## Problem Solving Content 1 by LoopNest

1. Basic Math & Data Types

- **Problem: "The Change Maker"**
  - **Description:** Write a program that takes three integer inputs: the **cost** of an item, the amount **paid**, and the **quantity** of items purchased. Calculate and print the **total change** the customer should receive. If the amount paid is less than the total cost, print `"Insufficient Funds"`.
  - **Input Example:** `cost = 10`, `paid = 50`, `quantity = 3`
  - **Expected Output:** `20`

2. Strings & String Methods

- **Problem: "Title Case Converter"**
  - **Description:** Given a string of words separated by spaces (e.g., `"hello world in python"`), use a **string method** to convert the string so that the first letter of every word is capitalized and the rest are lowercase. Print the resulting string.
  - **Input Example:** `"wELl, thAt's an interesting stRING"`
  - **Expected Output:** `"Well, That's An Interesting String"`

3. String Slicing

- **Problem: "The Palindrome Checker (Part 1)"**
  - **Description:** A palindrome is a word that reads the same forwards and backward (e.g., "level"). Write a program that takes a single lowercase word as input. Use **string slicing** to create a reversed version of the word. Print both the original and the reversed word. (The actual comparison is not required yet, just the reversal).
  - **Input Example:** `"madam"`
  - **Expected Output:** `madam` (Original), `madam` (Reversed)

4. Lists - Basic Operations

- **Problem: "Inventory Sorter"**
  - **Description:** You are given a list of product names. Write a program to **sort** the list alphabetically and then print the **third item** in the sorted list.

- **Input Example:** `products = ["Keyboard", "Mouse", "Monitor", "Webcam", "Speaker"]`
- **Expected Output:** `Keyboard`

5. Tuples

- **Problem: "Coordinates Translator"**
  - **Description:** A program is given a tuple representing **(x, y) coordinates** (e.g., `(10, 5)`). You need to unpack the tuple into two separate variables, `x_coord` and `y_coord`. Then, create a **new tuple** where the coordinates are swapped to **(y, x)** and print the new tuple.
  - **Input Example:** `point = (15, 22)`
  - **Expected Output:** `(22, 15)`

6. Dictionaries - Basic Lookups

- **Problem: "Price Checker"**
  - **Description:** You have a dictionary that stores item names (keys) and their prices (values). Given the dictionary and a specific `item_name`, write a program to print the price of that item. If the item is **not** in the dictionary, print `"Item Not Found"`.
  - **Input Example:**
    - `prices = {"apple": 0.50, "banana": 0.25, "orange": 0.75}`
    - `item_name = "banana"`
  - **Expected Output:** `0.25`

7. Sets

- **Problem: "Unique Visitors"**
  - **Description:** You are tracking visitors to a website. Given two lists of visitor IDs from two different days (`day1_visitors` and `day2_visitors`). Write a program that uses **sets** to find and print the **total count** of **unique visitors** across both days.
  - **Input Example:**
    - `day1_visitors = [101, 105, 108, 101, 109]`
    - `day2_visitors = [108, 102, 105, 110]`

- **Expected Output:** `6` (IDs: 101, 105, 108, 109, 102, 110)

8. Advanced Strings & List Manipulation

- **Problem: "CSV Line Cleaner"**
  - **Description:** You are given a string representing a dirty line from a CSV file (Comma Separated Values). The line has leading/trailing spaces and the data is separated by commas.
    1. Use a **string method** to remove any surrounding whitespace from the entire line.
    2. Use a **string method** to split the line into a **list** of individual data points.
    3. Print the resulting list.
  - **Input Example:** `" ID001, John Doe , active, 25 "`
  - **Expected Output:** `['ID001', 'John Doe ', 'active', '25']` (Note: internal spaces are kept)

9. Dictionaries and List Comprehension (Optional Challenge)

- **Problem: "Voting Tally"**
  - **Description:** You are given a list of votes, where each element is the name of a candidate. Write a program to count the total votes for each candidate and store the results in a **dictionary**, where the key is the candidate's name and the value is their total vote count. Print the dictionary.
  - **Input Example:** `votes = ["Alice", "Bob", "Alice", "Charlie", "Bob", "Alice"]`
  - **Expected Output:** `{'Alice': 3, 'Bob': 2, 'Charlie': 1}`

10. Integration Challenge: String Slicing, Methods, and Lists

- **Problem: "Initial Generator"**
  - **Description:** Given a person's full name (e.g., "Marie Curie").
    1. Use a **string method** to split the full name into a **list of words** (first name, last name, etc.).
    2. Use **string slicing** to get the **first letter** of each word.
    3. Combine these first letters to form and print the person's initials in **uppercase**, without any spaces or periods.
  - **Input Example:** `"albert einstein"`
  - **Expected Output:** `AE`

সাবমিশন গাইডলাইন

১। এআই ব্যবহার করা সম্পূর্ণ নিষেধ
২। প্রতিটা প্রবলেম সলভ করবেন এবং ইনপুট নিবেন প্রবলেমে দেওয়া **Input Example** যাতে করে ফলাফল আছে **Expected Output.**
৩। এরপর সুন্দর করে **SS** নিয়ে আমাদের গ্রুপে পোষ্ট করবেন।
৪। পোষ্ট করার সময় অবশ্যই দুইটা হ্যাশট্যাগ ব্যবহার করবেন ***[ #ProblemSolvingContest_1, #PythonBootcamp ]***
৪। এবং **LoopNest** এর পেজকে ম্যানশন দিবেন পোস্টে।
৫। সাবমিশন ডেডলাইন - ১২ তারিখ রাত ৯টা

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