**Homework Assignment: Tracking Unique Website Visitors**

**Objective**

Your task is to write a Python program that tracks unique visitor IDs to a website. You will use a set to store the visitor IDs, ensuring that each visitor is only counted once. This assignment will help you understand how sets work in Python and how to use them to filter out duplicate data.

**Instructions**

1. **Set Up the Data Structure**
   * **Goal:** Initialize an empty set to store unique visitor IDs.
   * **Hint:** Use the set() constructor.
   * **Example Code:**
   * unique\_visitors = set()
2. **Define the add\_visitor Function**
   * **Goal:** Write a function named add\_visitor that takes a single parameter, visitor\_id.
   * **Functionality:**
     + **Check for Duplicates:** Check if the provided visitor\_id is already in the unique\_visitors set inside the function.
     + **Add the Visitor:** If the ID is absent, add it to the set and print a message indicating the visitor was added.
     + **Handle Duplicates:** If the visitor ID is already present, print a message indicating that this visitor has already been counted.
   * **Hint:** Use an if statement to check membership in the set.
3. **Simulate Visitor Arrivals**
   * **Goal:** Create a list named visitor\_ids that simulates multiple visitors arriving at the website. This list should include some duplicate IDs to test your function.
   * **Example Data:** Use a list similar to ['user123', 'user456', 'user123', 'user789', 'user456'].
   * **Example Code:**
   * visitor\_ids = ['user123', 'user456', 'user123', 'user789', 'user456']
4. **Process Each Visitor**
   * **Goal:** Iterate over the visitor\_ids list and call the add\_visitor function for each visitor ID.
   * **Hint:** Use a for loop.
5. **Output the Total Count of Unique**
6. **Visitors**
   * **Goal:** Print the total number of unique visitors after processing all visitor IDs.
   * **Hint:** Use the built-in len() function to determine the number of elements in the unique\_visitors set.

**Deliverables**

* A single Python script (.py file) that implements the above steps.
* The script should be well commented to explain each part of the code.
* Make sure your code is clean,
* Screenshot of code working in the console

**Evaluation Criteria**

* **Correctness:** The program correctly adds unique visitor IDs to the set and handles duplicate entries as specified.
* **Code Quality:** The code is well-structured, commented, and easy to read.
* **Functionality:** The program correctly prints out messages for each visitor processed and finally outputs the correct total number of unique visitors.

**Extra Challenge (Optional)**

* Extend the program to read visitor IDs from user input or a file. This will allow you to simulate a more dynamic environment where visitor IDs are not hard-coded into the program.

By following these instructions, you should be able to write a Python program that effectively uses a set to keep track of unique website visitors. Please don't hesitate to ask if you have any questions or need further clarification on any part of the assignment. Happy coding!