Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_PAH

Attempt : 1
Total Mark : 30
Marks Obtained : 26

Section 1 : Coding

1. Problem Statement

John is a data analyst who often works with text files. He needs a program that can analyze the contents of a text file and count the number of times a specific character appears in the file.

John wants a simple program that allows him to specify a file and a character to count within that file.

Input Format

The first line of input consists of the file's name to be analyzed.

The second line of the input consists of the string they want to write within the file.

The third line of the input consists of a character to count within the file.

Output Format

If the character is found, the output displays "The character 'X' appears {Y} times in the file." where X is the character and Y i the count,

If the character does not appear in the file, the output displays "Character not found."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: test.txt
This is a test file to check the character count.
e

Output: The character 'e' appears 5 times in the file.

Answer

```
# You are using Python
def solve():
    # Read the file name
    file_name = input()

    # Read the content to write into the file
    file_content = input()

    # Read the character to count
    char_to_count = input()

    # Write the content to the file
    with open(file_name, 'w') as file:
        file.write(file_content)

    # Read the content back from the file to count characters
    with open(file_name, 'r') as file:
        content_from_file = file.read()
```

```
    # Count the occurrences of the character
    count = content_from_file.lower().count(char_to_count.lower())

    # Print the output based on the count
    if count > 0:
        print(f"The character '{char_to_count}' appears {count} times in the file.")
    else:
        print("Character not found in the file.")

# Call the solve function to execute the program
solve()
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Reeta is playing with numbers. Reeta wants to have a file containing a list of numbers, and she needs to find the average of those numbers. Write a program to read the numbers from the file, calculate the average, and display it.

File Name: user_input.txt

Input Format

The input file will contain a single line of space-separated numbers (as a string).

These numbers may be integers or decimals.

Output Format

If all inputs are valid numbers, the output should print: "Average of the numbers is: X.XX" (where X.XX is the computed average rounded to two decimal places)

If the input contains invalid data, print: "Invalid data in the input."

Refer to the sample output for format specifications.

Sample Test Case

Input: 1 2 3 4 5

Output: Average of the numbers is: 3.00

Answer

```
# You are using Python
def solve():
    try:
        # The input is the string containing the numbers, not a filename.
        # So, 'content' should directly come from input().
        content = input().strip()

        if not content:
            # Handle empty input case
            print("Invalid data in the input.")
            return

        # Assuming the input might have a prefix like 'S ' as seen in the error
message
        # We need to split the string and then filter out non-numeric parts if 'S' is
present
        elements_raw = content.split()

        # If the first element is 'S', skip it. Otherwise, use all elements.
        if elements_raw and elements_raw[0].upper() == 'S': # Using .upper() for
robustness
            elements = elements_raw[1:]
        else:
            elements = elements_raw

        numbers = []
        for x_str in elements: # Renamed loop variable to x_str for clarity
            try:
                numbers.append(float(x_str))
            except ValueError:
                # If any element cannot be converted to float, print error and return.
                print("Invalid data in the input.")
                return

        # Check the number of elements after successful conversion
        if not (1 <= len(numbers) <= 100):
            print("Invalid data in the input.")
            return
```

```
        if not numbers: # Handle case if elements became empty after processing
'S' or invalid inputs
            print("Invalid data in the input.")
            return

        avg = sum(numbers) / len(numbers)
        print(f"Average of the numbers is: {avg:.2f}")

    except Exception as e: # Catch any other unexpected errors
        # This is a general catch-all; for competitive programming,
        # specific error handling is often preferred.
        print("Invalid data in the input.")
        # Optionally, for debugging, you could print the exception:
        # print(f"An unexpected error occurred: {e}")

solve()
```

Status : Correct **Marks : 10/10**

3. Problem Statement

Peter manages a student database and needs a program to add students. For each student, Alex inputs their ID and name. The program checks for duplicate IDs and ensures the database isn't full.

If a duplicate or a full database is detected, an appropriate error message is displayed. Otherwise, the student is added, and a confirmation message is shown. The database has a maximum capacity of 30 students, and each student must have a unique ID.

Input Format

The first line contains an integer n, representing the number of students to be added to the school database.

The next n lines each contain two space-separated values, representing the student's ID (integer) and the student's name (string).

Output Format

The output will depend on the actions performed in the code.

If a student is added to the database, the output will display: "Student with ID [ID number] added to the database."

If there is an exception due to a duplicate student ID, the output will display: "Exception caught. Error: Student ID already exists."

If there is an exception due to the database being full, the output will display: "Exception caught. Error: Student database is full."

Refer to the sample outputs for the formatting specifications.

Sample Test Case

Input: 3
16 Sam
87 Sabari
43 Dani

Output: Student with ID 16 added to the database.
Student with ID 87 added to the database.
Student with ID 43 added to the database.

Answer

```
# You are using Python
MAX_CAPACITY = 30

# Read number of students to be added
n = int(input())

# Initialize database set to store unique student IDs
student_db = set()

# Process each student entry
for _ in range(n):
    try:
        input_line = input().strip()
        if not input_line:
```

```
            continue
        student_id_str, student_name = input_line.split(maxsplit=1)
        student_id = int(student_id_str)


        if student_id in student_db:
            raise Exception("Student ID already exists.")
        if len(student_db)>=MAX_CAPACITY:
            raise Exception("Student database is full.")
        student_db.add(student_id)
        print(f"Student with ID {student_id} added to the database.")

    except ValueError:
        print("Exception caught. Error: Invalid input format.")
    except Exception as e:
        print(f"Exception caught. Error: {e}")
```

Status : Partially correct **Marks : 6/10**