Name:

Centre name:

Creation and manipulation of spreadsheets

Identify

The problem & how I discovered it

I have identified a problem involving weight loss and healthy eating.

I discovered this problem having a conversation with a friend. We were talking as teenage girls do about the latest celebrity diet and how dangerously thin we thought some celebrities we getting. This led on to a discussion on weight loss and how people should go about it. There are loads of different diets that people can go on but there is no quick and easy way for someone to find out if what they are eating is healthy.

The problem is not that people don't know what it good for them it is that they cannot see how much of what foods and what combination is good for them. If there was something easy that they could just input what food they had eaten and it would show them what their calorie intake had been on that particular day and whether that was a suitable amount of calories for their weight/ height ratio.

I think this problem has to be solved in the near future as investigations I have been reading state that the government has noticed a problem in children and obesity. If a quick and easy way is not found for people (children/ teenagers especially) to check their calorie intake then the problem will continue to make many people ill every year.

Solving the problem

I have thought about how to solve this problem and the only way to do so is to create a system or program that can be used by people so they can see if what they are eating is a good diet in relation to their weight.

The users for the system would be very varied. I could be anyone from a young child that is having problems with obesity or it could be an old person wanting to make their diet healthier and not to be taking in too many calories.

The system I would like to create should have three main functions; I think these functions are most needed in the system.

1. The system should be able to calculate the Body Mass Index i.e. the weight to height ratio and if this means they are normal, underweight, overweight or obese.
2. The system should allow you to either input the food in or choose the food form a list and its quantity and it should tell the calorie intake for that particular piece of food you are eating.
3. It should able to tell you at the end of a day or meal what the total calorie intake is and how much you have gone over the recommended calorie intake for your BIM (body index mass) or if you are not eating enough to support your BIM.
4. The system should calculate by your BIM and a range that I will input whether you are underweight, overweight or a good weight. This will all be done in comparison to your weight and height that you input.
5. Charts to compare you're food and calorie intake compared to the ideal calorie intake for your BIM.

I intend to solve my problem by creating a spreadsheet. I feel this is the best way to solve the problem on a PC.

Manual solution

I could solve the problem manually in a number of ways;

- I could write down all the food that the person has eaten and then you could find out how many calories that food has in it and form that you could work out using a calculator what you calorie intake was for the day.
- Another way to manage the problem manually would be to write down everything you have eaten and devise a points system. The more calories the item of food had, the more points you would have to add on. You could give your self a total amount of points you would be allowed each day and try to work out what you were eating by that.

These ideas could be done but they would only cause more hassle and would not be quick and easy like I hoped for them to be. They would both take up a lot of time when you were searching for the calories in each item of food each time you eat it. This time consuming method would discourage people to use the system as they would find it a lot easier to just eat what they wanted and forget about it.

PC solution

I have thought about solving the problem using a computer and have decided this was the best option. I then have to decide which program would be best for solving the problem.
I have looked into using a number of programs and have decided the best one to solve my problem would be a spread sheet package. This would offer all I need to create my system.

Comparison

There are different programs that I could use to solve this particular program.

Microsoft Excel –

This program is primarily used for creating spreadsheets. This is a good program for me to use as I have decided to solve my problem using a spreadsheet. When spending time research which program would be the best for my particular project I found out some of the functions of Microsoft excel and realised that they would help me to solve my problem. I will need the spreadsheet to show me what the body index mass would be for a certain person once they have entered their height and weight. Using simple functions such as adding, dividing and multiplying, can do this. The program should be able to show the user whether they are over, under or the correct weight for their body index mass. This could be done by using a simple IF function. I could also use this function to show the user what they should be eating. The VLOOKUP function would be useful to me when creating my spreadsheet when the user is entering what food they are eating. Charts can be easily made from the data in the spreadsheet to compare you to a person with the ideal weight to you're height. Microsoft excel offers all these functions and I know how to use them all. This will make the spreadsheet very easy to use and simple to make.

Microsoft Access –
This program is primarily used to create databases. Creating a database will not help to solve my problem. Access can be used to sort and produce data in different reports and queries. I do not need to use these features when solving my problem. I need to use maths functions to solve my problem such as adding, subtracting, dividing, multiplying, averaging etc. Microsoft Access does not offer these functions. I have chosen not to use this program, as it does not offer everything I would need to create a fully functional spreadsheet to solve the problem I have identified.

Hardware

Now I have decided to use Microsoft excel I will need to have a computer that I will be able to use throughout my project and to use for research and everything else that I may need to produce a good spreadsheet that will solve my problem.

To run this program on my computer I will need:
- A standard PC
- Windows XP' and office XP'
- A modem so that I can connect to the Internet, for research.
- Usual peripherals such as colour monitor, keyboard and mouse and a colour printer.

Objectives

My main aim when creating this spreadsheet is to come out with a clear and working spreadsheet that does the following:
- Tell the user whether they are underweight, normal, overweight or obese.
- Tell the user how many calories they should be eating per day.
- When the user enters the food they have eaten, the amount of calories in the food is given.
- The total amount of calories in a day is given.
- How many calories the user has used depending on the amount of exercises.
- A chart showing their progress over a week, month and year.

Analyse

The problem that I have identified concerned weight loss and calorie counting. My aim is to create a system that allows the user to put in their personal details and what food they eat and the system will come out with whether they are eating what they should be eating for their personal information. The user should be able to input the foods that they have eaten and then find, from a list, how many calories is in that food. It should tell you how many calories you have eaten in a day and in a week

Software and hardware
The software I have chosen to use Microsoft Excel. I have this program on all my computers, it will be easy for me to create the program and modify it when necessary. Most of my users should have this, as it is a basic program in Microsoft Office. Therefore the user will not have to go out, purchase a new program, load it onto their computer and learn how to use it. This is a big advantage to the user.
The hardware I will need to use with includes a PC with a normal RAM and hard drive. The user will also only need a PC with a normal sized RAM, depending on how much of their memory is being used. My system will not contain such big calculations that the user will have to upgrade their computer. To use my system, the user will need normal peripherals such as keyboard, monitor, and mouse. I will not need speakers, scanner or microphone, as these are unnecessary.

Data Requirements, Collection and Input.
For the system to function I will need the following data:
- Personal information of the user: weight, height, gender,
- Food details: list of foods and how many calories in each serving of food.
- Exercise details: list of exercise and how many calories each bit of exercise burns.
- Calorie information: how many calories should be eaten by certain people i.e. male/female, obese/ underweight/ normal, tall/ short.

Data	Data Source	Research needed to find data
Personal information	The user	None- will be input when the user uses the system.
Food details	A diet list	Internet, diet books, leaflets from weight watchers etc.
Exercise details	An exercise list	Internet, gym, books on fitness
Calorie information	A table of calories depending on BIM (body index mass)	Internet, gym, weigh watchers etc.

Software Tools
Original objectives:
- Tell the user whether they are underweight, normal, overweight or obese.
- Tell the user how many calories they should be eating per day.

- When the user enters the food they have eaten, the amount of calories in the food is given.
- The total amount of calories in a day is given.
- How many calories the user has used depending on the amount of exercises.
- A chart showing their progress over a week, month and year.

Objective	Feature used	What function will do
• Tell the user whether they are underweight, normal, overweight or obese.	If statement	If BIM is high: obese Low: underweight Normal: normal
Tell the user how many calories they should be eating per day	If statement	If Obese: 2000-2500 Underweight: 2500-3000 Normal: 2000-2500
• When the user enters the food they have eaten, the amount of calories in the food is given.	Vlookup	Look up when food is entered, how many calories have been taken in.
• The total amount of calories in a day is given.	Sum	Adds up total calories from each meal
• How many calories the user has used depending on the amount of exercises.	Vlookup	Looks up when exercise is entered, how many calories are burnt.
• A chart showing their progress over a week, month and year.	Graph	A line graph showing how much weight the user has lost in a week, month, year.

I will need to validate some of the cells that will be used to input data by the user.

Cell	Validation
Age	Number
Height	Number
weight	Number
Hours	Time
Weight lost	number

Calorie Calculator

A service of <u>Stevens Creek Software</u>

**Visit our site for more information about
<u>The Athlete's Diary</u> software and <u>The Athlete's Bookstore.</u>**

- Your weight: [＿＿＿＿] | Pounds ▼ |
- Age: [＿＿＿＿]
- Sex: Male ⌀ Female ⌀
- Estimate the number of hours each day you spend doing the following activities, *excluding* athletic activity which is covered below:
    - ○ [＿＿＿＿] Sleeping
    - ○ [＿＿＿＿] Sitting, reading, watching TV, eating, etc.
    - ○ [＿＿＿＿] Light work (typing, walking around, cooking, etc.)
    - ○ [＿＿＿＿] Moderate work (carpentry, mopping floors, mowing grass)
    - ○ [＿＿＿＿] Vigorous work (shoveling snow, digging, roofing, etc.)

Now enter your activity below. If you do not enter any activity, the calculator will simply calculate your resting metabolic rate.

- Select a standard distance: | None ▼ |
  - or -
- Enter your total activity for the | Day ▼ |
    Please use the units of "Hours" for the sport "Other" only; you must use distance units for the named sports.

This page helped to create the exercise page & the personal information page.

RESEARCH

Data flow diagram

```
┌──────────────┐    ┌──────────────┐    ┌──────────────┐    ┌──────────┐    ┌──────────────────┐
│ Age          │ →  │ Calculates   │ →  │ IF           │ →  │ If       │ →  │ You should be    │
│ Height       │    │ BIM          │    │ statement    │    │ state    │    │ eating….         │
│ Gender       │    │              │    │              │    │ ment     │    │                  │
└──────────────┘    └──────────────┘    └──────────────┘    └──────────┘    └──────────────────┘
                                                 │
                                                 ↓
                                        ┌──────────────────┐
                                        │ Normal,          │
                                        │ underweight,     │
                                        └──────────────────┘
```

```
┌──────────────┐    ┌──────────────┐    ┌──────────────────┐    ┌──────────────┐
│ Food name    │ →  │ Vlookup      │ →  │ ADD all          │ →  │ ADD all      │
│              │    │ from chart   │    │ calories from    │    │ calories     │
│              │    │              │    │ food in meal     │    │ from all     │
│              │    │              │    │                  │    │ meals        │
└──────────────┘    └──────────────┘    └──────────────────┘    └──────────────┘
                            │                    │                      │
                            ↓                    ↓                      ↓
                    ┌───────────────┐    ┌───────────────┐    ┌───────────────┐
                    │ Calories in   │    │ Total calorie │    │ Total calorie │
                    │ food          │    │ intake for    │    │ intake for    │
                    │               │    │ meal          │    │ day           │
                    └───────────────┘    └───────────────┘    └───────────────┘
```

```
┌──────────────┐    ┌──────────────┐    ┌──────────────┐        ┌───────────────────┐
│ Exercise     │ →  │ Vlookup      │ →  │ MULTIPLY     │   →    │ Total calories    │
│ name         │    │ from chart   │    │ by hours done│        │ burnt             │
│ Hours        │    │              │    │              │        │                   │
│ done         │    │              │    │              │        │                   │
└──────────────┘    └──────────────┘    └──────────────┘        └───────────────────┘
```

```
┌──────────────┐    ┌──────────────┐        ┌───────────────────┐
│ Calories     │ →  │ Calories eaten│   →   │ Total calorie     │
│ eaten        │    │ MINUS calories│       │ intake            │
│ calories     │    │ burnt         │       │                   │
│ burnt        │    │               │       │                   │
└──────────────┘    └──────────────┘        └───────────────────┘
```

```
┌──────────────┐    ┌──────────────┐    ┌──────────────┐    ┌───────────────────┐
│ Current      │ →  │ Original     │ →  │ ADD all      │ →  │ Total weight lost │
│ weight       │    │ weight       │    │ weight loss  │    │ in week           │
│ original     │    │ MINUS current│    │ from each    │    │                   │
│ weight       │    │ weight       │    │ day          │    │                   │
└──────────────┘    └──────────────┘    └──────────────┘    └───────────────────┘
                            │                                         │
                            ↓                                         ↓
                    ┌───────────────┐                       ┌───────────────────┐
                    │ Weight lost   │                       │ Chart showing total│
                    │ in day        │                       │ lost in week       │
                    └───────────────┘                       └───────────────────┘
```

Data Manipulation or Processing
Sheet1: personal information
User enters his/her age, height and gender. A formula will work out the BIM. From the BIM an IF statement tell the user whether they are, underweight, obese or normal.

Sheet2: food
User enters food name. Using Vlookup the cell will come up with the number of calories in the food. When all the food has been entered, all the calories will be shown and a SUM formula will add the total calories in the meal. When all the food ahs been entered for the day, the total calorie intake of the day will be displayed by using a SUM formula.

Sheet3: exercise
User enters the name of the exercise from the given list. The user inputs how long they did that exercise for. By using a Vlookup and multiplying the calories burnt by the hours the user has done the exercise, the system will show the user in total how many calories have been burnt.

Sheet4: progress
Total calories eaten in a day are taken from sheet2 and the total calories eaten in a week are calculated by a SUM formula. The calories burnt in a day are taken from sheet3 and the total calories burnt in a week are calculated by a SUM formula. The total calories intake MINUS the total calories burnt gives the user the total calorie intake for the week.
User enters their current weight. The original weight is taken from sheet1. A Formula MINUSES the current weight from the original weight giving the total weight loss in a week. From this a graph will be made showing the total weight loss in a week.

Security & Backup Strategy
Seeing as this system will contain personal data that the user may not want other people to be able to access, a password can be set on she spreadsheet once the user has personalised it. The system will not contain personal information that will make it necessary to have a password for safety reasons as the user does not even have to enter their name, telephone number or address.
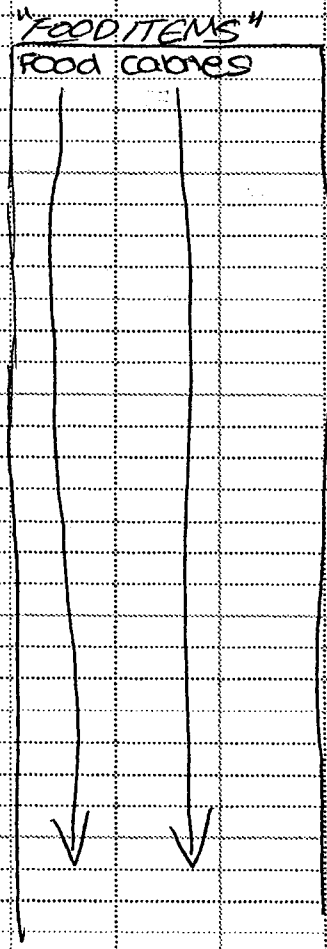For each new user, a new copy will have to be made if the old user wants to keep their own system with their own data. This will mean creating copies of the system before data it put it to save have to delete any data.
As it is a personal system big companies will not use it unless perhaps being used by a gym so security will not have to be as tight. Security in the home amongst family or house mates will not be as secure as in an office between colleagues and people that are going in and out of an office.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1							PERSONAL INFORMATION								
2	AGE														
3	HEIGHT														
4	WEIGHT														
5	BIM	$B5 \times B3^2$													
6	You are.	IF — (B5>=30, "obese", IF(B5>=25, "normal", IF(B5>=20, "under", "brace")))													
7	"cusreid IF —														
8	requarting														
9			(B6 = obese, "3000", IF(B6 = normal, "2500", IF(B6 = under, "3500")))												

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1							FOOD SHEET								

FOOD SHEET

MONDAY

breakfast ———→ lunch ———————→ dinner ———————→

"FOOD ITEMS"

whatfood

calories VLOOKUP(B4, fooditems, 2, true)

Food   calories

serving

total calories per B5*B6.
   serving

TOTAL B8+C8+D8   TOTAL E8+F8+G8   TOTAL H8+I8+J8

TUESDAY

WEDNSDAY

THURSDAY

ETC.

** **
same
for **
** each
day **
** **

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

EXCERCISE SHEET   "BURNING"

	Activity	Calories used

MONDAY
Excercise
HOURS
Calories VLOOKUP(B3, burning, 2, FALSE) * B4

TUESDAY

↓

WEDNSDAY

↓

THURSDAY

↓

FRIDAY

↓

SATURDAY

↓

SUNDAY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1						WEEKS PROGRESS									
2			MON	TUE	WED	THUR	FRI	SAT	SUN						
3	Calories eaten FOOD B9 (taken from some cell in food sheet)														
4	Calories burnt exercise B5 (take from some cell in excercise sheet)														
5	total calories C3 - C4														
6															
7	weight														
8	weight loss personal info B4 - C7														
9	total weight SUM (C8 :18)														
10	loss														
11	in week														
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
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25															
26															
27															
28															
29															
30															
31															
32															
33															

Design

Page1: personal info:

Age   The user will input their age
Height   The user will input their height
Weight   The user will input their weight

BIM body
index mass   Weight/height^2
You   IF statement
are............ =IF(B5>=30,"obese",IF(B5>=25,"normal",IF(B5>=20,"under","under")))
You should
be eating..... IF statement

Page2: food:

What food?   The user will input a food from the food listed

Vlookup function
Calories: =VLOOKUP (B4, fooditems, 2,TRUE)
                    The user will input how much of the food
Serving: they have written.
Total calories per Calories x serving
serving:

TOTAL FOR DAY: Adds up all the total calories for each meal.

This page will have the above cells to fell in for each meal. For each meal the user can enter up to five different food types to make up the meal.
The page has breakfast, lunch, and supper for each day of the week.

Page3: exercise

                The user will enter what exercise they have
Exercise: done from the exercise listed.
                The user will enter how long they have done
Hours done: the exercise for.
                Vlookup
Calories burnt: =VLOOKUP(B3,burning,2,FALSE)*B4

Page4: progress

Calories eaten   Taken from the food table
Calories burnt   Taken from the exercise table
Total calorie intake Calories eaten- calories burnt
Weight   User inputs current weight
                      Start weight (taken from info
Weight lost   table)- weight
Total weight lost in Sum of all Weight loss form
week: each day.

Creating the spreadsheet

Sheet1: personal information
I started creating the sheet by making the appropriate rows.
Weight, height, age, BIM, you are... you should be eating...

Weight, height and age I left because these cells are for the user to input their personal information. I validated these cells so that the use could only input numerical values.

In the BIM cell I input the formula to work out the BIM. Weight/height ^{2}.
In the you are... cell I inserted an IF function.
If BIM = over 30- obese
If BIM = 20-25- normal
If BIM = under 20- underweight

I did this by using the functions tool

```
IF
    Logical_test  [B5>=30                        �]  = FALSE
    Value_if_true  ["obese"                       ▒ox]  = "obese"
    Value_if_false [IF(B5>=25,"normal",IF(B5>=20,"under"▒ox]  = "normal"

                                                         = "normal"
Returns one value if a condition you specify evaluates to TRUE and another value if it
evaluates to FALSE.
        Logical_test is any value or expression that can be evaluated to TRUE or FALSE.

    [?]        Formula result =normal              [    OK    ]   Cancel
```

To create the: you should be eating cell... I created and IF function in the same way.

		Male	Female
IF you are...=	Normal	3000	2000
	Overweight	2500	1500
	Underweight	3500	2500

Sheet2: food
I created the rows: what food?, calories, serving and total calories.
I created these rows seven times, one for each day of the week.
For each day I created columns for breakfast, lunch and supper.

In the: what food cell I left it blank for the user to input the foods that have eaten from the list.
I created the table of foods and named it "fooditems". By doing this I made it easier to create the Vlookup function in the calories cell.

FOOD

Dairy Products	Calories	Fat
Cheddar Cheese (1oz)	115	9.5g
Eggs (each)	75	5g
Yoghurt (low fat)	60	1g
Whipped Cream	50	5.5g

Meat & Fish	Calories	Fat
Roast Chicken (1/4 lb)	170	3g
Bacon (1 rasher)	50	4.5g
Sirloin Steak (1/4 lb)	440	36g
Ham (1/4lb)	330	25g
Haddock (1/4lb)	180	7g
Tinned Tuna (1/4lb)	140	4g

Vegetables	Calories	Fat
Carrots (each)	20	0.1g
Potatoes (1 baked)	90	0.2g
Tomatoes (each)	25	0.2g
Green Peppers	24	0.1g

Fruit	Calories	Fat
Apples (each)	75	0.8g
Bananas (each)	95	0g
Oranges (each)	70	0.3g
Strawberries (10)	35	0.5g

Drinks	Calories	Fat
Beer (1 pint)	200	0g
Whiskey (1 shot)	130	0g
Wine (1 glass)	100	0g
Tea (1 cup)	1	0g

Miscellaneous	Calories	Fat
Mars Bar	230	12g
Bread (white, 1 slice	60	1g
Avocado (each)	380	36g
Butter (1 teaspoon)	35	4g
Olive Oil (1 tbsp)	125	12g
Roasted Peanuts (1 pack)	250	21g

I created the Vlookup using the Vlookup function.

```
VLOOKUP
    Lookup_value  [34             ] 🔣 = "eggs (each)"
     Table_array  [fooditems      ] 🔣 = {"Cheddar Cheese (:
   Col_index_num  [2              ] 🔣 = 2
    Range_lookup  [TRUE           ] 🔣 = TRUE

                                      = 75
Searches for a value in the leftmost column of a table, and then returns a value in the same
row from a column you specify. By default, the table must be sorted in an ascending order.
    Lookup_value is the value to be found in the first column of the table, and can be a
                      value, a reference, or a text string.
  [?]      Formula result =75              [  OK  ]    [ Cancel ]
```

I validated the "Serving" cell so that only a number could be input by the user.
I created a formula in the total calories cell: calories*serving.
These formulas were put into the appropriate cells throughout the spreadsheet.

Sheet3: exercise
I created the rows: exercise, hours done, calories burnt.
The exercise cell I left blank for the user to input their exercise from the list.
I named the list of exercises "burning" to make the Vlookup easier to create.

Activity	Calories used per hour
Sleeping	70
Ironing	250
Golf	300
Gardening	330
Walking	360
Walking Uphill	600
Tennis	600
Football	600
Running (12 min p/mile)	600
Running (8 min p/mile)	900
Running (6 min p/mile)	1200

I validated the hours done cell so that only a numerical value can be input by the user.
I created the Vlookup function in exactly the same way I created the Vlookup function in the previous table.

In the calories burnt cell, the system looks up the amount of calories burnt according to what the user has entered from the list and then, in that cell the calories burnt will be multiplied to the time done so that the end calories burnt wan be found out.

I created these three columns for the seven days of the week.

Sheet4: progress
I created the rows: calories eaten, calories burnt, total calorie intake.
The calories eaten cell is the number taken from the total calories on "sheet2: food".
The calories burnt is the number taken from the total calories burnt on "sheet3: exercise"

The total calorie intake cell is a simple formula- calories eaten- calories burnt

I also created the rows: weight, weight loss, total weight loss in week.
The weight cell is left so that the user can enter how much they weigh. I validated this cell so that only numerical values can be input.
The weight loss cell takes the original weight of the user from "sheet1: info" and minuses the users original weight that has just been put in by the user.

The total weight loss in week is a simple SUM adding all the weight loss cells from each day in the week together.

I then created the chart. I did this by using the chart wizard.
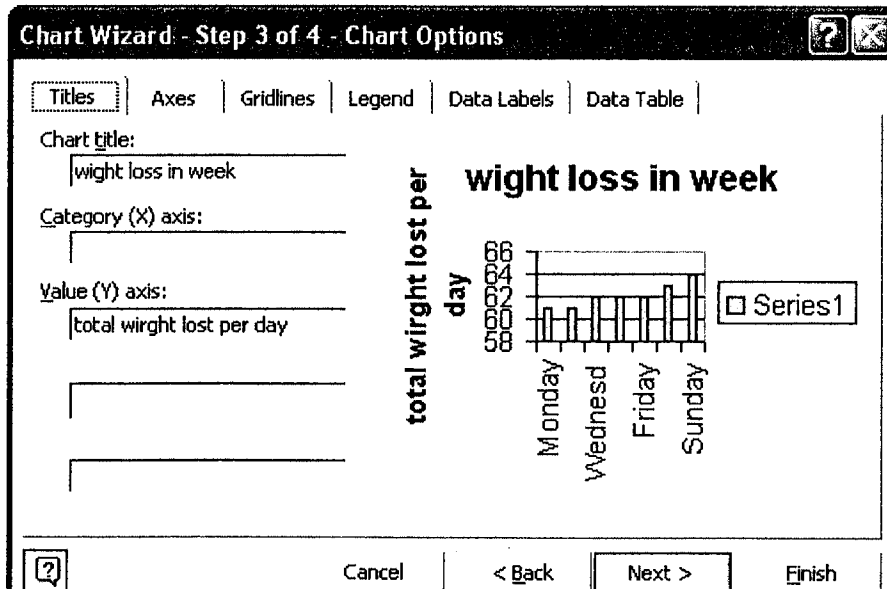
I modified the chart so that it showed exactly what I needed it to show. The users weight loss each day over a week. This is useful to the user so that they can compare each day.

After creating the spreadsheet I asked a friend to test it out. She used it for a week and I asked her if she thought I could improve on it in any way.

She sad that it was hard to find your way around the spreadsheet if you were nt familiar with it.

I took this point into account and decided to create a welcome page. I created this page to add the simplicity of the system and make it user-friendlier. With this welcome page, it will mean that no manual will be needed. The welcome page will direct the user to whichever page they want to go to.

The page will include hyperlinks to the entire sheet explaining what each sheet does with a simple title and colours.

It will make the system more lively and enjoyable to use for the users.

Testing

The only way to test my spreadsheet will be to insert test data and check that the formula does what I hoped it would do.

Sheet	Test	Worked/ not worked and correction where needed
Welcome	Hyperlinks work to the following pages: 1. Info 2. Food 3. Exercise 4. Progress Click on each hyperlink.	
Personal info	Validations work- numerical value only: 1. Age 2. Height 3. Weight Input all kinds of values text and numerical check if appropriate.	
Personal info	BIM-Weight*height² Input test data and check on a manual calculator that the sum is correct.	
Personal info	You are…. IF function. Enter data that should be in each range:	

CW3 creation and manipulation of spreadsheets

	1. Normal 2. Obese 3. Underweight	
Personal info	You should be eating...IF function From data in "you are" cell check that with each range the correct number comes up for: 1.male 2.female	
Food	Calories- Vlookup Enter food from list and check that the correct number comes up.	
Food	Total calories- calories*serving Check by doing the sum on a manual calculator that the system comes up with the same answer.	
Exercise	Calories burnt- Vlookup 1. Enter exercise from list and check that the correct number comes up. 2. Check by using a manual calculator that it is being multiplied correctly.	
Progress	Check that the numbers have been taken correctly from the previous sheets: 1. Calories eaten 2. Calories burnt 3. Weight lost	
Progress	Total lost in week. Check that the numbers have been added correctly.	
Progress	Check that the test data is being presented correctly in the graph.	

Use & Implement

Personal info test results:

	A	B	C
1		**Personal inform**	
2	age	18	
3	height	5.2	weight squared
4	weight	700	
5	BIM body index mass	25.88757396	
6	you are...........	normal	
7		MALE	FEMALE
8	you should be eating.....		
11			

I input two figures for height and weight

The correct word was displayed showing the IF function worked.

The BIM was displayed correctly

The user said that this page was "simple and easy to use. I did not have a problem and I knew that what the computer had told me was correct, as I know I am normal weight and definitely not overweight!"

Food test results:

	A	B	C	D	E	F	G	H	I	J
1			Food sheet							
2	MONDAY									
3		breakfast	breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
4	what food?	eggs (each)	yoghurt (low fat)	ham (1/4lb)	roast on	Green	Tomatoes	Sirloin	Potatoes	Strawberries
5	calories:	75	200	75	75	75	200	440	75	180
6	serving:	2	3	2	1	3	4	1	4	1
7	total calories per serving:	150	600	150	75	225	800	440	300	180
8		total:		350		total:	350	total:		695
9	TOTAL FOR DAY:	1395								

I input the food from the list and the serving size

The VLookup function worked and the correct amount of calories were displayed.

The system multiplied the calories and serving correctly and added the correct cells to get a total for the day and week.

The user's comment on this page was: "I found this page easy to use. I knew what to put in each cell and I could choose from a list making the input precise. I thought it was very clever how the system could calculate how many calories I had eaten."

Exercise test results:

	A	B	C
1		Excercise Sheet	
2	monday		
3	Exercise:	sleeping	
4	Hours done:	2	
5	Calories burnt:	140	

I input the exercise done and the hours it was done

The correct amount of calories burnt has been displayed using VLookup and a simple multiplication

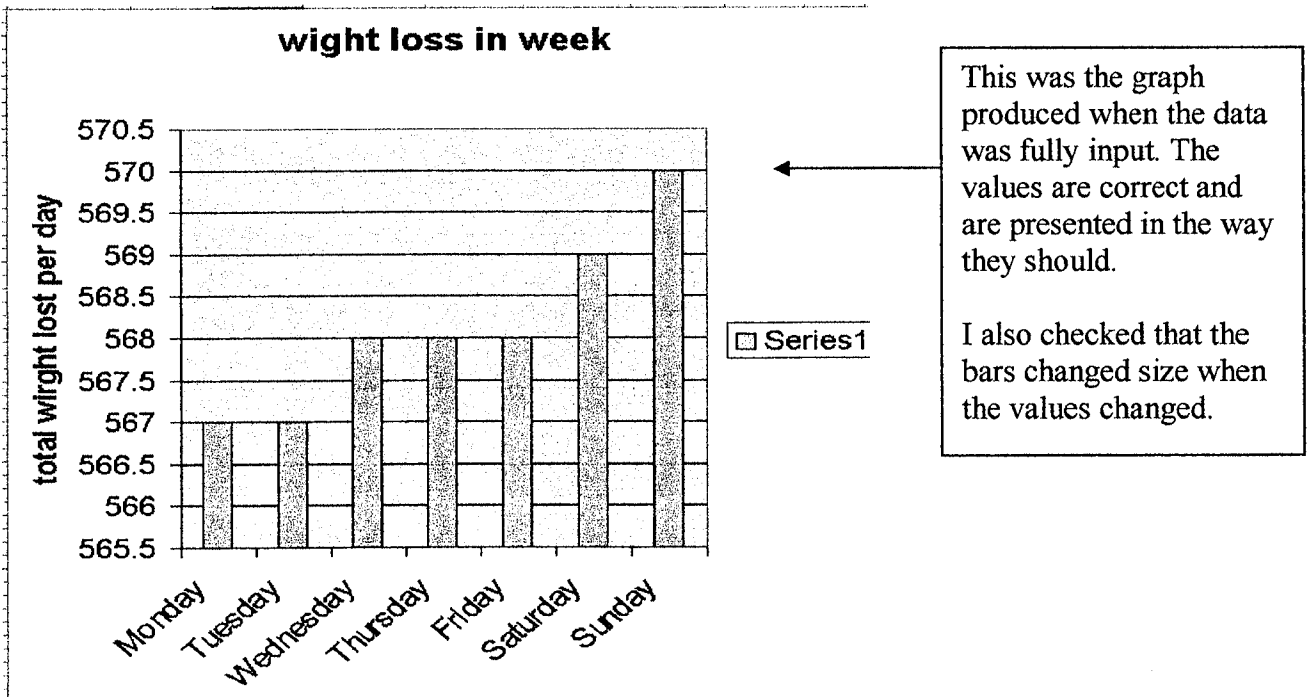The user though that this page was "easy to sue and not too confusing".

Progress test results:

3		**Monday**
4	calories eaten	1395
5	calories burnt	140
6	**total calorie in**	1255
7	weight	99
8	weight lost	601
9	**total weight lost in week:**	4215

Both figures were taken correctly form both separate sheets.

This calculation was done correctly

I input test data here

This figure was correct. The original weight was taken from the correct sheet and the correct calculation took place

This added correctly the total.

The user commented "I did not have to input much on this page but I found it informative and useful to check by progress day by day and week by week."

wight loss in week

total wirght lost per day

570.5
570
569.5
569
568.5
568
567.5
567
566.5
566
565.5

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

☐ Series1

This was the graph produced when the data was fully input. The values are correct and are presented in the way they should.

I also checked that the bars changed size when the values changed.

"I thought this graph was very useful, it amazed me how the bars changed size when my weight dropped over time."

Personal information

age		
height	2.5	height squared 6.25
weight	160	
BIM body index mass	25.6	

you are…………

MALE   **FEMALE**

you should be eating…..

Food sheet

MONDAY

	breakfast		breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?	eggs (each)									
calories:		75	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
serving:		2								
total calories per serving:		150								
	total:			#N/A		total:	#N/A	total:		#N/A

TOTAL FOR DAY: #N/A

TUESDAY

	breakfast		breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?	tomatoes (each)									
calories:		25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
serving:		2								
total calories per serving:		50								
	total:			#N/A		total:	#N/A	total:		#N/A

TOTAL FOR DAY: #N/A

WEDNSDAY

	breakfast		breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?										

FOOD

Dairy Products	Calories	Fat
Cheddar Cheese (1oz)	115	9.5g
Eggs (each)	75	5g
Yoghurt (low fat)	60	1g
Whipped Cream	50	5.5g

Meat & Fish	Calories	Fat
Roast Chicken (1/4 lb)	170	3g
Bacon (1 rasher)	50	4.5g
Sirloin Steak (1/4 lb)	440	36g
Ham (1/4lb)	330	25g
Haddock (1/4lb)	180	7g
Tinned Tuna (1/4lb)	140	4g

Vegetables	Calories	Fat
Carrots (each)	20	0.1g
Potatoes (1 baked)	90	0.2g

	breakfast	breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
calories:	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

serving: 2

total calories per serving: #N/A

total: #N/A total: #N/A total: #N/A

TOTAL FOR DAY: #N/A

THURSDAY

	breakfast	breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?	beer (1 pint)								
calories:	200	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
serving:	2								

total calories per serving: 400

total: #N/A total: #N/A total: #N/A

TOTAL FOR DAY: #N/A

FRIDAY

	breakfast	breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?	green peppers								
calories:	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
serving:	2								

total calories per serving: 48

total: #N/A total: #N/A total: #N/A

TOTAL FOR DAY: #N/A

SATURDAY

	breakfast	breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner

		Calories	Fat
Tomatoes (each)		25	0.2g
Green Peppers		24	0.1g

Fruit	Calories	Fat
Apples (each)	75	0.8g
Bananas (each)	95	0g
Oranges (each)	70	0.3g
Strawberries (10)	35	0.5g

Drinks	Calories	Fat
Beer (1 pint)	200	0g
Whiskey (1 shot)	130	0g
Wine (1 glass)	100	0g
Tea (1 cup)	1	0g

Miscellaneous	Calories	Fat
Mars Bar	230	12g
Bread (white, 1 slice)	60	1g
Avocado (each)	380	36g
Butter (1 teaspoon)	35	4g
Olive Oil (1 tbsp)	125	12g
Roasted Peanuts (1 pack)	250	21g

what food?	green peppers									green peppers
calories:		24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	24
serving:		2								
total calories per serving:		48								
	total:		#N/A		total:	#N/A	total:	#N/A		

TOTAL FOR DAY: #N/A

SUNDAY

	breakfast		breakfast	breakfast	lunch	lunch	lunch	dinner	dinner	dinner
what food?	green peppers									
calories:		24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
serving:		2								
total calories per serving:		48								
	total:		#N/A		total:	#N/A	total:	#N/A		

TOTAL FOR DAY: #N/A

Excercise Sheet

monaay

Exercise: sleeping

Hours done: 2

Calories burnt: 140

Tuesday

Exercise: ironing

Hours done:

Calories burnt: 0

Wednsday

Exercise: football

Hours done:

Calories burnt: 0

Thursday

Exercise: walking uphill

Hours done:

Calories burnt: 0

Friday

Exercise: ironing

Hours done:

Calories burnt: 250

Saturday

Exercise: sleeping

Hours done:

Calories burnt: 70

Sunday

Exercise: golf

Hours done:

Calories burnt: 300

Activity	Calories used per hour
Sleeping	70
Ironing	250
Golf	300
Gardening	330
Walking	360
Walking Uphill	600
Tennis	600
Football	600
Running (12 min p/mile)	600
Running (8 min p/mile)	900
Running (6 min p/mile)	1200

Weeks Progres

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
calories eaten	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
calories burnt	140	0	0	0	250	70	300
total calorie int	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
weight	99	99	98	98	98	97	96
weight lost	61	61	62	62	62	63	64

**total weight
lost in week:**   435

wight loss in week

total wirght lost per day

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
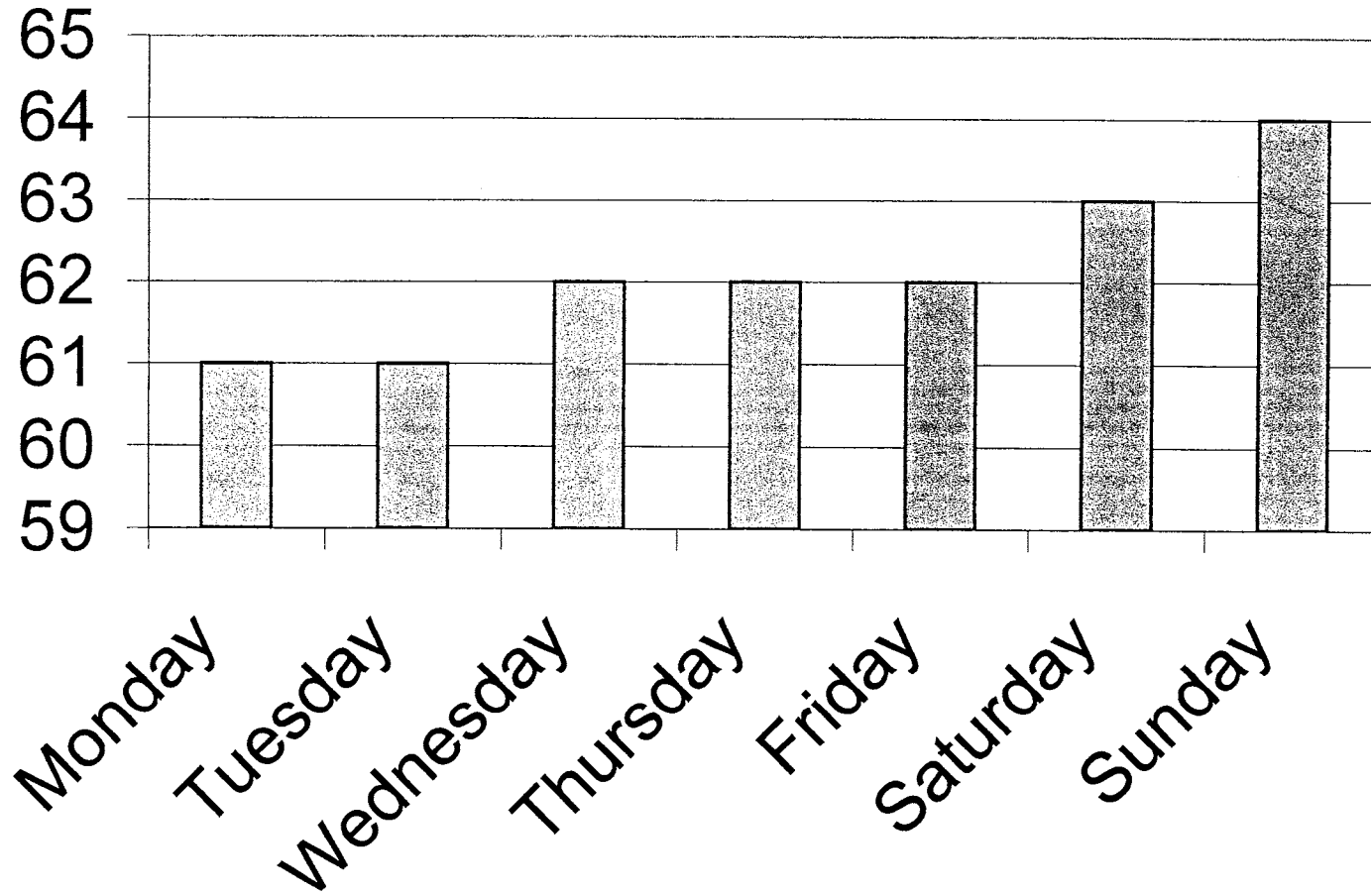
Series1

WELCOME!

Want to know if you are overweight? Want
to know how to solve this problem? Want
to manage your calorie intake?

INPUT YOUR PERSONAL DATA	INPUT YOUR FOOD INTAKE	INPUT YOUR EXERCISE TIMES	INPUT YOUR WEIGHT LOSS

Evaluate

The original objectives:
1. The system should be able to calculate the Body Mass Index i.e. the weight to height ratio and if this means they are normal, underweight, overweight or obese.
2. The system should allow you to either input the food in or choose the food form a list and its quantity and it should tell the calorie intake for that particular piece of food you are eating.
3. Charts to compare you're calorie intake per day tot eh calorie intake of every other day in that week.

I think that I fulfilled all of the above objectives.
1. I used simple mathematical functions to work out the Body Mass Index. I used an IF function to tell the user if they are normal, underweight, overweight or obese. These functions worked as I hoped them to and did the functions correctly. I had fulfilled my first objective as I had hoped.
2. I used a Vlookup so that the user could input the food from the list, the Vlookup table. The spreadsheet then shows the user how many calories are in that particular food depending on the quantity of food they entered.
3. I created a chart to compare the calories intake for each day. I also created a chart to compare the calorie intake each day and the total weight lost in a week.

I fulfilled each objective as I proposed to in my analysis stage. For the third objective I changed the solution to make the page more informative and add to the uses of the spreadsheet. I also added the "welcome" page. I thought this added to the style of the spreadsheet and it created a starting point for the user making it easier to use.

To improve the spreadsheet if I were to design it again I would have done the Vlookup for foods over a wider spread of foods. The choice that I put into the program was quite a big choice but could have been bigger. The choice of exercises could also have been bigger as I did not add all the possible exercises that a person could do. I could have also created some more charts showing other aspects of the spreadsheet e.g. average weight loss compared to user's weight loss, average calorie intake compared to user's intake.

User feedback

After asking two different users to try out my system for two weeks I interviewed them, these were their responses.

Me: what did you think of the welcome page?
Vikki: I thought that it was very colourful and a good idea. it was a starting point and showed me how to fins my way around the many sheets in the spreadsheet. All of the links worked which was good.

Tash: I liked this page. You didn't have to fill anything there, it had not actual purpose but it did help me to get toe ach page but as I had used a spreadsheet before I knew how to do this by myself. I guess if I hadn't have known how to use a spreadsheet I would have found it very useful!

Me: what's your opinion on the personal information page?
Vikki: it was a worthwhile page. I found this page most interesting for me. It was well set out and I knew exactly what to input and where. There was not irrelevant information to input which is what you normally have to do when using these kinds of things. It gave me a fair result I did not check it but it looked correct for me. I already knew I was normal so it confirmed what I already knew.

Tash: I liked this page. It told me exactly what I've always wanted to know. It got strait to the point and changed when I changed my weight. This, I thought, was very impressive. I liked being told what I should be eating.

Me: did you find the food page easy to use?
Vikki: yes. It took about two meals to get used to choosing the food form the list. I kept forgetting to put in the quantity, but that was just a personal error.

Tash: it was ok to use. I knew where to enter everything but sometimes I ate something that was not on the list and I had nothing to put in. I also sometimes ate more things in one meal than there were spaces for. I found this very annoying because it made me feel like I was eating too much when I knew that it was just a normal meal.

Me: did you use the exercise page?
Vikki: no, not really. I don't do much exercise.

Tash: yes. I do a lot of exercise. I sued it everyday. Although I found that sometimes I did some exercise that was not part of the list.

Me: did you find the progress page helpful? Did you only use it at the end of the week?
Vikki: it was very useful to find out how much I had lost and if I was eating the correct amount of food and stuff. I looked at it everyday, I probably shouldn't have done this. If I would have looked at the end of the week it would have ben a bigger change.

Tash: I like this page a lot. I looked at it at the end of the week and I felt very good knowing that I was actually loosing weight and eating the correct amounts of food.

Me: could you read the chart? Did you find it useful?

Vikki: I could read it but it wasn't very complicated. I could have maybe shown a more complicated part of the spreadsheet, I would have liked a chart showing my calorie intake compared to my recommended calorie intake.

Tash: I thought it was very good. It put the numbers into a picture. I could understand my improvement a lot better.