Assignment-02 for the position of Operations Intern

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1. Understanding the Problem Statement:

We have data for 200 students, with marks for five subjects:

- C++
- Core Java
- Python
- Golang
- DevOps

Each subject is scored out of **30 marks**. Our task is to:

1. Calculate the **total marks** for each student.
2. Scale the total marks down to a **maximum of 100**.
3. Determine the **percentage**.
4. Assign **grades** based on the following criteria:
    - **A**: 90% and above
    - **B**: 80% - 89.99%
    - **C**: 70% - 79.99%
    - **D**: 60% - 69.99%
    - **E**: Below 60%

2. Approach to Solution:

- Read the provided dataset containing student names and subject-wise marks.

- Compute **total marks** using the formula:

The maximum possible total marks are **150** (since 30 marks per subject × 5 subjects = 150).

- Scale the marks to **100** using:
- Assign grades based on the percentage obtained.

3. Sample Input and Output:

Registration Number	Name	C++	Core Java	Python	Golang	DevOps	Total Marks	Percentage	Grade
5001245	Ruchi Jaiswal	27.67	27.67	21	10	7.33	93.67	62.44%	D
5001246	Utkarshni	17.33	17.33	21	10	8.00	73.67	49.11%	E
5001247	Kriti	18.67	18.67	22	10	8.67	78.00	52.00%	E
5001248	Javed Khan	17.33	17.33	22	10	2.67	69.33	46.22%	E
5001249	Chetan Mungalpara	22.67	22.67	22	10	8.67	86.00	57.33%	E

4. Implementation:

1. Load the dataset.
2. Compute total marks by summing up all subject marks for each student.
3. Scale the total marks to 100.
4. Assign grades based on the calculated percentage.
5. Save the processed data.

5. Conclusion:

This solution successfully calculates student grades based on their marks in five subjects. The process involves simple arithmetic operations and logical conditions to categorize grades effectively. The final dataset contains:

- **Total Marks**
- **Percentage**
- **Grade**

Solution for Question 2 – Using VLOOKUP in Google Sheets

1. Understanding the Data Structure:

- **"Initial Format" Sheet** contains:
    - Registration number
    - Name
    - MarksObtained
- **"Required Format" Sheet** has missing data:
    - Registration number is available.
    - Name and MarksObtained need to be fetched using **VLOOKUP**.

2. Solution Approach:

We need to use **VLOOKUP** in Google Sheets to fill the missing **Name** and **MarksObtained** fields based on the Registration number.

VLOOKUP Formula to Populate Name:

excel

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=VLOOKUP(C2, 'Initial Format'!$A:$C, 2, FALSE)

- C2 → Registration number in the "Required Format" sheet.
- 'Initial Format'!$A:$C → Data range in the "Initial Format" sheet.
- 2 → Column index for the Name.
- FALSE → Ensures an exact match.

VLOOKUP Formula to Populate MarksObtained:

excel

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=VLOOKUP(C2, 'Initial Format'!$A:$C, 3, FALSE)

- Similar to the previous formula, but fetching data from column **3** (MarksObtained).

3. Steps to Implement in Google Sheets:

1. Open the **"Required Format"** sheet.
2. In the **Name** column, enter the first VLOOKUP formula.
3. Drag the formula down to apply it to all rows.
4. In the **MarksObtained** column, enter the second VLOOKUP formula.
5. Drag it down for all rows.
6. Ensure formulas remain intact for review.

Solution for Question 3 – Creating a Pivot Table

1. Understanding the Data Structure:

The dataset consists of the following key columns:

Batches – Represents different course units.

Name – Student names.

Registration Number – Unique student identifier.

Status – Indicates student categorization.

Average Score – Performance metric (currently has placeholder values like -(-%)).

Cumulative Score – Aggregated score across evaluations.

2. Expected Pivot Table Structure:

A pivot table can help summarize this data effectively. Possible configurations include:

Summarizing Scores by Batch:

Rows: Batches

Columns: Status

Values: Cumulative Score (Sum or Average)

Student Performance Overview:

Rows: Name

Columns: Batches

Values: Cumulative Score or Average Score

3. Steps to Create a Pivot Table in Excel/Google Sheets:

Select the Data Range

Highlight the entire dataset from the "Initial Format" sheet.

Insert Pivot Table

In Excel: Insert → PivotTable → Select Data Range → Choose New/Existing Worksheet.

In Google Sheets: Data → Pivot Table.

Configure the Pivot Table:

Drag Batches into the Rows section.

Drag Status into the Columns section.

Drag Cumulative Score into the Values section and choose Sum or Average for aggregation.

Apply sorting or filters if needed.

Verify Data Accuracy

Check if all batches, student statuses, and scores are correctly represented.

4. Expected Output Example:

Batches	**CSE_KS003_G1**	**CSE_KS001**	**CSE_KS004_G2**	**Total Score**
CPP UNIT-01	85	90	75	250
DSA UNIT-01	78	82	79	239
ML UNIT-01	88	85	80	253