

Essential Spreadsheet Skills

Assignments - Section 1

As you work through these assignments you will need to check on the functions and commands specific to your spreadsheet program. You will also be practising commands and functions learned in earlier assignments.

The functions and commands required for each assignment are as follows:

Assignment 1

- Enter data - labels and values
- Editing cell contents
- Saving a spreadsheet

Assignment 2

- Altering column widths
- Using the SUM function
- Adding a new row after the last row of data

Assignment 3

- Adding a new column after the last column of data
- Copying a formula
- Using the AVERAGE function
- Loading a spreadsheet file from disk.
- Inserting a new row between existing rows

Assignment 4

- Inserting a new column between existing columns
- Deleting a row of data

Assignment 5

- Consolidation

Ensure that labels are aligned to the right in all columns except column A.

Costs

The spreadsheet below sets out information on a small company's monthly running costs:

	A	B	C	D
1	Monthly Costs (\$)			
2				
3	Item	January	February	March
4				
5	Rental	600	600	580
6	Services	140	160	170
7	Food	270	90	100
8	Travel	155	190	185
9	Insurance	125	132	64

Create the spreadsheet as shown using your spreadsheet program.

Complete the following:

Align the month labels to the right in each relevant cell.

1. Change:
 - (a) Travel for January to 145
 - (b) The insurance for March to 32
 - (c) 'Rental' to 'Rent'.
2. Name the spreadsheet **Costs**.
3. Remove any blank rows or columns
4. Format the three regions: Labels, data, calculations
5. Merge and centre the title
6. Make sure you size rows and columns.
7. Align labels over the data.
8. MAKE SURE YOU BOLD CHANGES

Debbie's News

The spreadsheet below shows details of newspaper sales at Debbie's Newsagents during a four-week period:

	A	B	C	D	E
1	Debbie's Newsagents				
2					
3	Newspaper	Week 1	Week 2	Week 3	Week 4
4					
5	Daily Mirror	155	137	146	159
6	The Echo	226	212	243	278
7	The Guardian	82	71	67	62
8	Today	50	44	58	49
9	The Times	98	122	126	111

You are required to enter the data onto a new spreadsheet.

Complete the following tasks:

1. Alter the width of column A to accommodate the heading 'Debbie's Newsagents'.
2. Change 'The Echo' to 'The Evening Echo'.
3. Add a new row after 'The Times' data to show the total newspaper sales for each week. (Use the SUM function)
4. The sales of 'The Daily Mirror' during week 2 and of 'Today' in week 4 should be 142 and 119 respectively. Edit the appropriate cells accordingly.
5. Be sure to format the data region differently from the labels and calculations.
6. Minor deductions of 1 mark for: alignments, formatting, improper data, column widths incorrect, title not centred, sheet tabs not named, improper page numbers, spelling errors
7. Format the regions
8. Merge and centre title
9. Remove all empty rows or columns

This completes the first assignment called "Part 1"

Make sure you save it in the proper folder.

This project, Part One, is worth 15 marks, weighted at 5

Part Two

Rainfall

The table below outlines rainfall levels, in millimetres, for seven cities during a six-month period:

Rainfall (mm)						
City	Jan	Feb	Mar	Apr	May	Jun
Birmingham	56	51	47	42	30	22
Bristol	64	58	53	47	34	24
Glasgow	76	68	65	56	42	26
Liverpool	59	50	51	43	30	23
London	49	52	42	33	26	17
Sheffield	53	54	49	44	35	24
Southampton	42	45	36	29	20	11

Enter these details onto a spreadsheet and complete the required tasks:

1. Widen the first column to 15. *To do this, right click on the column heading, change column width.*
2. Add rows beneath to show the monthly rainfall.
3. Delete blank rows or columns.
4. Add a new column after the June rainfall statistics to show the total rainfall in each city over the period.
5. Name the spreadsheet as **RainFall**.
6. The rainfall in Birmingham during March should be 58.
7. Insert a new row between the rows holding the London and Sheffield rainfall statistics. *To do this, right click on the Row Heading and Insert.*

Enter the following details:

Newcastle	65	63	57	50	39	21
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7. Don't forget to format the regions of the spreadsheet.
8. Save this Workbook as **Part Two**.
9. This sheet is worth 15 marks.

Weekly Budget

The following table shows the weekly budget, in dollars, for a group of young people:

Weekly Budget (\$)				
Name	Food	Clothes	Travel	Rent
John Allen	25	18	12	40
Mary Brown	13	24	5	20
Denise Cotter	20	27	20	35
Bill Fendell	32	15	14	39
Barbara Mills	27	12	10	32
Ken Rafter	19	25	17	42
Peter Tilson	28	22	6	36
Kathy Watson	20	17	12	28

You must then complete the following tasks:

1. Widen the first column to accommodate the longest name.
2. Add a row beneath the last row to show the total amounts spent on the various expenses.
3. Add a column after the last column to show the total spent by each person.
4. Name the sheet tab **Expenses**.
5. Insert the following row into the spreadsheet immediately below Barbara Mills' details: **FORMAT** it to **STAND OUT** as an added record.

Claire Nelson	23	11	21	43
---------------	----	----	----	----

6. Enter the following column of Entertainment expenses between the 'Travel' and 'Rent' columns: **FORMAT** it to **STAND OUT** as added.

Entertainment

8
13
17
6
12
19
11
16
15

7. Alter the column width to accommodate the label 'Entertainment'.
8. Delete the row holding the details on Denise Cotter.
9. Format the contents to have 2 decimal places. *To do this, click on the "comma style button" on the formatting toolbar*
10. Merge and Centre the title.
11. Remove any empty rows or columns.
12. Format the calculations to be white text with a black fill.
13. Save the spreadsheet again.
14. 15 marks graded by deduction.

This is the end of Part Two: Total marks: 30, weighted as a normal project 10

Part Three

The following table shows cinema attendance over a six-day period at ten different cinemas:

Cinema Attendance						
Cinema	Mon	Tue	Wed	Thu	Fri	Sat
Adelphi	178	216	252	222	362	348
Ambassador	145	209	276	302	415	405
Carlton	192	236	220	246	293	331
Classic	86	120	97	113	153	169
Metropole	163	189	224	202	288	350
Odeon	283	356	336	385	468	512
Omniplex	322	366	379	412	463	542
Savoy	236	255	246	292	357	342
Stella	79	125	112	96	142	136
UCI	319	306	335	377	408	529

You are required to enter this data onto a spreadsheet, save the file as **Part Three**.

Carry out the following tasks:

1. The attendance at the Metropole on Monday and at the Savoy on Friday should be 157 and 298 respectively. Format to show changes
2. Add two new columns after Saturday's data to show the total weekly attendance Highest weekly attendance, Lowest Weekly attendance, and average daily attendance at each cinema. Choose appropriate column headings.
3. Add a new row after the UCI's attendance figures to show the total, highest, lowest, and average attendance for each day of all the cinemas listed. Choose an appropriate row name.
4. Save the workbook as Part Three. Name the sheet Cinema
5. Due to falling attendance, the Stella has decided to close. Delete the row containing the details on the Stella.
6. Insert a new row above the Metropole data and enter the following details on a new cinema that has opened:
8. Janelle 176 170 215 221 239 233
9. Remember to copy the appropriate formulae to show the total weekly attendance and the average daily attendance at the Janelle.
10. Complete any other calculations that could be beneficial to people using the spreadsheet.
11. Complete all required formats and edits.
13. This project is worth 25 marks. It is a double weighted project.

ESSENTIAL SPREADSHEET SKILLS

AT THIS POINT YOUR SHOULD STOP AND TAKE THE SECTION ONE TEST.

Assignments - Section 2

The functions and commands required for each assignment are as follows:

Assignment 6

- Multiplying cell contents
- Currency format

Assignment 7

- Absolute reference
- Adding cell contents
- Subtracting cell contents
- Replicating formulae

Assignment 8

- Multiplying by decimal fractions to obtain %mark-up

Assignment 9

- Using the maximum, minimum and count functions
- Calculating percentages
- Erasing a range
- Printing the entire spreadsheet

Assignment 10

- Consolidation

Assignment 6

The following table shows the sales of various food items at Al's Diner over a five-day period:

AL'S DINER					
Items	Mon	Tue	Wed	Thur	Fri
Burgers	40	35	28	39	42
Chips	48	43	40	47	51
Fish	22	19	23	27	21
Lasagne	23	18	11	17	27
Pies	14	17	12	8	19
Pizzas	20	18	22	16	14
Quiche	10	13	15	9	5
Salads	18	25	28	33	29
Sandwiches	25	28	32	24	26
Soup	12	13	15	17	11

You are required to enter this data onto a spreadsheet and save the file as **Assignment6**.

You will create 3 sheets in this workbook. The first sheet will have the changes done to it. The second sheet will be a chart displaying the weekly number of burgers sold. The third sheet should be the formula printout. Remember to format all sheets properly. Name them appropriately.

You must now carry out the following tasks:

REMEMBER TO FORMAT ALL CHANGES TO SHOW THEM

1. Change column labels to show the entire day.
2. Add a column after Friday's data to show the total sales of each item over the five days.
3. Insert a column between Friday's data and Total sales. Enter Saturday's sales as follows: burgers - 56, chips - 63, fish - 25, lasagne - 33, pies - 29, pizzas - 20, quiche - 11, salads - 44, sandwiches - 27 and soup - 19.
4. Add a column after the Total Sales column to show the unit price of each item: burger - \$0.85, chips - \$0.50, fish - \$1.30, lasagne - \$1.95, pie - \$1.05, pizza - \$1.75, quiche - \$2.20, salad - \$1.60, sandwich - \$0.95 and soup - \$0.75.
5. After the Unit Price column, add a column to show the total income for the sales of each item during the six-day period.
6. Enter a formula in the appropriate cell to show the total income for the week at Al's Diner.
7. Create a calculation to show an "average" in a useful manner. (2 marks)
8. Use the ROUND function to change the Average to 0 decimals. (3 marks)
9. Format the unit price and total income columns to currency format.
10. Don't forget to format the appropriate cells and fonts. Remove formatting off the formula printout. Print the "entire workbook" consisting of 3 pages.
11. Save the workbook as **Assignment6**.
12. This project is worth 25 marks.

Assignment 7: New concept is Absolute Referencing.

The following table shows details of electricity meter readings for ten different customers:

ELECTRICITY BILLS		
Name	Previous Reading	Present Reading
Sandra Atkins	35839	36852
Harold Bradshaw	13538	14011
Anne Browne	20153	20542
Peter Curle	28603	29256
Ken Dobson	32568	33410
Denise Martin	42398	43630
Jean Paget	15644	16731
John Quinn	22715	23510
Jill Shaw	9638	10263
Keith Williams	17988	18346

You are required to enter this data onto a spreadsheet and save the file as **Assignment 7**.

You must now carry out **at least** the following tasks:

/3

1. Add a *Units Used* column to show the number of units of electricity used by each customer (Hint: Subtract the *Previous Reading* from the *Present Reading*).

/3

2. The cost of one unit of electricity is \$0.08. Add a *Unit Cost* cell to show the cost of one unit.

/5

3. Add a *Units Charge* column to show the total cost of the units used by each customer. (Hint: *Unit Cost * Units Charge in an absolute reference*)

/3

4. There is a standing charge of \$13.60 on each customer's account. Add a cell to display this *Standing Charge*. **Do not include as a column.**

/5

5. Add an *Amount Payable* column to show the total amount each customer must pay the electricity board (Hint: *Units Charge + Standing Charge in an absolute reference*).

/2

6. Insert a new row above *Denise Martin's* details. Enter the following data on Lisa Glover's account:

Previous Reading	Present Reading
23488	29046

/1

7. Obtain the total amount payable by Lisa.

/5

8. Include any other uses of Max, Min, Average that you think could be useful. Be sure to put proper labels.

/5

9. Format the appropriate cells.

/3

10. Don't forget to format your formula sheet properly.

11. Save the workbook as **Assignment 7**. Total: 40 marks

/5 Other errors or corrections

Assignment 8

The following table shows details of items currently in stock at Robson's Electrical Store:

ROBSON'S ELECTRICAL STORE:		
Item	Quantity in stock	Cost Price
Camcorder	13	485
Computer	16	450
Dishwasher	11	215
Electric cooker	7	360
Electric heater	6	40
Electric lawnmower	4	195
Fridge freezer	25	285
Hi-Fi system	15	170
Microwave oven	19	95
Television	22	255
Video	29	220
Washing machine	23	255

You are required to enter this data onto a spreadsheet and save the file as **Assignment 8**.

You must now carry out the following tasks:

1. The mark-up on each item is 30% of the cost price. Add a column (*Mark-up*) to show the mark-up on each item. Be sure to reference a CELL for the mark up amount. (5 marks)
2. Add a column (*Retail Price*) to show the retail price of each item. This is obtained by adding the cost price and the mark-up. (3 marks)
3. Add a column (*Total Retail*) to show the total amounts obtained by selling all of the items in stock. This is obtained by multiplying the *Retail Price* by the *Quantity in Stock*. (5 marks)
4. Change the numeric contents of the *Cost Price*, *Mark-up*, *Retail Price*, and *Total Retail* columns to currency format. (4 marks)
5. Format the cells to show the title, data area, and calculations. (5 marks)
6. Save the spreadsheet as **Assignment 8**. (2 marks)
7. **On a separate sheet** create a chart that compares the **retail costs of all items**. (5 marks)
8. Print all pages with proper headers and footers. (Formula and sheet) (8 marks)
9. Save the spreadsheet as **Assignment 8**.

Total 37 possible marks

Assignment 9:

The Old Mill Theatre has just completed a very successful run of Lionel Bart's 'Oliver'. The following table shows the daily attendance over the period:

OLD MILL THEATRE		
Date	Adults	Children
June 2	385	843
June 3	411	715
June 4	334	664
June 5	401	1012
June 6	346	782
June 7	433	875
June 8	481	918
June 9	411	808
June 10	417	845
June 11	393	722
June 12	477	904
June 13	578	976
June 14	468	953
June 15	364	899
June 16	463	927
June 17	459	932
June 18	593	1007
June 19	694	996
June 20	755	1016
June 21	742	951
June 22	569	962

Enter this data onto a spreadsheet and save the workbook as **Assignment 9**, then carry out the following tasks:

1. Add a column, labelled *Total Audience*, to show the total number of people that attended on each day.
2. Add a row, labelled *Total*, to show the total number of:
 - a) Adults who attended over the period
 - b) Children who attended over the period.
3. Add a row, labelled *Maximum*, to show the maximum numbers of adults and children that attended on any day.
4. Add a row, labelled *Minimum*, to show the minimum numbers of adults and children that attended on any day.
5. Add a row, labelled *Days*, to show the number of days during the 'run' (Hint: Use the COUNT function).
6. Save the worksheet as **Theatre**.
7. Add two columns, labelled '%Adults' and '%Children' respectively, to show the percentages of the audience that were adults or children for each day during the period. Format the two columns to percentage format (one decimal place).
8. The numbers of adults who attended the production on June 8, 9 and 10 have been incorrectly given. Erase the contents of these three cells and enter the following amended data: June 8 - 516, June 9 - 463 and June 10 - 402.

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9. Create a chart to compare the number of adults to children on a daily basis ON THE SAME SHEET.
10. Create a chart ON A SEPARATE SHEET that compares the total percentages of adults to children.
11. Print both the entire workbook (30 marks).

Assignment 10 – Test to be completed in one class!

Jim Watson, owner of Hollybank farm, milks a herd of fifty dairy cows. The following table shows the number of gallons of milk produced on the farm each month over a four-year period:

HOLLYBANK FARM				
Month	1997	1998	1999	2000
January	502	440	661	552
February	1022	856	1015	1170
March	4316	3986	3884	4287
April	7627	6846	7946	7570
May	9728	9103	9726	10046
June	8423	8156	8509	9218
July	6848	6411	6592	7158
August	5868	5386	5591	4985
September	3382	2927	3002	2675
October	2181	1937	1886	1685
November	536	478	515	484
December	335	284	256	317

Enter this data onto a spreadsheet and save the file as **Dairy1**, then carry out the following tasks:

- 1 Add a row to show the total number of gallons produced each year
- 2 Add rows to show the average, maximum and minimum monthly yields for each year.
- 3 The price per gallon of milk during 1997 and 1998 was \$0.82, the price was increased in 1999 to \$0.90 and increased again in 2000 to \$0.95.
- 4 Insert columns, labelled properly, to show the total amount of money earned each month from milk sales.
- 5 Obtain the gross earnings for each year from milk sales.
- 6 Obtain the average annual earnings from milk production.
- 7 Count the number of entries for each year
- 8 Find the highest and lowest values for each year and each month.
- 9 Delete any empty rows or columns.
- 7 Format the relevant columns to currency format.
- 8 Save the sheet as **Dairy2**.
- 9 Save the workbook as **Assignment 10** and print the workbook.

Unit test

Assignments - Section 3

New functions, commands and procedures required for each assignment are as follows:

Assignment 11

- Sum function
- Cumulative balance

Assignment 12

- Printing a range

Assignment 13

- Absolute and relative replication

Assignment 14

- Non-scrolling titles

Assignment 15

- Consolidation

Assignment 11

Berry, Foy & Co. is a firm of solicitors. The firm's income derives from offering advice and services to the general public in company law, conveyancing, criminal proceedings, litigation and probate matters.

The following table gives a breakdown of the company's quarterly incomes and expenses during the past year:

BERRY, FOY & CO				
Income				
	Qtr 1	Qtr 2	Qtr 3	Qtr 4
	\$	\$	\$	\$
Company Law	3280	5280	2160	9610
Conveyancing	26730	42460	23390	16430
Criminal	7840	5420	1730	11550
Litigation	44860	61760	39450	53890
Probate	32550	19330	22740	37480
Expenses				
Salaries	88500	88500	90800	90800
Rent	4500	4500	4500	4500
Electricity	146	105	82	122
Heating	556	425	229	491
Telephone	862	634	716	1048
Miscellaneous	944	733	827	1394

Enter the details in the table above onto a spreadsheet.

You must then carry out the following tasks:

1. Add two rows to show the total income and total expenses for each quarter.
2. Add a row to show the balance for each quarter.
3. Change the telephone charges for quarters 2, 3 and 4 to \$662, \$706 and \$996 respectively.
4. Solicitors attending court sessions get a meal allowance. Insert a row, labelled *Meal allowance*, after the telephone expenses and enter \$764, \$885, \$529 and \$612 for each successive quarter.
5. Amend the totals and balance formulae, if necessary, to take account of this addition.
6. Change the cells containing values and formulae to currency format.
7. Save the spreadsheet as **Law1**.
8. Replace the row showing the balance for each quarter with a row showing the cumulative balance for each quarter.
9. Save the spreadsheet as **Law2**.

Assignment 12

Shirley Black works as an optometrist with VisionCare Ltd. Each week Shirley's salary is paid, by electronic transfer, into her current account at the Watling St branch of First UK Bank.

Shirley uses her ATM card to withdraw money whenever and wherever she needs it. Each month, she receives a bank statement from First UK detailing deposits to and withdrawals from her account together with a balance after each transaction.

The following figure is an incomplete bank statement; the opening balance only is given.

MONTHLY STATEMENT				
Shirley Black Current Account		Date of Statement: 09-Nov-00 Account Number: 412964-061		
Date	Particulars	Debit \$	Credit \$	Balance \$
09-Oct-00	Balance Forward			617.83
11-Oct-00	ATM Barston SC	130		
15-Oct-00	VisionCare Payroll		280	
19-Oct-00	ATM Dartry Mall	165		
21-Oct-00	ATM Pembroke St	40		
22-Oct-00	VisionCare Payroll		280	
25-Oct-00	ATM Watling St	200		
29-Oct-00	VisionCare Payroll		280	
02-Nov-00	ATM Watling St	170		
03-Nov-00	ATM Belsize Park	60		
04-Nov-00	VisionCare Payroll		280	
07-Nov-00	ATM Barston SC	75		

You are required to load the incomplete bank statement stored as a spreadsheet file called **Banstat1** from the *Data Files* folder, then carry out the following tasks:

1. Enter a formula that will show a balance for the 11th October and copy the formula to show the balances for the other days listed.
2. Re-Save the spreadsheet as **Banstat1**.
3. Shirley worked overtime on the 19th and 20th October; the amount credited to her account at the end of that week should be \$340.00.
4. A withdrawal of \$145.00 at Dartry Mall on 27th October has not been recorded. Insert these details in the appropriate location on the spreadsheet. Remember to amend the formulae in the balance column, if necessary, to take account of this insertion.
5. Change the cells containing values and formulae to currency format.
6. Save the spreadsheet as **Banstat2** and print it out.

Assignment 13

Megagen PLC produces electricity from coal, gas, oil and nuclear fuels. The following table shows the number of millions of units of electricity produced, using each fuel type, in 5-year intervals over a period of 20 years:

MEGAGEN PLC					
Fuel	1978	1983	1988	1993	1998
Coal	1365	1018	771	566	502
Gas	269	365	168	193	229
Oil	674	447	338	280	297
Nuclear	377	632	829	1047	1013

You are required to enter these details on a spreadsheet and carry out the following tasks:

1. Enter a formula to calculate the total number of units produced each year.
2. Insert a column, labelled 1978 (%), after the column containing the data on 1978.
3. Enter a formula, in the appropriate cell, to calculate the percentage of electricity produced by coal in 1978. (Hint: the formula should have a relative and absolute cell reference).
4. Copy the formula to calculate the percentages of electricity produced by gas, oil and nuclear fuel in 1978.
5. Format the decimal fractions in the column to percentage format to one decimal place.
6. Repeat the steps in questions 2-5 to obtain the percentage breakdown for the other four years given.
7. Save the spreadsheet as **Megagen1**.
8. It is anticipated that the amounts of electricity produced by each type of fuel in 2003 will show a 7% decrease on the 1998 figures. Add one column showing the number of units that Megagen hope to produce in 2003 and a second showing the percentage breakdown for 2003.
9. Format the column holding the units for 1993 to integer (whole number) format.
10. Save the spreadsheet as **Megagen2**.
11. Print the range of cells containing the anticipated numbers of units that the company hopes to produce in 2003 from each fuel type listed.

Assignment 14

Pitstop Motors Ltd has service stations in eight different towns. Each service station sells four different types of motor fuel: diesel and premium, regular and unleaded petrol.

The following table shows:

- a) The price per gallon of each fuel type
- b) The number of gallons of each fuel type sold by each service station during one week

Pitstop Motors Ltd				
Fuel Price	Diesel	Premium	Regular	Unleaded
	1.43	2.07	1.96	1.85
Station	Diesel	Premium	Regular	Unleaded
Bedale	1432	847	1158	2732
Catterick	862	430	749	1745
Gainford	1683	784	1008	3771
Leyburn	534	239	611	1227
Redmire	997	820	1563	3520
Richmond	2018	988	1863	4108
Sildon	740	513	469	1490
Wetherby	1167	959	1244	2331

Enter these details onto a spreadsheet and carry out the following tasks:

- 1 Add a column, labelled *Diesel (\$)*, after the *Diesel* column.
- 2 Insert a formula in the appropriate cell to show the amount earned by diesel sales at the Bedale service station. (Hint: the formula should have an absolute cell reference and a relative cell reference).
- 3 Copy this formula to the appropriate cells to show the amounts earned by diesel sales at the other service stations.
- 4 Insert columns, labelled *Premium (\$)*, *Regular (\$)* and *Unleaded (\$)*, after the Premium, Regular and Unleaded columns respectively.
- 5 Insert formulae, in the appropriate cells, to show the amounts earned by the sales of each type of petrol at the Bedale service station.
- 6 Copy the formulae to show the amounts earned by the sales of each type of petrol at the other service stations.
- 7 Add a column, labelled Total, and insert formulae to show the total amount earned at each service station during the week.
- 8 Change cells containing money amounts to currency format.
- 9 Save the spreadsheet as **Fuel1**.
- 10 Due to falling oil prices in OPEC countries, Pitstop Motors Ltd has decided to pass on the reductions to their customers. A gallon of diesel will now be 3p cheaper and a gallon of any petrol product will be 5p cheaper. Show the effects of these decreases on your spreadsheet.
- 11 Save the spreadsheet as **Fuel2**.
- 12 Print the range of cells that contains the station names, diesel sales and diesel earnings from **Fuel2**.

Assignment 15

An engineer wishes to fit a 3000-litre tank with a water pipe. She wishes to compare the filling times of two pipes with different diameters.

Pipe 1 has a diameter of 6cm and a water flow rate of 2 litres per second, while pipe 2 has a diameter of 15cm and a water flow rate of 5 litres per second.

She has entered the following details onto a spreadsheet:

	A	B	C	D	E
1	PIPE SELECTION				
2					
3		Pipe 1	Pipe 2		
4	Diameter/cm	6	15		
5	Quantity/sec	2	5		
6					
7	Tank capacity	3000			
8					
9	Time	Pipe 1	% Tank	Pipe 2	% Tank
10	Minutes	Quantity	Filled	Quantity	Filled
11	(After)	Poured		Poured	
12	1				
13	2				
14	3				
.					
.					
.					
35	24				
36	25				

The contents of cells B5 (2), B7 (3000) and C5 (5) are numeric values while the contents of the other cells given are labels. You must now enter the details as given onto a spreadsheet and carry out the following tasks:

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Note: tasks 1-6 concern pipe 1.

1. Enter a formula in cell B12 to obtain the quantity of water poured after one minute.
2. Enter a formula in cell B13 to obtain the quantity of water poured after two minutes.
3. Copy this formula to obtain the quantities of water poured after each minute for the first 25 minutes.
4. Enter a formula in cell C12 to obtain the percentage of the tank filled after one minute.
5. Copy this formula to obtain the percentage of the tank filled after each minute for the first 25 minutes.
6. Alter this range of cells to percentage format.
7. Using steps similar to those followed in tasks 1-6, obtain the details for pipe 2 for each minute for the first 10 minutes.
8. Save the spreadsheet as **Pipesel1** and print it out.
9. Alter the appropriate cells on the spreadsheet to compare a 10cm pipe with a water flow rate of 3.3 litres per second and a 25cm pipe with a water flow rate of 8.3 litres per second.
10. Save the spreadsheet as **Pipesel2**.

Assignments - Section 4

Functions, commands and procedures not previously encountered but required for each assignment are as follows:

Assignment 16

- Linking two spreadsheets

Assignment 17

- Linking two spreadsheets
- Protecting cells

Assignment 18

- Planning spreadsheet layout
- Printing formulae

Assignment 19

- Linking three spreadsheets

Assignment 20

- Consolidation

Assignment 16

JD Seafoods Ltd. supply cod, plaice, sole and whiting to restaurants and shops throughout the UK. The company operates a fleet of 8 trawlers out of Grimsby port. When a trawler docks in port, the crew sorts their catch into 25kg boxes.

Part A

The following table shows the number of boxes of each fish type caught on each day over a three-day period by one of the company's trawlers, the Morning Star:

Morning Star - Fish Catches			
Fish type	Day 1	Day 2	Day 3
Cod	47	38	48
Plaice	11	9	15
Sole	28	36	30
Whiting	54	40	43

You are required to enter these details onto a spreadsheet and carry out the following tasks:

1. Add a column, headed *Total*, and show the total number of boxes of each fish type caught over the period.
2. Add a row, labelled *Total*, and show the total number of boxes of fish caught on each day.
3. Alter the cod catches to 51, 37 and 54 for day 1, day 2 and day 3 respectively.
4. Save the spreadsheet as **Fish1** and close the file.

Part B

The following table shows the number of boxes of each fish type landed by the other 7 trawlers in the company's fleet over the same three-day period:

JD Seafood Ltd.				
Trawler	Cod	Plaice	Sole	Whiting
Blue Oyster	151	44	114	109
Edelweiss	79	17	63	124
Freswick Lass	110	26	71	117
Kingfisher	129	42	83	120
Netmaster	118	38	57	135
Red Rose	96	23	79	89
Velvet Band	102	12	48	134

Enter these details onto a spreadsheet and carry out the following:

1. Add a column, headed *Total*, and show the total number of boxes of fish caught by each trawler over the period.
2. Add a row, labelled *Total*, and show the total number of boxes of each fish type caught by all 7 trawlers.
3. Insert a row, labelled *Morning Star*, before *Netmaster's* details.
4. Enter formulae to link the appropriate cells in this new row with the cells in the **Fish1** spreadsheet file which contain the total number of boxes of each fish type caught by the Morning Star over the period (Q1 above).
5. Amend the totals to take account of the Morning Star's entries.
6. Save the spreadsheet as **Fish2**.

Assignment 17

Donwich University offer three and four-year degree courses in various disciplines. The following table shows, by faculty, the number of students registered at each year level for 2000:

Faculty	Year 1	Year 2	Year 3	Year 4
Architecture	45	29	26	8
Arts	476	293	258	131
Business Studies	334	248	206	85
Engineering	150	112	97	26
Law	85	68	55	24
Science	282	226	213	83
Social Science	142	118	105	63

Part A

You are required to enter these details onto a spreadsheet and carry out the following:

1. Add a column, with a suitable heading, to show the total number of students registered by each individual faculty.
2. Show the total number of students who were registered at the university for 2000.
3. Save the spreadsheet as DONWICH1 and close the file.

Part B

The following table shows the total numbers of students registered by each faculty at Donwich University for 1980 and 1990:

Faculty	1980	1990
Architecture	83	94
Arts	1239	1203
Business Studies	395	621
Engineering	214	297
Law	209	220
Science	462	613
Social Science	357	389

You are required to enter these details on a spreadsheet and carry out the following:

1. Add a row, suitably labelled, to show the total numbers of students who were registered at Donwich University in 1980 and in 1990.
2. Add a column, labelled 2000, and enter formulae in the relevant cells to draw the totals for each faculty for 2000 from the **Donwich1** file.
3. Using any one of three possible methods, enter a suitable formula to show the total number of students who were registered at the university for 2000.
4. Insert a column, labelled 1980%, after the column containing the details for 1980.

(Overleaf)

ESSENTIAL SPREADSHEET SKILLS

5. Enter formulae to show the percentage of the overall total registered by each faculty for the year.
6. In a similar manner, insert columns to show the 1990 and 2000 percentages.
7. Format these three new columns to percentage format (1 decimal place).
8. Invoke the protect facility of your spreadsheet package to protect all cells containing formulae.
9. Save the spreadsheet as **Donwich2**.

Assignment 18

The furniture department, at Hanson's Department Store, carries a wide range of modern furniture. The weekly earnings, in the various furniture categories over a four-week period, were as follows:

FURNITURE DEPARTMENT				
Category	Week 1	Week 2	Week 3	Week 4
	\$	\$	\$	\$
Bedroom	2340	2690	1800	2270
Kitchen	8750	6640	9580	5300
Living Room	7400	11500	9770	12430
Other	2750	3250	1600	1360

Part A

Carry out the following tasks:

1. Enter these details onto a spreadsheet and obtain the overall weekly earnings.
2. Save the spreadsheet as **Dept1**.
3. Erase the spreadsheet from the screen.

Part B

The Accounts manager, at Hanson's, now wishes you to produce a spreadsheet to show a cash flow analysis for the four-week period. You are provided with the following information:

The opening balance for week 1 was \$560.

Income data:

Income, at Hanson's, is generated entirely from item sales in the store's five departments. The amounts of money, taken by each department over the four-week period, were as follows:

Department	Week 1	Week 2	Week 3	Week 4
	\$	\$	\$	\$
Clothing	9651	4337	9605	7422
Household	2779	5310	3422	1938
Grocery	37621	31748	35165	36270
Toy	2133	2859	1861	3152

The weekly sales in the furniture department, over the period, can be obtained from the **Dept1** file (Hint: Use the Link facility).

(Overleaf)

Expenses data:

- Total wage payments amounted to \$17600 per week.
- Heating and lighting costs, for weeks 1-4, were \$518, \$485, \$533 and \$472 respectively.
- Stock replenishment costs, for each successive week, were \$42827, \$50517, \$43419 and \$48211 respectively.
- Insurance payments were \$1200 per week.
- Training programme costs, for weeks 1-4, were \$955, \$860, \$835 and \$1080 respectively.
- Miscellaneous costs, for each successive week, amounted to \$739, \$1007, \$621 and \$887 respectively.
- Remember that a weekly closing balance is carried forward and becomes the opening balance for the next week.

After completing the spreadsheet, you must carry out the following:

1. Protect all cells that contain formulae.
2. Save the spreadsheet as **Dept2**.
3. Print the entire spreadsheet.
4. Print the range of cells (formulae only) that contain the amounts earned through furniture sales.

Assignment 19

Master Video Ltd operates video rental shops in 6 different towns. Each shop stocks a wide range of videos in 9 different categories: cartoon, comedy, documentary, drama, foreign language, music, science fiction, sport and thriller.

Part A

Table 1 shows the numbers of foreign language videos rented each day, in each language category, during the first week of February at the company's Marbury shop:

Table 1

FOREIGN LANGUAGE FILMS							
Language	Mon	Tue	Wed	Thur	Fri	Sat	Sun
French	1	2	4	2	3	6	5
German	2	0	1	3	1	3	2
Spanish	2	1	2	0	4	5	3
Italian	0	2	1	3	2	3	2
Other	3	5	5	1	6	12	10

You must carry out the following tasks:

1. Enter the data given in table 1 onto a spreadsheet.
2. In a new column, show the total number of videos rented in each language category over the week.
3. Enter a formula, in the appropriate cell, to show the total number of foreign language videos rented altogether over the week.
4. Name this latter cell *FORTOTAL*.
5. Save the spreadsheet as **Video1** and close the file.

Part B

Table 2 shows the numbers of videos rented each week, in the various categories, during February at the company's Marbury branch:

Table 2

MARBURY SHOP - February Rentals				
Category	Week 1	Week 2	Week 3	Week 4
Cartoon	79	106	113	92
Comedy	237	191	266	249
Documentary	45	32	68	53
Drama	531	477	526	449
Foreign		92	81	108
Music	94	116	112	85
Sci-Fi	227	199	181	205
Sport	108	93	88	117
Thriller	177	143	156	138

Notice that the number of foreign language videos rented during week 1 is not listed.

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Enter the data given in table 2 onto a spreadsheet and carry out the following tasks:

1. Enter a formula, in the appropriate cell, to obtain the number of foreign language videos rented during the first week from the VIDEO1 file.
2. In a new column, show the total numbers of videos rented in each category during February.
3. Enter a formula, in the appropriate cell, to show the total number of videos rented altogether during February.
4. Name this latter cell MARFEB.
5. Save the spreadsheet as **Video2** and close the file.
6. Erase the spreadsheet from the screen.

Part C

Table 3 shows the numbers of videos rented during February, March and April at the company's shops in the various towns:

Table 3

MASTER VIDEO LTD - Quarterly Rentals			
Town	February	March	April
Brentwell	4622	4319	4027
Eastleigh	9328	8210	6995
Farwood	8317	7672	7104
Hillfield	4231	3998	3676
Marbury		6071	5742
Upton	2932	2668	2380

Notice that the number of videos rented at the Marbury shop during February is not listed.

You must carry out the following tasks:

1. Enter the details given in table 3 onto a spreadsheet.
2. Enter a formula, in the appropriate cell, to obtain the number of videos rented at the Marbury shop during February from the **Video2** file.
3. Add a column to show the total number of videos rented at each shop over the three-month period.
4. Obtain the total number of videos rented by the company over the period.
5. Add another column to show the numbers of videos rented at each shop expressed as a percentage of the overall total rented during the period. Format the column to percentage format (1 decimal place).
6. Copy the two ranges of cell displays, containing the names of the towns and the corresponding percentages, to columns N and O respectively.
7. Protect all cells containing formulae.
8. Save the spreadsheet as **Video3**.
9. Obtain a printout of the details in columns N and O.

Assignment 20

A new toll road was opened in Feltham last month to reduce traffic congestion in the town. The following tables show the numbers of vehicles, separated into five different categories, which used the new road each day during the first two weeks:

Week 1

TOLL ROAD TRAFFIC - Week 1							
Vehicle	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Motor cycles	107	71	92	108	131	162	116
Buses	22	28	19	12	23	48	17
Cars	328	406	389	418	466	620	243
Trucks (< 8 tonnes)	116	213	85	188	208	72	16
Trucks (> 8 tonnes)	43	28	47	36	52	20	9

Week 2

TOLL ROAD TRAFFIC - Week 2							
Vehicle	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Motor cycles	102	76	92	82	95	133	108
Buses	37	25	30	26	40	58	20
Cars	429	330	352	389	387	513	214
Trucks (< 8 tonnes)	75	188	64	183	196	101	23
Trucks (> 8 tonnes)	26	33	32	39	41	23	20

Part A

Carry out the following tasks:

1. Enter the details for Week 1 onto a spreadsheet.
2. Enter formulae in the appropriate cells to obtain:
 - a) the number of vehicles, in each category, which used the road during the week.
 - b) the number of vehicles, which used the road on each day.
 - c) the total number of vehicles which used the road during the week.
3. Save the spreadsheet as **Toll1** and close the file.

Part B

1. Enter the details for Week 2 onto a new spreadsheet.
2. Enter formulae in the appropriate cells to obtain the category, daily and weekly totals as in part A.
3. Save the spreadsheet as **Toll2**.

Part C

The following table shows the number of vehicles, in each category, which used the toll road during weeks 3 and 4:

TOLL ROAD TRAFFIC - Monthly Analysis		
Vehicle	Week 3	Week 4
Motor cycles	809	756
Buses	188	205
Cars	3069	2798
Trucks (< 8 tonnes)	1017	903
Trucks (> 8 tonnes)	262	222

Carry out the following:

1. Enter the details given, in the preceding table, onto a new spreadsheet.
2. Insert two columns, labelled 'Week 1' and 'Week 2', after the vehicle column.
3. Enter formulae, which incorporate the link facility, to include the vehicle category totals for weeks 1 and 2 from the **Toll1** and **Toll2** files respectively.
4. Obtain the monthly category totals.
5. Obtain the total number of vehicles that used the toll road during the month.

The following table shows the vehicle charges for using the toll road:

Vehicle	Vehicle Charge
Motor cycles	\$0.40
Buses	\$1.35
Cars	\$0.70
Trucks (< 8 tonnes)	\$1.00
Trucks (> 8 tonnes)	\$1.75

6. Include these charges in a new column.
7. Add a column to show the total amounts of money taken in each vehicle category during the month.
8. Obtain the overall total amount of money taken during the month.
9. Format these latter two columns to currency format.
10. Add a column to show the monthly amounts of money taken in each category expressed as percentages of the overall total amount taken during the month.
11. Format the column to percentage format (1 decimal place).
12. Protect all cells containing formulae.
13. Save the spreadsheet as **Fintoll**.
14. Print the entire spreadsheet and close the file.

(Overleaf)

ESSENTIAL SPREADSHEET SKILLS

A mistake has been made in recording the daily number of motorcycles using the toll road during week 1. They should be as follows:

Vehicle	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Motor cycles	117	89	132	152	141	158	119

15. Recall the **Toll1** file and make the necessary changes.
16. Re-save the spreadsheet using the same file name.
17. Erase the spreadsheet from the screen and recall the **Fintoll** file.
18. Give the update/links command.
19. Check the on-screen totals against the totals on the printout. Have the changes to the **Toll1** spreadsheet file affected the **Fintoll** spreadsheet file?
20. Re-save the spreadsheet using the same file name.

Assignments - Section 5

The functions and commands required for each assignment are as follows:

Assignment 1

- The 'Logical If' function - single condition.

Assignment 2

- The 'Logical If' function - two conditions using OR.

Assignment 3

- The vertical lookup function - VLOOKUP.

Assignment 4

- The horizontal lookup function - HLOOKUP.

Assignment 5

- Consolidation.

Assignment 21

Langton Breweries Ltd uses barley as the chief raw material in producing a variety of beers for the home and export markets. The barley, which is purchased from cereal growers, is graded according to its quality into A, B and C categories.

The following table gives the quantity (in tonnes) and respective quality of barley sold to the company by 12 different cereal growers:

LANGTON BREWERIES LTD		
Supplier	Quantity	Quality
J Andrews	87	A
L Benson	136	A
W Brunell	163	C
H Colwell	48	B
B Cullen	107	A
K Davies	64	B
T Dukes	82	B
S Freeman	58	A
O Harris	183	A
M Lloyd	119	A
R Meegan	76	C
J Ward	142	B

The basic purchase price of the barley is \$85 per tonne. In order to encourage the production of top quality barley, however, the company uses the following bonus/penalty scheme based on barley quality:

- Category A - 10% bonus is paid
- Category B - No bonus paid or penalty charged
- Category C - 25% penalty is charged

The barley is collected from each supplier by one of the company's trucks. The company charges a \$2.50 per tonne collection fee.

You are required to carry out the following tasks:

1. Enter the details given in the table above onto a spreadsheet titled 'Langton Breweries Ltd - Barley Purchases'.
2. Add 5 new columns to show:
 - a) The basic price paid to each supplier
 - b) The bonus paid (if any) to each supplier (Hint: Use IF)
 - c) The penalty charged (if any) to each supplier (Hint: Use IF)
 - d) The overall collection fee deducted by the company for each supplier
 - e) The actual amount received by each supplier after bonuses were awarded, penalties charged and collection fees deducted.
3. Save the spreadsheet as **Barley**.
4. Print the entire spreadsheet.
5. This project is worth 30 marks.

Assignment 22

Elegant Interiors Ltd is a store specialising in the sale of household furniture. The table below shows 12 customers who bought items at the store, the items purchased, the retail prices of the various items and the distance that each customer lives from the store.

Customer	Item Description	Retail Price	Distance (Miles)
T Burns	Coffee table	\$85	6
K Caswell	Dining room suite	\$850	8
S Evans	TV/VCR cabinet	\$74	12
N Haines	Double bed	\$346	15
F Lawson	Computer desk	\$105	4
P Moran	Living room suite	\$949	3
O Neeson	Single bed	\$142	7
B Nordell	Dining room suite	\$625	9
K Palmer	Hall table	\$137	2
V Parkes	Bookcase	\$162	9
R Robbins	Living room suite	\$1355	11
A Satelle	Hi-fi cabinet	\$92	14

The store is presently offering a 5% discount on all bills over \$200. A delivery service is available to customers but a \$20 fee is charged if:

- a) The delivery distance is more than 10 miles; **or**
- b) The retail price of the item bought is less than \$500.

Note: Be sure to link these calculations to cells and not values.

- 1. format the cells, merge and center the titles on all pages. (except formulas)
- 2. Use 2 decimal places in all numeric values.

All customers listed had their purchases delivered. Name this sheet "Elegant Interiors Ltd - Sales".

You must now carry out the following tasks:

1. After entering the details given in the table above onto a spreadsheet titled 'Elegant Interiors Ltd - Sales'.
2. link a sheet with columns to show:
 - a) The discount available (if any) to each customer (Use IF).
 - b) The delivery charge payable (if any) by each customer (Use IF). Show this in its own cell.
 - c) A special discount of 10% if the customer spends more than \$500 and lives less than 10 miles away.
 - d) The actual amount payable by each customer.

Note: You can do the discount calculations in two separate cells with the possibility of getting a maximum of 85%. If you can combine these, you can achieve a higher mark.

3. Copy the customer names and the respective amounts payable to columns.
4. Protect all cells containing formulae.
5. Save the spreadsheet as **Fur1**.
6. Include a chart of the customers and their distances.
7. Print all pages. There should be four or five sheets.
8. 30 possible marks

Assignment 23

Brenton Rovers Football Club plays all its home games at Marley Park. Table 1 below shows the admission costs, in the different supporter categories, to the four areas of the ground:

Table 1

Supporter Category	North Bank	Canal End	East Stand	West Stand
Adult	\$5.00	\$7.00	\$12.00	\$15.00
Child	\$1.50	\$2.00	\$5.00	\$6.00
OAP	\$2.00	\$3.00	\$6.50	\$9.00
Student	\$2.50	\$3.50	\$8.00	\$10.00

Table 2 shows the attendance, for the last home game, in each supporter category for each area in the ground:

Table 2

Supporter Category	North Bank Attendance	Canal End Attendance	East Stand Attendance	West Stand Attendance
Adult	2891	2219	1357	955
Child	339	594	4894	3924
OAP	158	116	1229	718
Student	1142	3208	959	512

You must now carry out the following tasks:

1. Create a spreadsheet titled 'Brenton Rovers FC - Home Gate Receipts'.
2. Enter the details as displayed in table 1 onto the spreadsheet. The range of cells chosen, to hold this information, will be used as a lookup table.
3. Enter the details contained in table 2 onto the spreadsheet. Leave a blank column after each of the four attendance columns.
4. Label each successive blank column '*North Bank receipts*', '*Canal End receipts*', '*East Stand receipts*' and '*West Stand receipts*' respectively.
5. Using the details contained in the lookup table and the attendance details, Enter formulae in the blank columns to calculate the receipts taken in the various supporter categories for each area of the ground (Use the vertical lookup function).
6. Add a column, labelled *Total receipts*, to show the total receipts taken in each supporter category for all four areas of the ground.
7. Insert a formula in the appropriate cell to show the total receipts taken at the game.
8. Format all cells containing currency details to currency format to 2 decimal places.
9. Add a column, labelled *Percentage receipts*, to show the percentage of total receipts paid by each supporter category. Format this column to percentage format to 1 decimal place.
10. Copy the ranges of cells containing the supporter category details, the total receipts paid by each supporter category and the percentage receipts details to columns R, S, and T.
11. Protect all cells containing formulae and save the spreadsheet as **Receipts**.
12. Print the details held in columns R, S and T.

Assignment 24

The Phoenix Insurance Company Ltd offers three categories of car insurance policy to car owners:

- 'Category A - Third party'. The basic premium is calculated as 2% of the car's value.
- 'Category B - Third party, fire and theft'. The basic premium is calculated as 3% of the car's value.
- 'Category C - Comprehensive'. The basic premium is calculated as 5% of the car's value.

The company offers a very attractive 'no claims bonus'. A policyholder over 25 years old and who has not claimed on a previous car insurance policy is offered a 20% reduction on the basic premium.

Any policyholder, however, who has previously claimed on a car insurance policy is not eligible for the 'no claims bonus' and will incur a penalty charge of \$200 on top of the basic premium. You are given the following details on ten policyholders:

Policy Holder	Age	Insurance Category	Insurance Claims	Car Value
J Baker	52	C	No	\$10,600
S Clifford	35	A	No	\$8,200
M Evans	23	A	Yes	\$2,500
B Goss	61	B	No	\$6,100
R Hendon	44	C	No	\$17,500
T Leigh	28	C	No	\$12,700
J Perry	37	A	Yes	\$9,100
F Selby	20	B	No	\$4,500
A Thorne	58	C	No	\$14,800
G Wright	24	B	No	\$5,400

You are required to carry out the following tasks:

1. Enter the insurance policy categories together with their respective percentages into a lookup table on a spreadsheet titled 'Phoenix Insurance Company Ltd'.
2. Enter each policyholder's details, outlined above, onto the spreadsheet.
3. Add 4 new columns to show:
 - a) The basic premium to be paid by each policyholder (Use the appropriate lookup function in the formula)
 - b) The penalty charges to be paid by the relevant policyholders (Use the IF function)
 - c) The bonuses for the relevant policyholders
 - d) The insurance premium payable by each policyholder - after bonuses are deducted from or penalty charges added to the basic premium.
4. Protect all cells containing formulae.
5. Save the spreadsheet as **Insure1**.
6. Obtain a printout of the entire spreadsheet.

Assignment 25

Musicland Ltd, based in Pipesville, shows the following sales in its four music departments for last week:

Table 1

Item	Classical	Country	Easy Listening	Pop/Rock
CD	233	91	312	562
LP	181	43	241	226
Tape	163	213	488	729
Video	37	72	106	184

The cost price and selling price of each item is as follows:

Table 2

CD	LP	Tape	Video
\$7.75	\$3.85	\$4.50	\$9.00
\$11.50	\$6.75	\$7.99	\$13.50

You must now carry out the following tasks:

Part A

1. Enter the price details (Table 2), outlined above, onto a spreadsheet titled 'Musicland Ltd - Weekly sales analysis'. (Hint: the range of cells containing the price details must be used in Q3 as a lookup table).
2. Enter the data on sales for last week (Table 1) onto the same spreadsheet in rows below the price details.
3. Add four new columns to show:
 - a) The total numbers of compact discs, LP records, cassette tapes and videos sold during the week
 - b) The total cost prices of all compact discs, LP records, cassette tapes and videos sold during the week. (Use the appropriate lookup function)
 - c) The total sales value of all compact discs, LP records, cassette tapes and videos sold during the week (Use the appropriate lookup function)
 - d) The gross profits on all compact discs, LP records, cassette tapes and videos sold during the week.
4. Obtain the overall gross profit for the week.
5. Add a column to show the gross profits on all compact discs, LP records, cassette tapes and videos sold during the week expressed as percentages of the overall gross profit for the week (Format the column to percentage format to zero decimal places).
6. Protect all cells containing formulae.
7. Save the spreadsheet as **Music1** and close the file.

(Overleaf)

Section B

The table below shows the expected weekly gross profits on the items sold by Musicland:

Item	Expected Gross profits
CD	\$4000
LP	\$2500
Tape	\$5000
Video	\$1500

1. Enter these details onto a new spreadsheet titled 'Manager's Report Sheet'.
2. Add a column, labelled 'Actual Gross Profits', and insert the gross profits from the **Music1** file (Use the link facility).
3. Obtain the total actual and expected gross profits.
4. Add a column labelled 'Comment'.
5. When the actual gross profit is greater than or equal to the expected gross profit on the weekly sales of a particular item, the word 'satisfactory' should be displayed in the appropriate cell in the comment column. Otherwise the word 'unsatisfactory' should appear in the cell (Hint: Insert suitable formulae to make the decisions).
6. Insert the following data, in rows, below the existing data on the spreadsheet:

Expenses	Amount
Salaries	\$6500
Bonuses	
Running costs	\$750
Re-investment	\$3000
Social fund	\$200

7. Bonuses are calculated as 5% of the actual gross profits. Insert a formula in the appropriate cell to obtain the bonuses payable.
8. Obtain the total expenses.
9. The overall net profit is obtained by deducting the total expenses from the overall actual gross profit. Insert a formula to obtain the overall net profit.
10. Protect all cells containing formulae.
11. Save the spreadsheet as **Music2**.
12. Print the entire spreadsheet.

Assignments - Section 6

The work involved in each assignment is as follows:

Assignment 26

- Produce a bar graph and a pie graph.

Assignment 27

- Produce a line graph and a stacked bar graph.

Assignment 28

- Produce a bar graph, a 3D pie-graph and an XY graph.

Assignment 29

- Produce a bar graph and an exploded pie graph.
- Add both graphs to the spreadsheet.

Assignment 30

- Consolidation

Assignment 26

The Lakeview Hotel and Country Club accommodates many tourists each year. The following table shows the numbers of foreign bookings for 1998, 1999 and 2000:

LAKEVIEW HOTEL AND COUNTRY CLUB			
Nationality	1998	1999	2000
French	1238	968	627
Japanese	395	483	597
Australian	650	793	934
German	994	854	699
American	937	1108	1405
Others	786	794	756

You must now carry out the following:

1. Enter the details onto a spreadsheet.
2. Save the spreadsheet as **Hotel1**.
3. Sort the data according to alphabetic order of nationality.
4. Produce a bar graph (with suitable titles, legends and axes titles) showing the numbers of bookings for each nationality in 1998, 1999 and 2000.
5. Can you establish any visible trends?
6. Produce a pie graph, with a suitable title, showing a percentage breakdown of the bookings for 2000.
7. Re-save the spreadsheet as **Hotel2**.

Assignment 27

The Complete Computer Store Ltd shows the following quarterly sales figures for their three most popular personal computers:

The Complete Computer Store Ltd			
Period	Dell GTS	Gateway 2001	Packard Bell P5
Qtr 1	63	123	82
Qtr 2	75	94	127
Qtr 3	118	85	103
Qtr 4	140	53	116

You must carry out the following:

1. Enter the details given onto a spreadsheet.
2. Save the spreadsheet as **Comsale1**.
3. Produce a line graph to show the sales trends over the four quarters for each computer given.
4. Insert an appropriate graph title.
5. Add suitable axis titles and legends to the graph.
6. Assign the name **Comline** to the graph.
7. Produce a stacked bar graph to show how the sales in each quarter contribute to the overall sales of each computer given.
8. Insert an appropriate graph title.
9. Add suitable axes titles and legends to the graph.
10. Assign the name **Comstbar** to the graph.
11. Re-save the spreadsheet file as **Comsale2**.
12. Print both graphs.

Assignment 28

Builders Providers Ltd, a company specialising in the production of building materials, shows the following sales for 1999, 2000 and 2001:

Tonnes Sold			
Material	1999	2000	2001
Cement	33420	37180	29250
Gravel	24530	22970	19210
Coarse sand	44700	41290	48380
Fine sand	48100	53770	46840
Large stones	15460	19340	23500
Small stones	27490	22850	19080

Part A

The Managing Director of the company requires the following:

1. A bar graph showing the sales pattern of each product listed over the period.
2. A three-dimensional pie graph showing the total sales of each product expressed as a percentage of the overall sales for the period.

You must enter the details given in the table above onto a spreadsheet and produce the requisite graphs on separate worksheets. Assign the names **Salespat** and **Persales** to graphs 1 and 2 respectively. Finally, save the spreadsheet file as **Build1**.

(Overleaf)

ESSENTIAL SPREADSHEET SKILLS

Part B

The company's trucks deliver purchased products to customers. The Managing Director wishes to analyse the correlation between:

1. The distances over which deliveries are made and
2. The time taken to carry out deliveries.

You are given the following information on twenty deliveries made recently:

Delivery	Time	Distance
1	1.5	61
2	2.8	103
3	0.6	15
4	1.3	53
5	2.6	99
6	0.75	22
7	1.8	64
8	2.4	85
9	1.1	44
10	0.8	27
11	3.0	94
12	1.2	40
13	3.3	105
14	1.0	36
15	2.2	72
16	1.9	76
17	0.6	20
18	1.4	50
19	3.1	110
20	2.3	74

In each case, the time is expressed in hours and the distance in miles. You are required to enter the details given onto a spreadsheet.

You must then produce an XY graph, showing the relationship between time and distance, to aid the Managing Director in her analysis. The graph should be placed on a new worksheet and given the name **Delttime**. Save the spreadsheet as **Build2**.

Assignment 29

The Savewell Centre is a large store retailing food and household items. The management wishes to analyse the numbers of customers at the store during different times of the day. They have produced the following table showing last week's details:

Savewell Centre						
Time	Mon	Tue	Wed	Thur	Fri	Sat
10:00-12:00	926	802	984	1099	937	1752
12:00-14:00	731	693	512	608	881	1643
14:00-16:00	1286	1509	1121	1492	1876	2649
16:00-18:00	1955	1680	1817	2063	2497	3308

You are required to enter the contents of the table onto a spreadsheet.

Carry out the following tasks:

1. Obtain the daily totals.
2. Save the spreadsheet as **Scentre1**.
3. Produce a bar graph showing the numbers of customers for each day in each consecutive time interval.
4. Assign the name **Shop1** to the graph.
5. Obtain the total numbers of customers for each day and the overall weekly total.
6. Produce a pie graph showing the daily numbers of customers expressed as percentages of the overall weekly total.
7. Assign the name **Shop2** to the graph.
8. Explode Saturday's percentage from the pie.
9. Assign the name **Shop3** to the graph.
10. Add both graphs to the spreadsheet.
11. Save the spreadsheet as **Scentre2**.
12. Print the complete spreadsheet.

Assignment 30

Summer Camp 2001 offers various activities to young people during the school holidays.

Part A

The table below shows the numbers of participants in each activity, on a weekly basis, during the last summer holiday period:

Week	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6
Badminton	22	13	17	11	9	6
Canoeing	15	24	29	25	19	16
Football	28	22	20	26	22	24
Orienteering	12	17	23	18	14	9
Swimming	34	37	42	31	27	20
Tennis	19	21	14	9	10	8

The weekly cost of participation is \$25 except for canoeing and swimming where the weekly cost is \$35.

You are required to carry out the following tasks:

1. Enter the details given onto a spreadsheet.
2. Produce a bar graph showing a comparison of the weekly participation for each activity given. Assign the name **Campgr1** to the graph.
3. Obtain the total number of participants for each activity over the six week period.
4. Produce a pie graph showing the percentage participation in each activity for the entire period. Assign the name **Campgr2** to the graph.
5. Obtain the total amount of money taken for each activity over the period (Hint: Use the If function).
6. Produce an exploded pie graph highlighting the percentage contribution of the money earned from the swimming participants to the total amount of money earned.
7. Save the spreadsheet as **Camp1**.
8. Close the spreadsheet file.

Part B

Summer Camp 2001 offer the following details concerning instructors' salary rates and the number of weeks worked by each instructor:

Summer Camp 2001 - Instructors' Payroll					
Weekly Salary:					
Badminton	Canoeing	Football	Orienteering	Swimming	Tennis
\$125	\$220	\$165	\$185	\$220	\$150
Payment Record:					
Instructor	Activity	Weeks			
J Bradley	Football	2			
L Cantwell	Swimming	3			
L Feakins	Badminton	6			
P Hughes	Swimming	1			
D Milton	Tennis	6			
R Norris	Canoeing	6			
J Rock	Football	4			
K Stevens	Swimming	2			
O Willis	Orienteering	6			
Y Wright	Canoeing	6			

You must now carry out the following tasks:

9. Enter the details given onto a spreadsheet.
10. Add a column to show the payment each instructor received (Use the lookup function).
11. Obtain the total amount of money paid to instructors.
12. Produce a pie graph to show the payment received by each instructor expressed as a percentage of the total payments made.
13. Save the spreadsheet as **Camp2**.
14. Close the spreadsheet file.

Part C

The following table shows details of the expenses incurred by Summer Camp 2001 over the period:

Summer Camp 2001 - Expenses Incurred	
Item	Cost
Bus Hire	\$1200
Canoes	\$1450
College Gym	\$1880
Football Pitch	\$1000
Salaries	
Swimming Pool	\$2400

You are now required to carry out the following:

15. Enter the details given onto a spreadsheet.
16. Add the total salaries paid. This can be obtained from the **Camp2** file (Use the link facility).
17. Obtain the total expense.
18. Produce a stacked bar graph showing an analysis of how the total expense is built up.
19. Save the spreadsheet as **Camp3**.
20. Close the spreadsheet file.

Assignments - Section 7

In these assignments you are required to produce a set of macros. During the course of your work, it is advisable to follow closely the steps for producing a macro. The requirements for each assignment are as follows:

Assignment 31

- Moving the cell pointer - down and right
- Using the GOTO statement to move the cell pointer
- Entering labels

Assignment 32

- Using the macro recording facility is optional

Assignment 33

- Pausing the macro for keyboard input
- Entering formulae.

Assignment 34

- Altering the column widths

Assignment 35

- Consolidation.

Assignment 31

A local Water Authority produces a survey each week of water usage in five different towns. The number of gallons used daily in each town is entered on a standard spreadsheet template:

	A	B	C	D	E	F	G	H
1	Water Authority Survey							
2	Gallons Used							
3								
4	Town	Mon	Tue	Wed	Thur	Fri	Sat	Sun
5	Ashdale							
6	Brenton							
7	Foxheath							
8	Medhurst							
9	Sandbury							

You must carry out the following:

1. Produce a fully documented macro to create this template.
2. Ensure that the macro executes properly.
3. Save the macro as **Watermac**.

Assignment 32

Produce five separate macros to automate the following procedures:

1. Insert a row.
2. Delete a column.
3. Erase the entries in the range B14..E15.
4. Freeze the titles both horizontally and vertically.
5. Align the entries in the range A1..F1 to the right.
6. Save the macros produced in Q1-5 as **Macrow**, **Maccol**, **Macerase**, **Mactitle** and **Macalign** respectively.

Assignment 33

Part A

1. You must produce an interactive macro that accepts and converts any number of kilograms to dollars.

Data required:
1 Kilogram = 2.2 Dollars

2. Save the macro as **Weight**.

When the macro is executed and '10' entered as input, the resulting spreadsheet should appear as follows:

	A	B	C	D
1	Distance Conversion			
2				
3	Kilograms:	10	Dollars:	22
4				

Part B

3. You are required to produce an interactive macro which:
 - a) Accepts any number of litres.
 - b) Converts the number of litres accepted to pints.
 - c) Converts the number of pints calculated to gallons.

Data required:
1 Litre = 1.76 Pints
1 Gallon = 8 Pints

4. Save the macro as **Volume**.

When the macro is executed and '20' entered as input, the resulting spreadsheet should appear as follows:

	A	B	C	D	E	F
1	Volume Conversion					
2						
3	Litres:	20	Pints:	35.2	Gallons:	4.4
4						

Assignment 34

Carry out the following tasks:

1. You are required to produce an interactive macro which:
 - a) Sets the column widths for the entire spreadsheet to 15.
 - b) Accepts any number of dollars sterling and returns the exchange rate value for the amount entered in German marks, French francs and US dollars.

Data Required:

\$1Stg = 2.49 Marks = 8.66 French francs = US\$1.47

2. Ensure that the macro executes properly.
3. Save the macro as **Rate1**.
4. Edit the macro to include the exchange rate value for the amount entered in Italian Lira.

Data Required:

\$1Stg = 2481 Lira

5. Ensure that the edited version of the macro executes properly.
6. Save the macro as **Rate2**.

Assignment 35

Produce an interactive macro to create a customer invoice on a spreadsheet. The user during execution of the macro must enter four items of data:

- (a) To-days' date e.g. 23-Feb-01
- (b) Item description e.g. Camcorder
- (c) The number of units bought e.g. 2
- (d) The unit price e.g. \$499

The VAT rate to be used is 17%.

The macro should return the total price, VAT payable and actual price. On executing the macro and entering the data given above, the invoice should appear as follow:

	A	B	C	D
1	HOME APPLIANCES LTD - Customer Invoice			
2				
3	Date:	23-Aug-94		
4				
5	Description:	Camcorder		
6				
7	Units Bought:	2	Unit Price:	\$499.00
8				
9	Total Price:	\$988.00	VAT Payable:	\$169.66
10				
11	Actual Price:	\$1167.66		
12				

Save the macro as **Invoice**.

Multiple-choice questions

1. The main purpose of a spreadsheet program is:
 - a) Computer-aided design
 - b) File maintenance and record retrieval
 - c) Production of textual documentation
 - d) Numerical manipulation and analysis

2. If you enter a value in a cell, then the default is for the value to appear:
 - a) Left aligned
 - b) Right aligned
 - c) Centred
 - d) None of these

3. If the value 0.682 is displayed in a spreadsheet cell as 68.2%, it is formatted as:
 - a) Percentage to 0 decimal places
 - b) Percentage to 1 decimal place
 - c) Percentage to 2 decimal places
 - d) Integer

4. A cell reference, in a formula, which changes when copied is called:
 - a) Relative
 - b) Absolute
 - c) Variable
 - d) Independent

5. What-if analysis:
 - a) Always requires the use of the logical if function
 - b) Allows the user to alter key variables to see the effect on the results of the computation
 - c) Allows the user to alter values in protected cells
 - d) Enables the user to explore the contents of hidden cells

6. If recalculation is set to manual on a spreadsheet, calculations will be performed:
 - a) On altering a formula in any cell
 - b) Only when relative replication is used
 - c) Only when the user requests
 - d) On altering a value in any cell

7. Cell protection is used in spreadsheets to:
 - a) Freeze column and row titles
 - b) Prevent infection by computer viruses
 - c) Hide confidential information
 - d) Prevent accidental changes to data

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- 8. Two different parts of a spreadsheet can be displayed simultaneously by:
 - a) Linking both parts
 - b) Splitting the window into panes
 - c) Erasing irrelevant data
 - d) Assigning view names to both parts

- 9. The formulae entered on a spreadsheet can be seen on a print-out of cell:
 - a) Replicas
 - b) Addresses
 - c) Formats
 - d) Contents

In answering questions 10-12, the spreadsheet presented in figure A must be examined:

Figure A

	A	B	C	D	E
1	Item	Unit	Units	Total	Discount
2	Description	Price	Sold	Price	Available
3					
4	3.5" HD disk	\$1.60	20	\$32.00	\$0.00
5	Screen wipes	\$3.75	10	\$37.50	\$0.00
6	Disk box	\$8.20	5	\$41.00	\$4.10
7					
8	Total	ERR		\$110.50	

The spreadsheet shows three different orders. The cell entries in the range, B4..C6, were entered as numeric values. All other numeric displays were obtained by using formulae. A 10% discount is offered on orders exceeding \$40.00.

- 10. The formula entered in cell D4 is:
 - a) +A4*C4
 - b) +A4*D4
 - c) +B4*C4
 - d) +B4*D4

- 11. The formula entered in cell E6 is:
 - a) IF(E6<40,D6*0.1,0)
 - b) IF(D6>40,E6*0.1,0)
 - c) IF(D6>40,D6*0.1,0)
 - d) IF(E6>40,E6*0.1,0)

- 12. The error message, displayed in cell B8, could have been caused by only one of the following formulae:
 - a) +D7/B5
 - b) +D5*A5
 - c) +B5*D7
 - d) +B5/D7

ESSENTIAL SPREADSHEET SKILLS

13. Which of the following is not an appropriate way of guarding the confidentiality of data held on a spreadsheet file?
- Save the file under password control
 - Conceal sensitive data using hidden format
 - Memorise the relevant details and erase the file from disk
 - Allow only authorised personnel access to your computer system
14. A spreadsheet link:
- Initiates the printing of the same spreadsheet file on two separate printers simultaneously
 - Establishes a connection between two spreadsheet files so that a change in one is reflected by a change in the second
 - Permits a connection to the same spreadsheet file by two users simultaneously
 - Allows two users access to the same spreadsheet file at different times
15. A lookup table is used to:
- Provide data for use within the spreadsheet
 - Hold the results produced during calculation
 - Check that the results produced by the computer are correct
 - Display the results of calculations in graph form
16. A student has entered the heights and weights, of his classmates, on a spreadsheet. He now wishes to graph the data to see the correlation between height and weight. Would you recommend:
- A pie graph
 - A stacked bar graph
 - An XY graph
 - Any of these
17. A legend is a key that identifies:
- A graph data series by colour, hatch pattern or symbol
 - A old 3-D bar graph that is no longer used
 - The old name of a graph data series before it was renamed
 - An old 3-D bar graph that is still in use
18. The steps which should be followed in producing an executable macro are:
- Planning ---> Entering ---> Documenting ---> Naming
 - Entering ---> Planning ---> Naming ---> Documenting
 - Naming ---> Entering ---> Re-planning ---> Editing
 - Planning ---> Entering ---> Re-planning ---> Editing
19. Macros are easier to understand if they are:
- Named
 - Documented
 - Error-free
 - Fully tested

ESSENTIAL SPREADSHEET SKILLS

20. Which of the following is not an advantage of using the macro recording facility of a spreadsheet program?
- a) Fewer errors occur in macros produced in this way
 - b) A novice can produce complex macros quickly
 - c) The time taken to produce a macro is quite short
 - d) A helpful explanation of each macro instruction is provided

Short-answer questions

1. Give three advantages and three disadvantages of using a spreadsheet program.
2. Outline the points that you would consider in choosing a spreadsheet program.
3. List the steps that should be followed in constructing a spreadsheet.
4. What precautions would you take to ensure the confidentiality and security of data held in spreadsheet files?
5. Distinguish between 'global' and 'range' formatting.
6. Describe the usefulness of the 'non-scrolling titles' facility.
7. Describe, with the aid of an example, the use of the 'logical if' function.
8. Name five different types of graph and give an appropriate application for each one.
9. Describe, with the aid of an example, the use of the lookup function.
10. Give two advantages and two disadvantages of using macros.

Part Three

The following table shows cinema attendance over a six-day period at ten different cinemas:

Cinema Attendance						
Cinema	Mon	Tue	Wed	Thu	Fri	Sat
Adelphi	178	216	252	222	362	348
Ambassador	145	209	276	302	415	405
Carlton	192	236	220	246	293	331
Classic	86	120	97	113	153	169
Metropole	163	189	224	202	288	350
Odeon	283	356	336	385	468	512
Omniplex	322	366	379	412	463	542
Savoy	236	255	246	292	357	342
Stella	79	125	112	96	142	136
UCI	319	306	335	377	408	529

You are required to enter this data onto a spreadsheet, save the file as **Part Three**.
Save the first sheet as "data"

Carry out **at least** the following tasks: **Remember to format visible changes**

- The attendance at the Metropole on Monday and at the Savoy on Friday should be 157 and 298 respectively. Format to show changes.
- Add new columns after Saturday's data to show the total weekly attendance and average daily attendance at each cinema. Show the Highest and the Lowest attendance at each cinema. Choose appropriate column headings.
- Add a new row after the UCI's attendance figures to show the total attendance for each day of all the cinemas listed. Choose an appropriate row name.
- Name this sheet **Cinema2**
- Due to falling attendance, the Stella has decided to close. Delete the row containing the details on the Stella.
- Insert a new row above the Metropole data and enter the following details on a new cinema that has opened:
 8. Janelle 176 170 215 221 239 233
- Remember to copy the appropriate formulae to show the total weekly attendance and the average daily attendance at the Janelle.
- Complete calculations that would show the highest, lowest, average attendance by each day.
- Make sure you create a "totals" area that is formatted differently than the other three regions. Example: A total of the weekly averages.
- Format the labels and data regions with fills and font formats
14. Save a copy of the entire workbook to the inbasket with your name in the title.
15. This project is worth 25 marks.