Identify

The aim of this project will be to design and implement a spreadsheet for Mrs Coston, the maths teacher at kelmscott school.

Her reqirements include one interactive secure document which contains information that can easily be amended at any time. Due to time constraints e.g preperation for exams, homework etc, the document should also contain automatic mathematical calculations to save time and improve accuracy.

Advantages of implementing a computerised system includes the folowing:

1) It takes up less space and there is no need for extra cabinets

2) More than one person at a time can access the data from their network

3) The data will not get lost or misfiled unless someone deletes it

4) Reports can be generated very quickly.

Disadvantages of using a paper-based system these are:

1) Takes up a lot of space
2) Searching for data can take a long time to find
3) Only one person at a time can access the data
4) Data can easily get lost or misfiled

Based on my requirements, I have decided to use Microsoft Excel 2000, this will allow me to incorporate all the requirements above and additionally provide added features, e.g. backup of system.

Microsoft Excel will allow me to incorporate all the required data into one spreadsheet and produce automatic calculations, and many more qualities.

Before I decided on the software application I was going to use for Mrs Costons data I did a comparison between two software applications these were **Excel** and **Word**.

Firstly I looked at Word it contained the following which was an advantage for Mrs Coston:

1) Text can be saved and reused
2) Can create graphs and numerical devices
3) Create tables and columns that make it look neat and help readability.

When I looked at Excel it had all the above and more these were:

1) Easy to search for particular items of data
2) It is made of rows and columns so you don't have to waste time on making them
3) Calculations are performed based on the data
4) Can create charts.

In looking at the two software applications I have found out that Excel is most useful for Mrs costons data as it can do many calculations this is one of the reasons for using Excel and the other is it is easy and precise. I think most people use Word for letters and leaflets but it isn't a good idea for the maths teacher's data, as it doesn't produce calculations.

Analyse

My main aim is to change Mrs Costons paper based system to a computerised system, as it is easy and consistent.

The <u>inputs</u> that are going in to spreadsheets are:
1) Name of the students
2) What class they are in
3) How many questions they got right

<u>Outputs</u> I will be looking for are:
1) Percentage from the marks
2) A good prediction grade to go on the report
3) Two lists showing if the students 'Failed' or 'passed'.

In order to incorporate the spreadsheet the data is taken from the following processes:

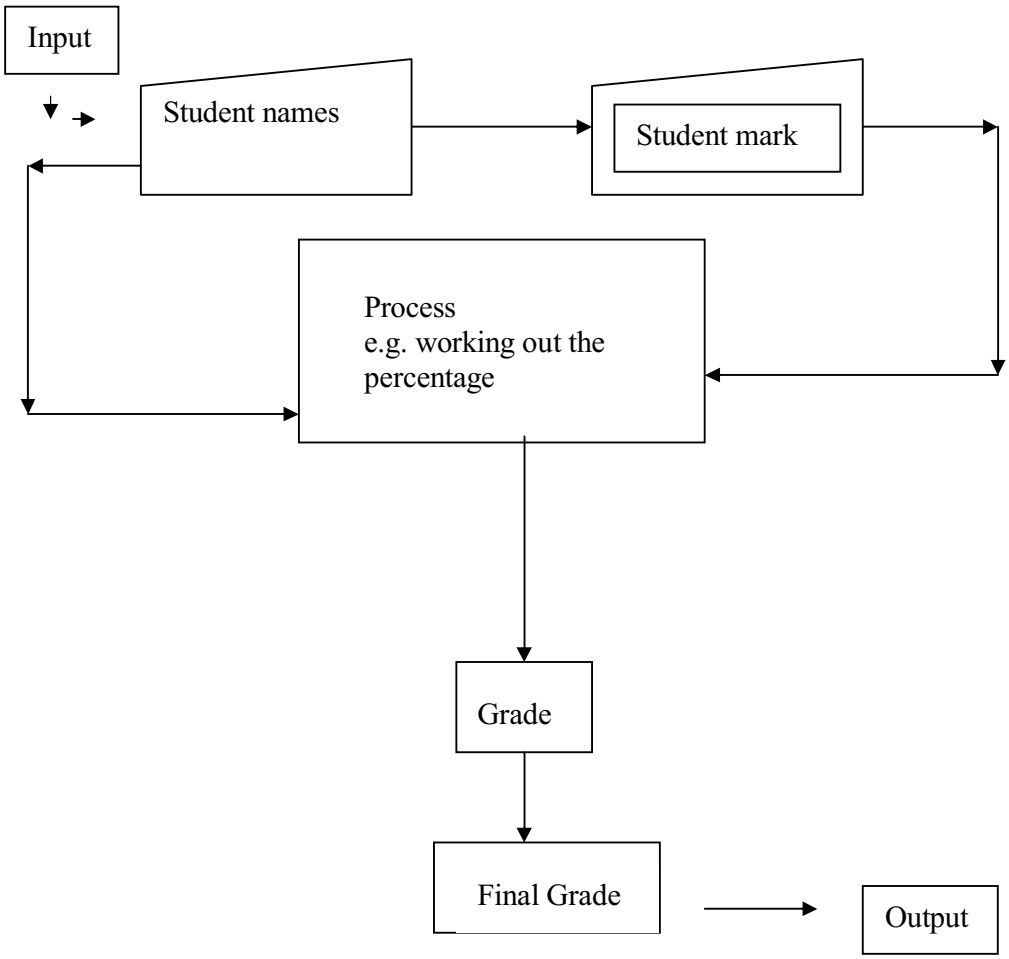
1) Once each pupil has taken the exam the teacher will then mark the test paper and the points will be recorded.

2) Once the formulas have been added it is used to define the percentage grade (e.g. points divided by total points available x 100)

3) When the percentage has been established this is then compared to the grading list to define the final grade.

4) Depending on the grades, the teacher will therefore declare if the pupil has failed or passed.

The diagram below illustrates what data will be the input and what will be the output:



In looking at the input of the data I will need all the information from the teacher to add to the spreadsheet so I can give her an accurate outcome.
The output will all depend on me, as I will need to be very careful when adding all the data, as all the information will need to be accurate and correct to get the right outcome. (E.g. if I have a small mistake when entering the pupils marks it will the effect the whole process and the teacher will get the wrong grade for the students.)

Hardware needed In order for me to make a spreadsheet I will need all the hardware below

VDU – This will be used to show me all the information in the computer I have entered and use the Windows Icons Menus and Pointers.

KEYBOARD – This will be used to type in all the data needed in the spreadsheet

MOUSE – Used for moving from programs and selecting options much quicker and easier.

DESKTOP –This stores all of the CPU (central processing unit), programs, files, and documents etc.

PRINTER – this is used to print out all the data needed

FLOPPY DISKS – To save vital documents and used as a back up of the original copy.

SCANNER- This is used to input data in the computer in a faster process

The scanner and the keyboard are two hardware's, which can input data in to the computer. In comparing the two hardware's I have found that the scanner is an easy and a faster method to input data as is takes less time to process, whereas the keyboard would take long as you have to type in the data.

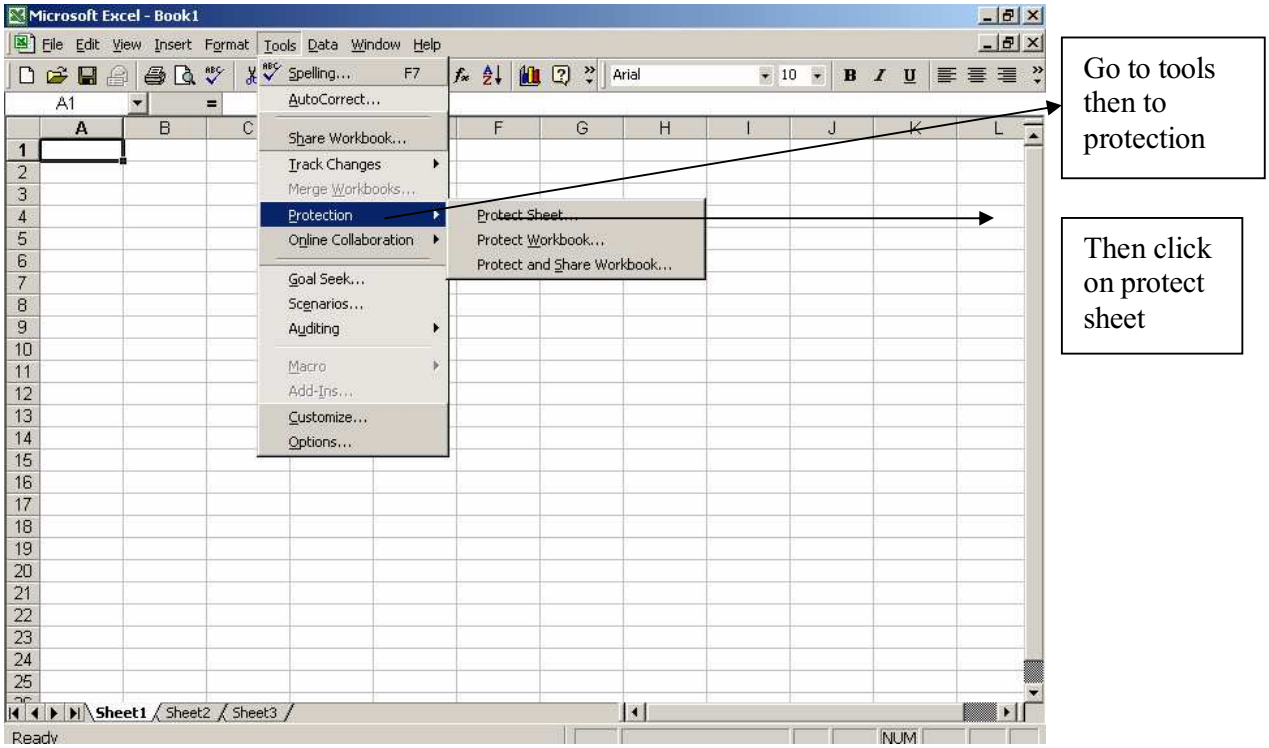
Software needed

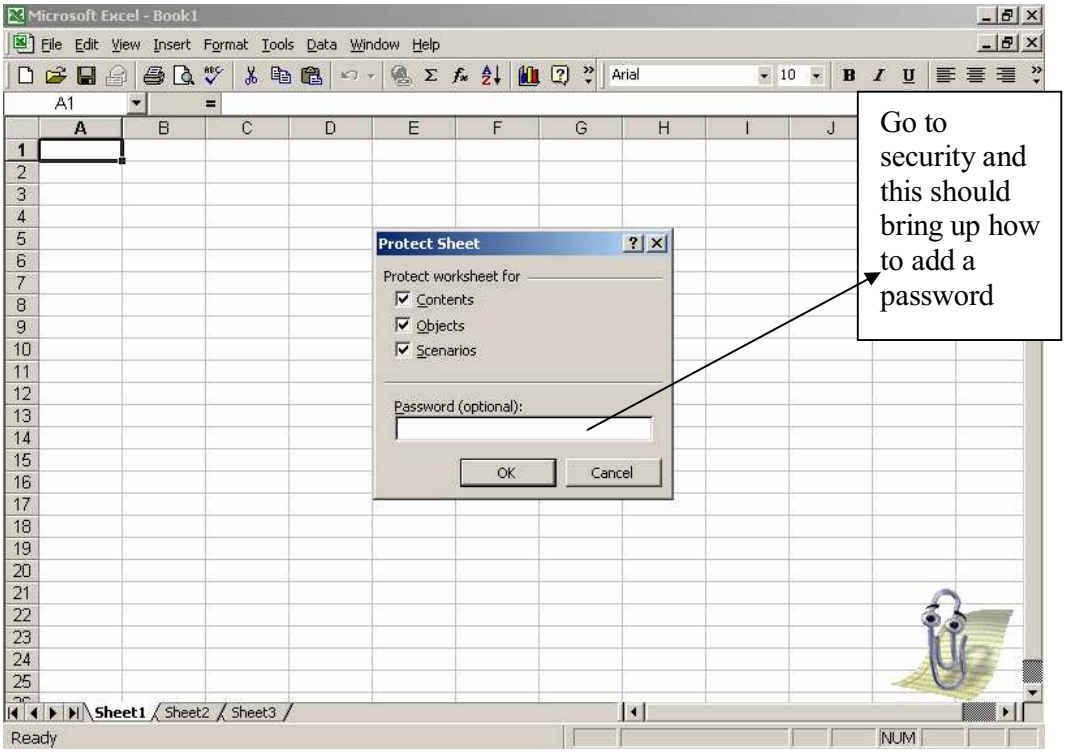
The software I will be using is Microsoft Excel to implement the final spreadsheet. This is the only program that can create a spreadsheet for Mrs Coston as it has all the functions needed, for example, calculations can take place in this software.

Security Strategy

In order for the spreadsheet to be confidential and private, I have discovered a protection strategy that Mrs Coston can use to keep her data safe from, many students that might try to hack into her document. This will also enable her to have her own password, which only she can access.

The following screenshots illustrates how the protection strategy can take place.

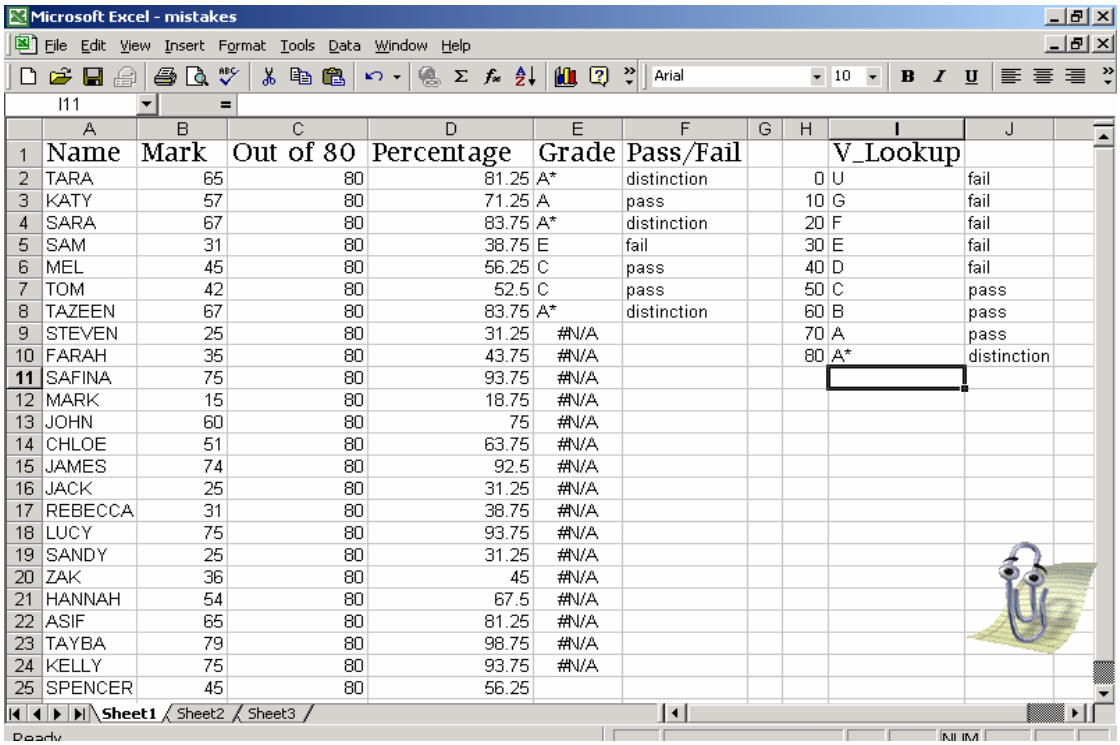




From this window I have been given an option to password to protect my spreadsheet making it unattainable by other people, and I also have choose to make the file read-only so people can read the document but not make any changes to it. Mrs Coston will have her own personal password once the spreadsheet is completed.

Implement

From the formulas in my design I prepared my a spreadsheet not making a lot of changes to my first idea but taking in context Mrs Coston's requirement and comments when I did a questionnaire on her. My first design looked like this:



	A	B	C	D	E	F	G	H	I	J
1	Name	Mark	Out of 80	Percentage	Grade	Pass/Fail			V_Lookup	
2	TARA	65	80	81.25	A*	distinction		0	U	fail
3	KATY	57	80	71.25	A	pass		10	G	fail
4	SARA	67	80	83.75	A*	distinction		20	F	fail
5	SAM	31	80	38.75	E	fail		30	E	fail
6	MEL	45	80	56.25	C	pass		40	D	fail
7	TOM	42	80	52.5	C	pass		50	C	pass
8	TAZEEN	67	80	83.75	A*	distinction		60	B	pass
9	STEVEN	25	80	31.25	#N/A			70	A	pass
10	FARAH	35	80	43.75	#N/A			80	A*	distinction
11	SAFINA	75	80	93.75	#N/A					
12	MARK	15	80	18.75	#N/A					
13	JOHN	60	80	75	#N/A					
14	CHLOE	51	80	63.75	#N/A					
15	JAMES	74	80	92.5	#N/A					
16	JACK	25	80	31.25	#N/A					
17	REBECCA	31	80	38.75	#N/A					
18	LUCY	75	80	93.75	#N/A					
19	SANDY	25	80	31.25	#N/A					
20	ZAK	36	80	45	#N/A					
21	HANNAH	54	80	67.5	#N/A					
22	ASIF	65	80	81.25	#N/A					
23	TAYBA	79	80	98.75	#N/A					
24	KELLY	75	80	93.75	#N/A					
25	SPENCER	45	80	56.25						

In looking at my design I can see that some errors have occurred, even when I did this using my formulas. I received the errors in the grade column as when I entered the input data of the percentages then the grade column should have automatically filled in but this did not happen. When I did one of my tests as I entered data from column 9 and downwards I received errors, these were not expected so I had to alter my formula a little in order for the output data to occur fast. The way I corrected this was by placing the dollar sign ($) in front of specific numbers when doing the calculations e.g. my previous formula for working out the pupil's grades was =LOOKUP (D2, H2:H10, I2:I10) this formula produced the mistakes shown in the screenshot above so I modified the formula to:

=LOOKUP (E2, I$2: I$10, J$2: J$10), the new formulas outcome is shown below in the second screen shot. The dollar sign is an absolute cell this is used so the computer can refer to one particular cell.