



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

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

- **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 $= \frac{x\left(\frac{n}{2}\right) + x\left(\frac{n}{2} + 1\right)}{2}$

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

- Example:**

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

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

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:

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

- Example:**

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

In Excel:
=var(... : ...)

In Excel:
=stdev(... : ...)

Finding the Rank

In Excel:

=rank (.....,,)

Number
(Grade)

List of Numbers
(Grades)

0: descending
1: ascending

	ID	Result	Rank
1			
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		

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

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 <input checked="" type="checkbox"/> CIS <input type="checkbox"/> BIS									
Type of Exam	<input checked="" type="radio"/> Midterm <input type="radio"/> Final <input type="radio"/> Other:	Questions Type	<input type="radio"/> Essay/Written <input checked="" type="radio"/> MCQ <input type="radio"/> 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	5.073954	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	4.950482	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	20.54343	3.75247	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	24
18	Mrs. Tamara Almarabeh	48	46	2	28	12	18.96667	4.162565	24
19	Dr. Saisabel 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.

The screenshot shows an Excel spreadsheet with a PivotTable. The data source is a table with the following columns: Age, Gender, and Status. The PivotTable is set up with 'Count of Employee No.' as the value field, 'Gender' as the column labels, and 'Status' as the row labels. The Grand Total for all employees is 10.

Age	Gender	Status
29	Male	Not Fired
44	Male	Not Fired
58	Male	Fired
60	Female	Fired
39	Female	Not Fired
52	Male	Not Fired
33	Female	Fired
60	Female	Fired
27	Female	Not Fired
40	Male	Not Fired

Count of Employee No.	Female	Male	Grand Total
Fired	2	1	3
Not Fired	4	2	6
Grand Total	6	4	10

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