### **Problem 1: Crime Case Management System**

**Scenario:**You are creating a program for a police department to manage crime cases. The data for each case is stored in a file named **cases.json** in dictionary format.

**Initial File Format (cases.json):**

{

"C101": {"Title": "Bank Robbery", "Suspects": ["John Doe", "Jane Smith"], "Status": "Open"},

"C102": {"Title": "Hacking Incident", "Suspects": ["Alice Brown"], "Status": "Closed"},

"C103": {"Title": "Hit and Run", "Suspects": [], "Status": "Open"}

}

**Instructions:**Write a Python program that allows the user to:

1. **View all cases:**

Display all cases with details in a readable format.  
Example:  
vbnet  
Copy code  
Case ID: C101

Title: Bank Robbery

Suspects: John Doe, Jane Smith

Status: Open

1. **Add a new case:**
   * Prompt the user to input a Case ID, Title, Suspects (comma-separated), and Status.
   * Add the new case to the cases.json file.
2. **Update the status of a case:**
   * Ask the user for a Case ID and the new status (Open, Under Investigation, or Closed).
   * Update the status in the file.
3. **Add suspects to a case:**
   * Allow the user to add one or more suspects to a specific case.
   * Ensure duplicates are not added to the suspect list.
4. **Search for open cases:**
   * Display all cases with a status of Open.
5. **Delete a case:**
   * Allow the user to input a Case ID and remove it from the file.
6. **Find cases involving a specific suspect:**
   * Ask the user to input a suspect's name and display all cases where that suspect is mentioned.

**Bonus Requirements:**

* Use Python's json module for file handling.
* Handle edge cases like invalid Case IDs or missing files gracefully.

**Sample Output:**

Choose an option:

1. View all cases

2. Add a new case

3. Update case status

4. Add suspects to a case

5. Search open cases

6. Delete a case

7. Find cases by suspect

Enter your choice: 7

Enter suspect name: John Doe

Cases involving John Doe:

1. Bank Robbery (C101)

### **Problem 2: Vocabulary Builder**

**Scenario:**You are creating a program to help users build their vocabulary by maintaining a dictionary of words. The vocabulary data is stored in a file named **vocabulary.json** in dictionary format.

**Initial File Format (vocabulary.json):**

{

"Python": {"Meaning": "A programming language", "Example": "Python is used for web development."},

"Algorithm": {"Meaning": "A step-by-step procedure to solve a problem", "Example": "Sorting algorithms are essential in computer science."},

"Data": {"Meaning": "Facts and statistics collected for reference", "Example": "Data analysis is a growing field."}

}

**Instructions:**Write a Python program that allows the user to:

1. **View all words:**

Display all words and their details in a readable format.  
Example:  
vbnet  
Copy code  
Word: Python

Meaning: A programming language

Example: Python is used for web development.

1. **Add a new word:**
   * Prompt the user to input a Word, Meaning, and Example.
   * Add the new word to the vocabulary.json file.
   * Ensure duplicate words are not allowed.
2. **Search for a word:**
   * Allow the user to input a word and display its details if found.
   * If the word does not exist, display a message: "Word not found."
3. **Update word details:**
   * Allow the user to update the Meaning or Example of an existing word.
4. **Delete a word:**
   * Allow the user to input a word and remove it from the file.
5. **Quiz mode:**
   * Test the user’s vocabulary knowledge.
   * Randomly select a word from the file and display its Meaning.
   * Prompt the user to type the correct word.
   * Check if the answer matches and display a score.
6. **Export to text file:**
   * Export all words and their details to a plain text file named vocabulary.txt.

**Bonus Requirements:**

* Use Python's json module for file handling.
* Handle edge cases like missing files or duplicate words gracefully.
* Shuffle the quiz words to ensure randomness.

**Sample Output:**

Choose an option:

1. View all words

2. Add a new word

3. Search for a word

4. Update word details

5. Delete a word

6. Quiz mode

7. Export to text file

Enter your choice: 6

Meaning: A programming language

What's the word? Python

Correct! Your score: 1/1