File Processing Automation Task

Objective:

Your goal is to generate and process data about students and their grades, then determine the top-performing student and write the results to a file.

Steps Overview:

1. Generate Files:

   - Create a 'students.csv' file with 5 students, each having 3 random grades.

   - Create a 'subjects.txt' file with 3 subjects listed (Math, Science, History).

2. Process Data:

   - Read 'students.csv' and 'subjects.txt'.

   - Assign each student's grades to the corresponding subjects and store them in a dictionary.

3. Calculate Average:

   - For each student, calculate the average grade based on their grades in all subjects.

4. Identify Top Student:

   - Find the student with the highest average grade.

   - Write their name, grades, and average grade to a new file called 'top_student.txt'.

5. Error Handling:

   - Handle missing files or incorrect data formats (e.g., if a student has too many or too few grades).

Example Output:

A 'top_student.txt' file that contains:
Top student: Alice
Average grade: 91.00
Math: 90
Science: 88
History: 95

Key Concepts:

1. File generation: Create files and write data into them.

2. File reading: Read and process data from files.

3. Dictionaries: Map students to their grades by subject.

4. Error handling: Safely handle missing files and data issues.