**Project Description: Student Grades Processing**

**Project Overview:**

This project involves reading student names and their corresponding marks from a CSV file and writing the results into a new CSV file that contains the student names and their grades. The grading system will convert numerical marks into letter grades based on predefined ranges.

**Objectives**:

1. Read Data:

- Read student names and marks from an input CSV file (***students.csv***).

- Ensure that the data is correctly parsed and handled.

2. Process Data:

- Convert numerical marks into letter grades based on the following grading scale:

- 80-100: A+

- 70-79: A

- 60-69: A-

- 50-59: B

- 40-49: C

- 33-39: D

- 0-32: F

3. Write Results:

- Write the processed data into a new CSV file (***result.csv***) with three columns: **Name** , **Mark** and **Grade**.

**Implementation Details:**

1. Input CSV (***students.csv***):

- This file will contain two columns: **Name** and **Mark**.

- Example:

| **Name** | **Mark** |
| --- | --- |
| Alice | 85 |
| Rifat | 32 |

2. Output CSV (***result.csv***):

- This file will contain three columns: **Name** and **Grade**.

- Example:

| **Name** | **Mark** | **Grade** |
| --- | --- | --- |
| Alice | 85 | A+ |
| Rifat | 32 | F |

3. Steps to Implement:

- Step 1: Read the input CSV file using a CSV parser library (such as **csv** in Python).

- Step 2: Iterate through each record, converting marks to grades based on the specified grading scale.

- Step 3: Write the converted data to the output CSV file.

**Tools and Technologies:**

- Programming Language: Python

- Libraries:

- **csv** for reading and writing CSV files.

**Potential Challenges:**

- Handling missing or malformed data in the input CSV file.

- Ensuring the output file is correctly formatted and saved.

**Expected Outcome:**

By the end of this project, you will have a script that can accurately read student marks from an input CSV file, convert these marks into letter grades, and write the results into a new CSV file. This automated process will save time and reduce errors compared to manual grading.

**Learning Resources:**  
- [How to read and write with csv](https://www.programiz.com/python-programming/csv)

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