represent this.

For those who have reached their final adult height, body mass index will be visually represented using the same method as used to visually represent weight gain using the icon of the scales and a pair of feet as viewed from above, with the body mass index parameters identified in colour slices on the face of the scale dial, underlying the actual numerical scale markings normally present.

A body mass index generator which prints out the results of body mass index calculations for an individual will be available, including an accompanying explanation regarding what those results mean for that individual. This is to be graphically illustrated using the technique, outlined above, for understanding body mass index in adults.

A sub-program has been designed as a part of this invention, and called the "Steady as (s)he grows" program for children whose weight is greater than optimal for their height. It's primary feature is a visual representation, using growth charts and the pictorial representations of those centile charts as previously outlined, juxtapositioned on the page, to lead subscribers step by step through the process that happens when a growing child gains too much weight and how, rather than "losing weight" they need to "grow into" their height. (thus, the weight chart shows
a rise in the weight over time cutting up through the centiles, and as this is occurring, the client also sees the child's weight going up on the scales, through the colours, with the height staying at the appropriate centile, etc). This method of illustrating growth change is a novel concept of this invention. If this program is nominated for the child subscribed for, then the program automatically calculates out the amount of time they need to stay at their current weight to "grow into" their height. This feature is special also in that even if the child's weight increases whilst trying to hold it steady, the program continues, with a new value calculated automatically from that new weight.

There will also be available an ability to calculate estimated final adult height using known calculations.

There is a requirement for ease of access to more than one diary at a time for those adults who are monitoring the growth of themselves and/or their child/ren. To facilitate this system of entry has been designed whereby each client (i.e. each individual subscribed for) is given a unique identification number for the purpose of the program. This number is revealed to the client when they enter the key data page.

The first point of entry for any client is into a "cloakroom page" via a password and their ID number. If only one client is attached to this cloakroom, they are lead directly to their individual home page. On the "cloakroom page" is listed all the client's other home pages that have been subscribed to by that client and for which that client remains in control. In the case of a parent, the page will list them, and/or the names of the child/ren who are subscribing. This means a parent can readily jump from one child's entry page to another without having to repeatedly enter passwords and ID numbers.

Special features of this "cloakroom page" include the ability to access the "access change page", to change access or other details for a number of people at one time; the ability to bring subscriptions for a group of people into line so that all subs are paid at the same time (e.g. for a family for whom a new baby was added 6 months into the last sub). The program will calculate the amount required for the updated sub, to account for the money already paid for subs which have not yet expired; The ability to compare different members whose data has been stored via one 'cloakroom' will also be available, that means, for instance, that a parent can compare photos of all their children at the same ages, or look at their growth at the same ages, via a graphical program which plots the growth of all selected persons on the same chart. The recognition of familial patterns of growth by being able to access such a novel function is potentially of great use to families.
This system can easily be utilised by, for instance, medical professionals, who have been given permission by a patient to access data from that patient's personal site. The doctor will be able to apply for their own unique ID and password, and then store, on their home page, the names of all those patients who have given their permission. There will be an ability in the home page for the user to define how names are stored, e.g. alphabetically by last name, or assigning (for their own use only) their own code for that patient. By scrolling down for the appropriate patient, they can then quickly access the information that the patient has stored therein.

There is a "choose or change access data" page where clients can alter details to suit themselves, for instance, at the same time as they nominate a person such as a doctor for entry to their site, they can also nominate the functions and pages of that site that they will allow that person to see, and also whether they will allow that person to add data to the diary entry page or not. This means, for instance, that the client can choose for the doctor to not see photos/diary entries etc if they so choose.

If two adults want access to a child/ren's site then the primary client (i.e. the one who initially paid for and set up the subscription) must nominate access for the 2nd adult via their 'access change page'. This type of change is achieved by the client completing a form to the site, nominating a person, of a given email address, access to the sites (and selected sub-sites) of the subscribers whom they nominate by name and unique ID. This nominated person is then emailed a site generated unique ID, and instructions on how to enter and set up their own home page.

The client generating the change, chooses and records in the "access change" page a "password" which they are responsible for giving confidentially to the person they have nominated. With both the password and the new ID the new client can now enter their own home page, and change the password to one suitable to them. The original subscriber retains paramount rights to dictate use of the site, and thus has the ability to block rights previously ascribed to others, unless they nominate, via their 'access change page' to hand over subscription rights to another party, at which stage that person has paramount rights of decision making regarding access for the nominated sites.

In the diary entry page of any client who has more than one person able to change data, the ID of the person who inserted any given set of data will be identified.

This system of registration and access alteration allows parents, in particular, to arrange set ups where-by both can access data on their children independently, and subscription usage and upkeep can be handed from one parent to another, without either parent having to lose access to their own personal site. They can also add more children to their site when it suits. It
is possible for 2 parents to maintain completely independent sites on the same child, using different ID numbers generated by 2 independent subscriptions being activated by those parents.

When a new client is nominated (by the original client), to have access to pages controlled by the original client the notification to the nominated client will contain explanatory details so that the new client can identify who is giving them access. This is particularly important if the client is nominating their doctor, for instance. The notification will also detail the areas to which the new client has been granted access, and an explanation of the process to follow to connect up. This information will be in a format suitable to print out and keep, for example, in the patient's file.

Further, upon entering the "new" home page generated for them the new client (in this example, the doctor), can immediately arrange for that person's details to be transferred to an already established home site in the program that this invention relates to, that the client may have already established. In this case the entry point home site becomes a temporary entry page only, which is erased when the information in it is transferred elsewhere. When a client changes doctors, it is a simple matter to cease access for the first doctor and activate it for the second. In this respect, it will be made clear to third parties (such as the doctor) that the information on the site remains the property of the client, and that they must either print out, transfer to their file or record raw data in their notes, to ensure that they retain the information they require long term.

A further feature of the invention is the ability for a third party to provide a 'gift subscription' with notification sent to the recipient, in the form of a printable card. At the time that renewal of the sub is due, the reminder will initially be sent to the original subscriber. If there is no reply, or if the subscriber nominates, after a set time, the reminder will be sent to the original recipient themselves to give them the opportunity to continue to subscribe.

There is to be incorporated into the invention the ability for the subscriber to perform multiple completion of key data page tasks for their nominated others, by completing them only for one. They will then see, when they enter each nominated other's key data page, individually, that most of the requested information (e.g. about units of measurement) have already been pre-selected. This saves the client the time of duplicating basic "family" details.

Free print outs will be provided for all visitors to the site possibly including: graph paper in selected formats, visitor determined charts with or without detail such as BMI markings for height, intended weight change trajectory, against which can be manually plotted actual weight change, a body measurements manual entry page, with instructions on how to take each
measurement, and places to record each result arrayed around an illustrative mannequin, or, if preferred, in list format, an ability to calculate estimated final adult height using known calculations, a body mass index generator which prints out the results and an accompanying explanation on what they mean. This is to be graphically illustrated using the technique outlined above, with a clock face set of scales drawn, and with various BMIs for that person (as calculated from their height and weight data entered previously) shown in “pie chart” form in colour around the face, with their actual weight illustrated by a “clock face hand” pointing to the appropriate place, overlaid in front of the “pie chart” BMI clock face. An ability to calculate the height of a growing person at a nominated future date. An ability to calculate weight gain or loss, and subsequent absolute weight, by considering nominated, small incremental weight changes over time.

In one embodiment of the present invention a client may select any number of third parties which may have access to some or all of their data for the purposes of assessing whether certain goods or services may be suitable for the client. For example, a person buying clothing, headgear or footwear, on or off-line, for a child or adolescent, may utilise the stored data in pursuit of that aim. In a further example clothing may be purchased based on trends developing.

Further aspects of the present invention will become apparent from the description which is given by way of example only. One of skill in the art will understand that modifications, substitutions, and additions may be made thereto without departing from the scope of the invention as defined in the appended claims.
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS

1. A method of processing electronic data generated by at least one user comprising the steps of:
   (i) receiving electronic data in a first format, said received data including an indication of a user's current height and weight,
   (ii) associating an identifier with the data when in said first format,
   (iii) transmitting the identifier and the electronic data when in said first format to a storage means,
   (iv) manipulating the data in the first format to indicate a user's predicted height at a specific time in the future and predicting the user's weight at said specific time in the future,
   (v) calculating a specific length of time for a user to maintain a constant weight, and
   (vi) displaying the specific length of time on a display means.

2. A method of processing electronic data as claimed in claim 1, wherein the received data includes an indication of a user's current age and/or gender.

3. A method of processing electronic data as claimed in claim 2, wherein the constant weight to be maintained falls within a predetermined threshold at a specific time in the future.
4. A method of processing electronic data as claimed in claim 3, wherein the user is provided with an indication of a specific time in the future that the current weight will fall within the predetermined threshold.

5. A method of processing electronic data as claimed in any one of the preceding claims, wherein the electronic data is received at predetermined regular time intervals.

6. A method of processing electronic data as claimed in any one of claims 1 to 4, wherein the electronic data is received at irregular time intervals.

7. A method of processing electronic data as claimed in any one of the preceding claims, wherein the identifier uniquely identifies the specific time period at which the electronic data was received.

8. A method of processing electronic data as claimed in any one of the preceding claims, wherein the identifier uniquely identifies the user.

9. An apparatus for carrying out the method according to any one of the preceding claims comprising

   (i) receiving means adapted to receive electronic data in a first format, said received data including an indication of a user's current height and weight,

   (ii) associating means adapted to associate an identifier with the data when in said first format,

   (iii) transmitting means adapted to transmit the identifier and the electronic data when in said first format to a storage means,
(iv) manipulation means adapted to manipulate the data in the first format to indicate a user's predicted height at a specific time in the future and predicting the user's weight at said specific time in the future, and calculate a specific length of time for a user to maintain a constant weight, and

(v) display means adapted to display the specific length of time.

10. A computer readable medium containing computer executable instructions adapted to carry out the method according to any one of claims 1 to 8.

11. Computer software comprising computer executable instructions adapted to carry out the method according to any one of claims 1 to 8.

12. An electronic device having computer software comprising computer executable instructions adapted to carry out the method according to any one of claims 1 to 8.

13. A method of processing electronic data substantially as herein described with reference to and as illustrated by the accompanying drawings and/or examples.

14. An apparatus for processing electronic data substantially as herein described with reference to and as illustrated by the accompanying drawings and/or examples.
Data entry about person X:
Date of birth, gender, height via web interface, eg browser.

Data stored on Database on server:

Files (eg ASP) on server.

Age, height, gender of person X

Future dates nominated based on current date (eg 6 monthly) calculated

Height percentile of person X

Known height percentile data files, including LMS, and z score data data

Estimated heights for person X at nominated future dates.
Files (eg ASP) on server.

11

Estimated or known height for person X at present and estimated height at nominated future dates (as per flow chart 1)

10

Known current age

Known Body Mass Index percentile files, including LMS and Z score data

Weights of person X at preset BMI values at nominated future dates

13

Weight data for person X

12

Time to return to preset BMI calculated.

14

FIGURE 2
<table>
<thead>
<tr>
<th>Date</th>
<th>Age</th>
<th>Weight</th>
<th>Stature</th>
<th>BMI*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

*To Calculate BMI: Weight (kg) + Stature (cm) + Stature (cm) x 10,000
or Weight (lb) + Stature (in) + Stature (in) x 703
Figure 5

Person X needs to hold weight steady for (e.g.) 13 mths to cross the steady:mis to overweight line.
<table>
<thead>
<tr>
<th>Height</th>
<th>Low (&lt;3rd centile)</th>
<th>Lowish (3-10th centile)</th>
<th>Usual range (10-90th centile)</th>
<th>Tallish (90-97th centile)</th>
<th>Tall (&gt;97th centile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>6</td>
<td>7</td>
<td>8</td>
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