# Assignment #3: Microsoft Office Excel

Total marks: 98

This assignment will require 4 hours to complete. If you have any questions about the assignment, please email me

This assignment covered topics and material on Excel Tutorial 1, 2, 3 & 4 and the below online modules:

1. Creating, Editing, and Saving Excel 2016 Workbooks
2. Formatting Excel 2016 Data
3. Data Presentation Strategies Using Excel 2016
4. Formulas and Functions in Excel 2016
5. Excel 2016 Charts, Tables, and Images
6. Working with Excel 2016 Data
7. Macros and Advanced Queries in Excel 2016
8. Excel 2016 PivotTables and Advanced Charts
9. Microsoft Excel 2016 Advanced: Apps and What-if Analysis
10. Microsoft Excel 2016 Advanced: PowerPivot, Custom Formatting, Fills, and Forms

Please note: Some of the question answers can be 0 (zero) or #DIV/0.

Go to the "Assignment 3" folder. **Download** and **Save** the "Assignment-3-Data.xlsx" file. To start, open "Assignment-3-Data.xlsx". Answer all the questions with **Cell Reference**.

# Use the "Q1-9" worksheet to answer questions 1 to 9.

1. Create an Excel formula to calculate Working Capital. (1 mark)

Working Capital = Current Assets − Current Liabilities.

1. Create an Excel formula to calculate the Current Ratio. (1 mark)

Current Ratio = Current Assets .

Current Liabilities

1. Create an Excel formula to calculate Quick Ratio. (2 marks)

Quick Ratio = Cash +Short Term Investments + Accounts Receivable

.

Current Liabilities

1. Create an Excel formula to calculate 𝑥, 𝑥 = y ∗ (1 + r)n. (2 marks)

*Hint, ab in Excel formula is a^b.*

𝑦

1. Create an Excel formula to calculate 𝑥, 𝑥 = ( 1+ r)n. (2 marks)
2. Create an Excel formula to calculate IRR, IRR = (

𝐹𝑉

𝑃𝑉

1/𝑛

)

− 1. (2 marks)

1. If the Internal Rate of Return (IRR) is expected to be 20%, what will the number of years (n) be? Use the Solver function on Q6 to determine the new number of years (n). (2 marks)

*Hint: We have created the formula in Q6 to calculate IRR, use that formula with the solver function to calculate a new number of years (n).*

* 1. *Open the solver function. Data > Analysis > Solver*
  2. *In Set Objective box: type E11 because we want to find that IRR to equal to a specific value (we set the Value in the next step)*
  3. *In To box: we choose Value of, then enter 20%. This is the Value we want E11 (IRR=20%)*
  4. *In Changing Variable Cells box, type E8. We want the Excel Solver function to adjust this cell, then the Value on the E11 cell will equal 20%.*

a ∗ b + c

1. Create an Excel formula to calculate 𝑥, 𝑥 = a∗( 1−d + e)2. (3 marks)
2. Create an Excel formula to calculate 𝑥, 𝑥 =

*Hint, in Excel* √𝑥 𝑖𝑠 𝑠𝑞𝑟𝑡(𝑥)*.*

−𝑏+√𝑏2−4𝑎𝑐

2𝑎

. (3 marks)

# Use the "Q10-21" worksheet to answer questions 10 to 21.

1. Use an Excel function to determine how many countries are in Asia. (1 mark)
2. Use an Excel function to calculate the Total Trade Balance for the European continent. (1 mark)
3. Use an Excel function to determine how many countries have a population greater than 20 million. (1 mark)
4. Use an Excel function to calculate the Average Trade Balance for countries that have Urban Population less than 85% (1 mark)
5. Use an Excel function to determine how many countries have a negative Trade Balance. (1 mark) *Hint, negative means less than 0.*
6. Use an Excel function to determine how many countries are not in Africa. (1 mark) *Hint, the comparison symbol for not is <>.*
7. Use an Excel function to determine how many countries have a Population less than and equal to 20 million and Land Area greater than 300000. (2 marks)
8. Use the Excel function to calculate the Total Population for Asia or African countries. (3 marks)

*Hint, this question requires using two excel formulas (sumifs) to find the answer. The first one is finding the Population in Asia, the second one finding the Population in Africa, then adding those values together.*

1. Use an Excel function to calculate the average Trade Balance for countries in the Asia continent, with a negative Trade Balance, Median Age between 25 and 46, and World Share greater than 0.15%. (3.5 marks)
2. Use **Excel** function to calculate the following
3. Total of Population (0.5 marks)
4. Average of Population (0.5 marks)
5. Median of Population (0.5 marks)
6. The variance of Median Age (0.5 marks)
7. The standard deviation of Median Age (0.5 marks)
8. Use Conditional Formatting to highlight:
9. Top 15 on Land area as "Green Fill with Dark Green Text" (1 mark)
10. Bottom 15% on Median Age as "Light Red Fill with Dark Red Text" (1 mark)
11. The values between 0.5% and 5.5% on World Share as "Yellow Fill with Dark Yellow Text." (1 mark)
12. Use **Conditional Formatting** to highlight the Population column data with the below criteria.
13. For Population, greater than 80% of the Average Population, shown as " Green Fill with Dark Green Text " (1 mark)
14. For Population, less than 45% of the Average Population, shown as " Light Red Fill with Dark Red Text" (1 mark)

*Hint: First, determine the Average Population, calculated on Q18b. Then create a formula to calculate 80% of the Average Population. Enter that formula in the Conditional Formatting box.*

*Example: What's 8.5% of 100? It means 100 \* 8.5%, which is equal to 8.5.*

1. Use the following criteria to format the Q22 spreadsheet:
2. First, insert a new row above row 1. In cell D1, enter the title Employee List for 2021. Format the title by using font Time New Roman, font size 28, font color white, and fill color Red (1.75 marks)
3. Format the data (A3:H114) using font Arial, font size 11, and Center (0.75 marks)
4. Format all the heading in Row 2 (A2-H2) by using font Cambria, font size 13, font color White, fill color Blue, bold, Wrap Text, and middle align (2 marks)
5. Use Merge & Center format cells from D1 to H1 (0.5 marks)
6. Set All Borders from Cell A2 to H114 (0.5 marks)
7. Freeze the first two rows (Row 1 and 2) and the first three columns (Column A to C). (1.5 marks)
8. Do not show Gridlines (0.5 marks)

# Use the "Q23-28" worksheet to answer questions 23 to 28.

1. The employees who have a Year of Service longer than ten will receive Long Service Awards. In Year of Service column uses the Logical function to determine who qualifies for the awards. If so, show Yes. Otherwise, show No. (3 marks)

Refer to Tutorial 3 –Q1

1. Employees' Raise percentage determined by Pay Grade. See Question 24 table in " Q23-28" Worksheet. In the Employees' Raise percentage column, use the Logical function to determine the Employee's Raise percentage. (4 marks)

Refer to Tutorial 3 –Q5

*Hint, this question requires three If functions to solve it.*

1. *For the first If function, check if Pay Grade = A; if so, it returns 1.25%. If not, use the second if function.*
2. *For the second If function, check whether Pay Grade = B: If so, it returns 1.5%. If not, use the third if function*
3. *For the third If function, check whether Pay Grade = C; if so, it returns 2.5%.*
4. *Otherwise, it will return 0.5% because it is not A, not B, and not C. Must use the Absolute Cell Reference for the Raise percentage*
5. The 10, 15, 20, or 25 Year of Service employees will receive a milestone bonus. In Milestone Bonus column uses the Logical function to calculate Milestone Bonus (Milestone Bonus = Annual Salary \* Milestone Bonus Percentage) for the eligible employees. For the ineligible employees, the milestone bonus will equal $0.

Please find the Milestone Bonus Percentage in the " Q23-28" Worksheet. Change the column category to Currency and set decimal to 2. (5 marks) Refer Tutorial 3 - Q1 and Q2

*Hint, this question requires to use If with Or function to solve it.*

*First, start with the If function. In the logical\_test field, use Or function to create the logic\_test similar to Tutorial 3 - Q2. In the Value\_if\_true field, return the calculation value. In the Value\_if\_false field return $0.*

*Logical\_Test: Or (YOS=10, YOS=15, YOS=20, YOS=25)*

*Value\_if\_true: Annual Salary \* Milestone Bonus Percentage Value\_if\_false: 0*

*Must use the Absolute Cell Reference for Milestone Stone Percentage*

1. The Board of directors wants to keep the total Milestone Bonus equal to

$25,000. Use the Solver function to find the Milestone Bonus percentage to meet the $25,000 target. (3 marks)

Refer Tutorial 3 – Q8

*Hint: First, determine the Total Milestone Bonus. Then use the Solver function to find the Milestone Bonus percentage that will meet the*

*$25,000 target.*

*For the Solver function to solve the Milestone Bonus Percentage, you must use the Absolute Cell Reference for Milestone Stone Percentage in Question 25*

1. In the Tax Deduction column, use the Logical function to calculate Tax Deduction for each employee.

Tax Deduction = Annual Salary ∗ Tax Rate.

Tax Rate determined by the Annual Salary. See Question 27 table in " Q23-28" Worksheet. (5 marks)

|  |  |
| --- | --- |
| **Annual Salary** | **Tax Rates** |
| Less than or equal to $47,630 | 15.00% |
| Greater than $47,630 and less than or equal to $95,259 | 17.75% |
| Greater than $95,259 and less than or equal to $147,677 | 20.50% |
| Greater than 147,677 | 22.62% |

Refer Tutorial 3 – Q4

1. Employees are in Pay Grade B, C, or D, are over 5 Years of Service, are in the Finance or Marketing department, will receive a Bonus. Use the Logical functions determines the Bonus (Bonus = Annual Salary \* Bonus Percentage).

Please find Bonus Percentage in the "Q23-28" Worksheet. If the employee doesn't match the criteria, the Bonus will equal $0.

Insert a new column on the left of the Tax Deduction; name the column with the heading "Bonus." Change the column category to Currency and set decimal to 2. (5 marks)

Refer Tutorial 3 – Q7

*Hint: First, determine all the criteria. Then use if, and, or functions to combine all the requirements.*

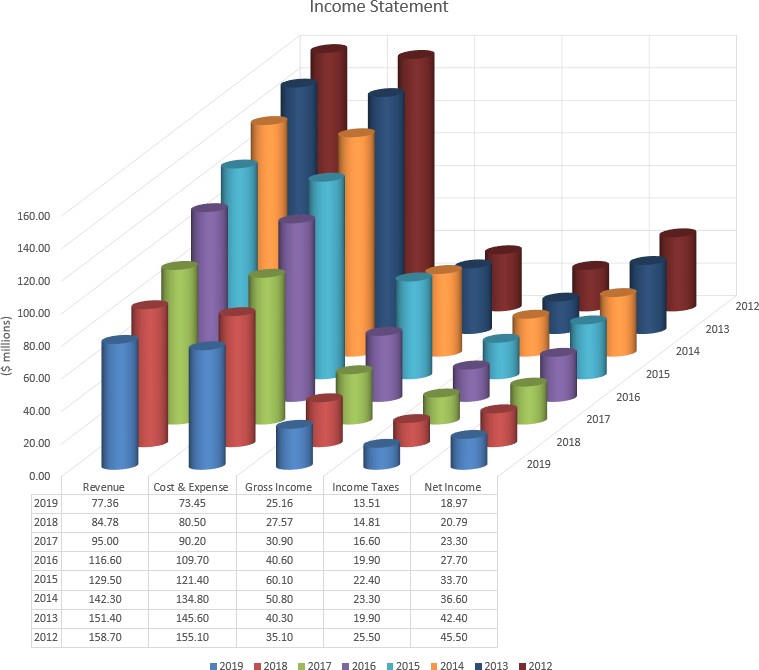
*Here are the requirements:*

1. *Paygarde is B, C, or D*
2. *Years of Service > 5*
3. *Finance or Marketing department*
4. Use the data from the "Q29" worksheet to create a 3-D Column Chart in the "Q29" worksheet (3.5 marks)

* Set Chart Title to the above chart as Income Statement (0.25 mark)
* Set Vertical Axis Title as ($ millions) (0.25 mark)
* Show Legend on the bottom (0.25 mark)
* Show Vertical Major Gridlines (0.25 mark)
* Change the Column Shape from Box to Cylinder (0.25 mark)

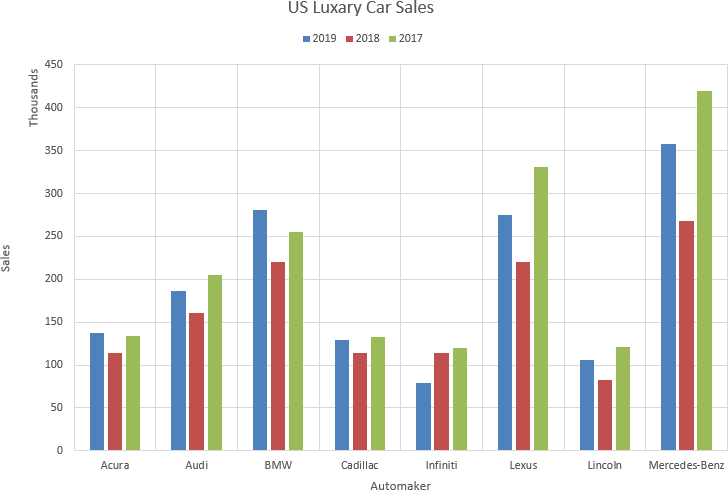
Hint: Change the column shape. Click the Data Series from the chart; go to Format Data, then select Format selection. In Series Option, choose Cylinder.

* Show Data Table with No Legend Keys (0.25 mark)



1. Use data from the "Q30" worksheet to create a 2D **–** Clustered Column chart (the year of 2019, 2018, and 2017 vs. Automaker) in the "Q30" worksheet. (3.5 marks)

* Set Chart Title to the above chart as US Luxury Car Sales (0.25 mark)
* Set Horizontal Axis Title as Automaker (0.25 mark)
* Set Vertical Axis Title as Sales (0.25 mark)
* Show Legend on the top (0.25 mark)
* Show Vertical Major Gridlines (0.25 mark)
* Show Vertical Display units to Thousand (0.25 mark)



1. Use data from the "Q31" worksheet to create a 2D **–** Line with Marker chart (the year 2019, 2014, and 2009 vs. Region) in the "Q31" worksheet. (3.5 marks)

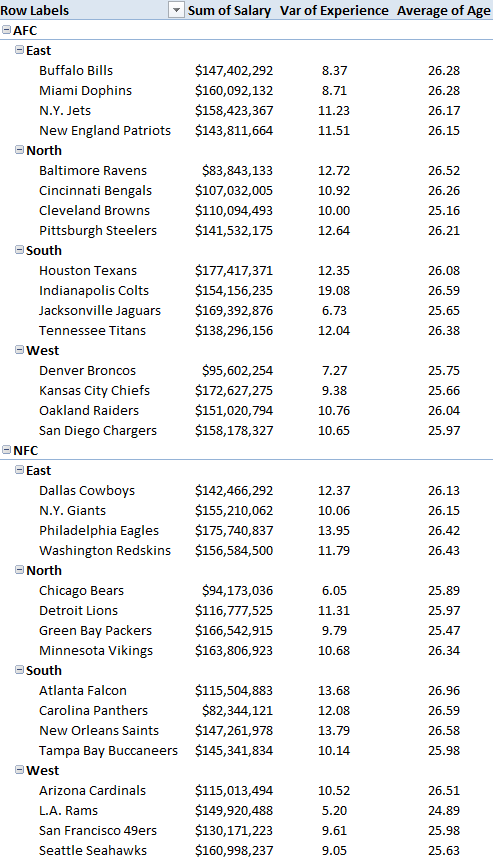
* Set Chart Title to the above chart as Worldwide Rig Count (0.25 mark)
* Set Horizontal Axis Title as Oil and NG producer (0.25 mark)
* Set Vertical Axis Title as Rig Count (0.25 mark)
* Show Legend on the top (0.25 mark)
* Show High-Low Lines (0.25 mark)

Hint: Go to Add Chart Element, then go to Lines and select High-Low Lines

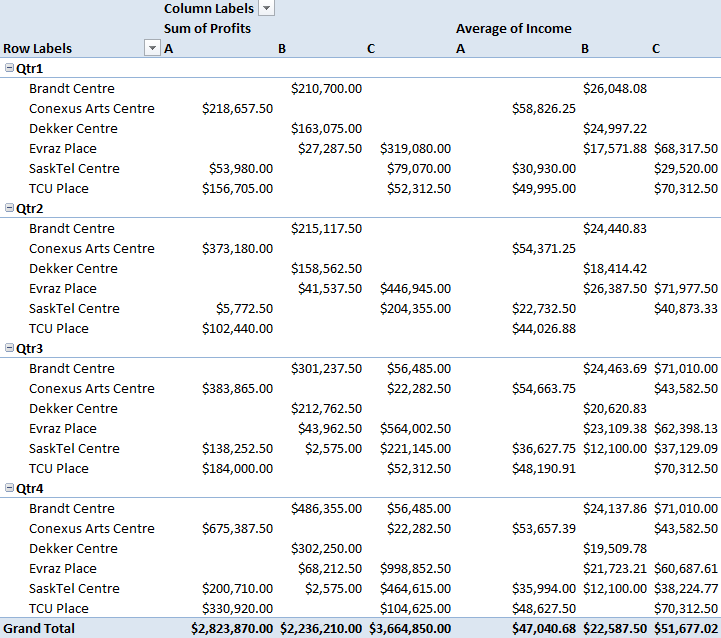
* Show Data Table with Legend Keys (0.25 mark)



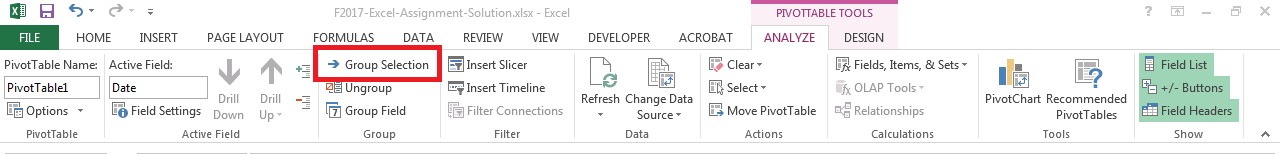
1. Use data from the "Q32-Data" worksheet (Column A to H) to create a **PivotTable** show Sum of Salary (set to Currency and 0 decimal place), Variance of Experience (set to 2 decimal place) and Average of Age(set to 2 decimal place) in Conference listed in Division by Team (do not show Subtotals and do not show Grand Total) in "Q32-Pivot Table" worksheet. (5 marks)



1. Use the data from the "Q33-Data" worksheet (Column A to I) to create a **PivotTable** show Sum of Profit (set to Currency and 2 decimal place)and Average of Income (set to Currency and 2 decimal place) in the Category listed in Quarter (Date) by Location (do not show Subtotals and do not show Grand Total for Row) in "Q33-PivotTable" worksheet. (5 marks)



*Hint: To group the Date in Quarter. First, click on the first date from the Pivot Table, then go to Analyze and select Group Selection. In the Grouping dialog box, choose Quarters and remove Months.*



1. Save the file as your student Id (e.g., 200-123-456.xlsx) and close the file. (0.5 marks)