EXCEL BOOTCAMP FINAL PROJECT

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Introduction:

In this project, the aim is to apply various Excel functionalities to solve the project. The tasks include data cleaning, table creation, pivot table generation, VBA macro development, chart creation, and statistical analysis.

By using these Excel features, we will derive meaningful insights from the data and be familiar more with Excel .

Question 1:

First of all, I made the Q1 sheet a table from "HOME" and then "format as a table" and clicked the table format. Then, I added a column named " ID, " and then in A2, I wrote 1. In A3, I used the "ROW" function in Excel, which is =ROW (A2), and used CTRL+ SHIFT+ DOWM ARROW to fill all the rows by the ID. By that, now I have an incremental ID for all the rows.

Then, for a profit table in the I2 cell, I wrote =H2-G2, which is sale-cost, and clicked enter to take the magic calculate it for all rows, too.

Then I added the required table, and for the answers, I used two functions, average and averageif

Avg Cost (=AVERAGE(G:G))	Avg Sale (=AVERAGE(H:H))	Average cost only for the cost above the average (=AVERAGEIF(G:G; ">" & K9))	Average Sales only for the cost above the average (=AVERAGEIF(H:H; ">" & L9))
3149.893	5042.723	4943.713	7581.556

For the number of days between the first order and the last, I used the min and max functions to determine the first and last by subtracting them (=MIX(B:B)-MIN(B:B)) . The result is 4211 days.

Question 2:

First used if function as this :
(=IF(G2="Female";"F"; IF(G2="Male"; "M";G2))) to replace Female with F and
Male with M
 Then, from insert > pivotable and added it in a new sheet ..

First pivot table is a two-dimensional :

**Overall Job Count Distribution Across Various Majors and Employment
Statuses**

This pivot table shows the total count of jobs across different majors, categorized by
employment status: Employed (Emp), Looking for a Job (Looking), and Students. It
includes a gender filter to analyze gender-specific trends.

- The major with the highest employee count is "Other," which includes a number of
unspecified majors.
- The second highest is "Mgt" (Management) with 490 employees.
- The third is "CS" (Computer Science) with 307 employees.
- "Other" and "Management" have the most job seekers.
- "CS" has a balanced distribution among employment statuses.
- "Engineering (Eng)" and "Medical" have fewer job seekers and more employed
individuals.

Second pivot table is a two-dimensional:

Count of Degrees Across Various Majors
This pivot table shows the count of different degrees (Bs, Diploma, High School, Ms,
PhD) across various majors.

- The highest degree count is Bachelor's Degrees (Bs) with a total of 4898.
- Diplomas are the least common, with only 24 across all majors.
- No engineers (Eng) have a diploma.
- High School degrees have a significant count, particularly in CS (427) and
Management (371).

Third Pivot Table:

Count of English Grades
This pivot table displays the count of pepole across various English grades (0 to 5).
- The majority of students (2439) have an English grade of 3, indicating this is the
most common grade.
- Fewer students at the lower (0) and higher (5) ends of the grading scale.

Question 3:

After ensuring the developer mode is on by Customize the ribbon and add the developer tap ,
Then alt +f11 to open Visual Basic in the window, click on Insert and then module
In the module, I wrote this VBA code (

```vba
Sub random()


    Dim rng As Range
    Dim cell As Range

Set rng = Range("A2:A101")
'start a loop to assign a random number in range'
    For Each cell In rng
' in A , Generate random numbers in range '
        cell.Value = WorksheetFunction.RandBetween(200, 1000)
' in B , Calculate the squares numbers in A '
        cell.Offset(0, 1).Value = cell.Value ^ 2

' in C , Determine number in A is odd or even'
 If cell.Value Mod 2 = 0 Then
        cell.Offset(0, 2).Value = "Even"
    Else
        cell.Offset(0, 2).Value = "Odd"
    End If
Next cell


End Sub
```

)

To generate random numbers, then Calculate the squares and specify if the random number is odd or even .

Then to make it easier to do a run, I added a "Random" button from the developer tab and then inserted the button.

Question 4:

First, I make the data as a table, then add a column named profit to calculate (sale-cost)
then did a pivot table in new sheet

The first pivot table is the Sum of profit by City by Product , and arranged from Data -> Sort -> Sort Largest to Smallest.
And Create the Stacked Column Chart by Insert -> Column Chart -> Stacked Column.
Give them titles and hide the legend button from the chart
 The second is the Number of units sold by year; create a line chart from Insert -> Line Chart -> Line
And the same here by Giving them titles and hiding the legend button from the chart

Then, add a two slicers for each chart
By selecting the pivot table then go to PivotTable Analyze -> Insert Slicer.

For the dashboard a new sheet is required. Then copy the chart and paste it in the sheet and make one slicer that controls both charts by the report connection in slicer options

Question 5:

Hypothesis: There is a positive correlation between the distance travelled and the calories burned. As the distance travelled increases, the calories burned also increase.

Creating a Scatter Plot is by highlighting the data range for Distance and Calories (columns B and C).
And from insert-> scatter will insert a scatter plot.
Then, add a Linear Trend Line from Chart Tools -> Add Chart Element -> Trendline -> Linear.
From Format Axis, I reset the border lines for both X and Y axes as needed

To find the correlation I used the CORREL function between Distance and Calories (= CORREL(B:B;C:C)), and the result is 0.982185664556393

To Fit a Regression Model, Go to Data -> Data Analysis -> Regression and set the Input Y Range to the Calories column and set the Input X Range to the Distance column.
And now have a Regression Model.

Conclusion:

In conclusion, the key takeaways are :

- Data Cleaning and Management: Ensures accuracy and reliability in analysis.
- Pivot Tables: Summarize large datasets for clear interpretation and decision-making.
- VBA Automation: Enhances efficiency and reduces errors by automating repetitive tasks.
- Data Visualization: Charts and dashboards present data clearly and facilitate trend exploration.
- Statistical Analysis: Useful for hypothesis testing and predictive modeling in decision-making.

Excel remains a critical tool for business analysis, offering various functionalities that cater to various analytical needs. By mastering these features, professionals can improve their data analysis capabilities, leading to better business insights and more informed decision-making. Continuous learning and application of advanced Excel techniques will further enhance the effectiveness and efficiency of data analysis processes.