ADVANCED EXCEL

Advanced Excel 2016

◦ Some Functions:
  ◦ Finding the average
  ◦ Finding the median
  ◦ Finding the variance
  ◦ Finding the standard Deviation
  ◦ Finding the rank

- Sorting
- Subtotals
- Filtering
- Pivot Tables

Finding the average

$$mean = \frac{\sum x_n}{n} = \frac{x_1 + x_2 + \dots + x_n}{n}$$

- **Example:**

The mean for 5 values: $4, 36, 45, 50, 75$ is

$$\frac{4+36+45+50+75}{5} = \frac{210}{5} = 42$$

In Excel:
= average(.... : ....)

Finding the median

The **median** is the middle value of the data after sorting.

- If n **is odd** then Median $= x\left(\frac{n+1}{2}\right)$

- If n **is even** then Median $= \dfrac{x\left(\frac{n}{2}\right) + x\left(\frac{n}{2}+1\right)}{2}$

- **Example :**

The median for 4, 9, 6, 12, 16 $= 9$

The median for 4, 9, 6, 12, 19, 16 $= 10.5$

In Excel :

= median(.... : .....)

Finding the variance and standard deviation

- The **variance** is given by: $\text{variance} = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2$

In Excel:
=var(…. : …..)

- **Example:**

The variance for 5, 6, 2, 8, 9 = 7.5

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{5}x_i = \frac{2+5+6+8+9}{5} = 6$$

x	2	5	6	8	9	Total sum
$(x_i - \bar{x})$	-4	-1	0	2	3	0 = sum of residuals
$(x_i - \bar{x})^2$	16	1	0	4	9	30

$$\frac{30}{4} = 7.5$$

- The **Standard deviation** is given by:

In Excel:
=stdev(…. : …..)

- standard deviation $= \sqrt{\dfrac{\sum(x_i - \bar{x})^2}{n-1}}$

- **Example:**

The standard deviation for 5, 6, 2, 8, 9 $= \sqrt{7.5} = 2.73861$

Finding the Rank

In Excel:
=rank (....., ..., ...)

Number
(Grade)

List of Numbers
(Grades)

0: descending
1: ascending

	ID	Result	Rank
2	105612	17	32
3	128405	15	38
4	136279	13	43
5	136804	22	13
6	140569	16	34
7	141377	16	34
8	141786	22	13
9	142229	14	41
10	142962	15	38
11	143645	16	34
12	151196	21	17
13	151650	27	2
14	151670	26	4
15	152712	23	10
16	152921	25	8
17	152997	19	23
18	153486	26	4
19	153499	23	
20	154127	27	
21	154698		
	155155		

Sorting

◦ You can sort text, numbers, or dates.

◦ In Excel:

Home tab→ editing group→ sort and filter icon→ click on custom sort

Subtotals

◦ Is a quick way to summarize your sorted data.

| | CS | | CIS | | BIS | | | | | |

Type of Exam	○ Midterm ○ Final ○ Other:		Questions Type	○ Essay/Written ○ MCQ ○ Mix		Count of questions	30	Exam Weight	30
Course Name: Remedial Computer Skills					Course No.: 1902099				
Exam Date: 5/11/2017			Exam Time: 8:20 – 9:50 (2 sessions)			Author: RCS teachers			

Section	Instructor	No. Of Registered students	No. Of Attendees	No. Of Absentees	Highest Grade	Lowest Grade	Average Grade	Std Dev	Mode
1	Mrs. Aseel Al-Anani	46	46	0	28	13	19.47826	3.674169	20
2	Mrs. Hiba Mohammed	45	44	1	28	13	19.93182	4.217338	19
3	Miss Rola Al-Khalid	47	45	2	27	9	20.93333	4.013613	19
4	Mrs. Tahani Al-khateeb	50	50	0	30	11	19.9	5.075954	18
5	Mrs. Hiba Mohammed	50	48	2	28	8	19.10417	5.809895	25
6	Mrs. Tahani Al-khateeb	50	44	6	28	9	19.61364	4.540341	23
7	Dr. Reem al-fayez	50	45	5	28	6	19.42222	4.697625	21
8	Mrs. Aseel Al-Anani	50	46	4	26	8	17.8913	4.372786	18
9	Mrs. Hiba Mohammed	50	47	3	29	9	19.48936	4.916133	18
10	Mrs. Aseel Al-Anani	52	51	1	28	8	18.86275	4.157016	18
11	Mr. Mohannad Al-khalaileh	47	47	0	30	10	20.04255	4.413209	17
12	Dr. Fawaz Al-zaghoul	45	45	0	30	10	18.35556	4.950462	20
13	Dr. Ali Rodan	45	39	6	28	8	17.74359	4.722388	16
14	Miss Rola Al-Khalid	46	44	2	30	8	20.54545	5.75247	16
15	Miss Rola Al-Khalid	46	44	2	27	7	20.61364	4.462849	21
16	Mrs. Walaa Qutechate	45	42	3	28	10	18.88095	4.162565	15
17	Mrs. Tahani Al-khateeb	54	53	1	28	11	20.84906	4.262521	
18	Mrs. Tamara Almarabeh	48	46	2	28	12	18.95		
19	Dr. Salsabeel Al-falah	45	40	5	28				
20	Mrs. Tamara Almarabeh	45	43	2					
21	Dr. Thair Hamtini	45	43						
22	Miss Rola Al-Khalid	44	44						

- Remember you have to sort first, then do the subtotal.

- In Excel:
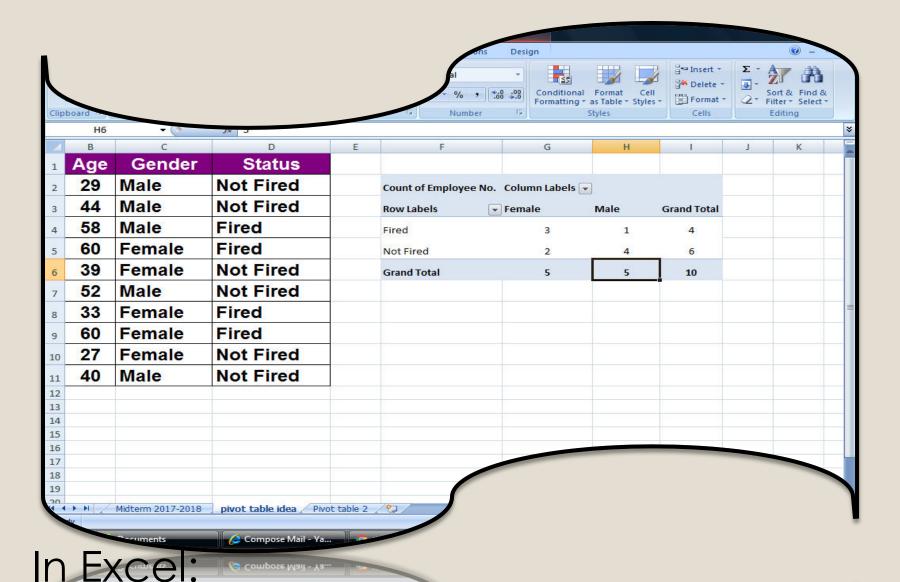
Data tab→ Outline→ Click on Subtotal

Filtering

◦ If you only want to display records that meet certain criteria, you have to use filtering.

◦ In Excel:

Home tab→ editing group→ sort and filter icon→ click on filter

Pivot Tables

◦ Pivot tables summarizes and categorizes information a data file, and then facilitates the reorganization of the resulting table.

In Excel:
Insert tab→ Tables group→ click on PivotTable