2023 EXCEL JUMP START SESSIONS

Basics: Cells, Worksheets, Formula, Formatting cells, Rounding, Coloring, automation, cut-copy-paste & paste-special, transpose, inserting new columns

List of Excel functions that will be covered in the sessions
- Min, Max, Sum, Average, Median, Stdev.s
- Cell Locking
- Sort, Filter
- IF, Countif, Countifs
- Pivot table, Pivot charts
- Vlookup
- Goal seek

Detailed description

Description of file datalog.xlsx
Consider a company that manufactures an electronic device. The company has 4 factories in 4 different countries. The data file contains records of the daily production, sales and operating costs at each factory. The records are from the first two quarters of last year.

There are several worksheets in the file. The worksheet "log" is the main data. The columns in this worksheet are: Date, factory number, Sales (in units), Production (in units), Raw Material Cost (in local currency), Forex rate ($/local currency).

The other worksheets are: (a) Costs: which has all different costs other than material costs
(b) Employee: which shows the number of employees in the factory per month (c) Day1: set of questions we will do on day 1 of the bootcamp (d) Day2: set of questions we will do on day 2 of the bootcamp.

We will learn by answering the **following questions.**

Q1. Report the sample size (n). Sample size is the number of rows in the file except the header row. Learn how to go down to the last row to get sample size and how to freeze the header row.

Q2. Report the summary statistics for the Production column.
[Functions used: min, max, average, median, stdev; rounding cells]

Q3 (Exercise) Repeat the same with the material cost column. Remember to convert material cost into USD first. Insert a new column called Material Cost (USD) and work on it.
[Functions used: repeat of question 1 and basic mathematical operations]

Q4. Filter out and keep only records for factory 1. Put those in a new worksheet. Name the worksheet: "Factory 1 only". Report the sample size of the filtered data.
[Functions used: filtering]

Q5. Add a new column to the filtered data. Call it "Low Production". If Production was less than 36000 units, put "yes" else "no" in that column.
[Functions used: if]

Q6. Find the percentage of rows with positive sales?
[Function used: Countif]

Q7. Find the number of rows with positive sales and low production?
[Function used: Countifs]

Q8. (Exercise) Find the number of rows whose daily sales exceeded 265000 units?

Q9. (Exercise) Find the number rows where daily sales exceeded 265000 units and production was higher than the average value?

Q10. Sort the rows of the filtered data from highest to lowest production. Which month dominates the top 5 production days?
[Functions used: Sort from drag down menu]

Q11. (Exercise) Sort the rows of the filtered data from highest to lowest sales. Which month dominates the top 5 sales days?

Henceforth, we will work with the complete data and not on the filtered worksheet. We will compute several Key Performing Indices (KPIs) related to productivity, cost-analysis and sales. For this we will use pivot table.

Q12. On the complete data report the following KPI: "Total half-yearly production by factory". Paste the answers in the answer box such that it will stay even if you delete the pivot table worksheet.
[Function used: Pivot table; paste-as-values and not paste-as-formula]

Q13. Make chart of the table made in question 12. Make a bar chart as well as a pie chart.
[Function used: Pivot chart]

Q14. Report the "total half-yearly production by factory" but only for the first quarter.
[Function learnt: Filter in a pivot table]

Q15 (Exercise) On the complete data report the following table with columns: Average production by factory, Range of Production by factory, standard deviation of production by factory. Make a plot of the standard deviations.

Q16 (Exercise) On the complete data report the following table with columns: Total sales by factory, number of days with no sales by factory, maximum sales by factory.

Q17. Report the "total half-yearly production by factory table" in question 12 but as % shares of each factory.
[Function used: cell locking (absolute)]

Q18. Report a table with total half-yearly production and total half-yearly sales as percentages contributed from each factory. Print it in the format specified in the answer box.
[Function used: cell locking (relative); paste-special as transpose]

Q19. Calculate the total of all sales in the first 6 months of 2023. Multiply it by 2 to get an estimate of sales for the entire year of 2023 and report it in the box below. Now, consider a naive constant growth model. With the yearly growth of 5% predict the sales in the next 5 years. Report sales in millions.

Q20. What should be the growth % in question 19 if we would like the sales to be 60 milllion at the end of 2028.
[Function used: Goal seek]

Q21. Based on the complete data file (and not the filtered file) we will compute several Key Performing Indices (KPIs) related to productivity, cost-analysis and sales. For this we will use pivot table. Calculate the following.
- Total production by factory by month
- Total Sales by factory by month

Q22. Make a dashboard containing the above 2 charts. See if any trends are visible.

Q23. Use Vlookup to fill up two new columns in the "log" worksheet. These two new columns should show the (a) operating cost rate (b) employee cost rate. Report both indices in local currency.

Q24. Use Vlookup again. This is however more complicated. Make a new column "employee" which shows the number of employees for each row.

Q25. Compute the total daily cost in USD for each row. Note, total cost = (material cost + operating cost rate *production+ employee cost rate *number of employees) *Forex rate.
What would be a rough break-even price for each unit?

Q26. Report the following KPIs and make a dashboard of the charts. Report any visible trends.
- Total production by factory by month (units)
- Total cost by Factory by month ($)
- Total sales by factory by month (units)
- Average production per employee by Factory by Month (in units /employee)
- Average cost per unit Factory by month ($)

Q27. (Exercise) Find out the daily utilization rate for each row. Define,
daily utilization= daily Production/(Capacity/365) as Capacity is in yearly metric. To compute it make a new column in the "log" worksheet called Capacity by using the vlookup function and the costs worksheet. Next, fill up the daily utilization column. Report as %. Calculate the KPI: Average Daily utilization by factory by month (in %) and add it to the above dashboard.