

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23221\_Python Programming

### REC\_Python\_Week 6\_COD

Attempt : 1  
Total Mark : 50  
Marks Obtained : 50

### Section 1 : Coding

#### 1. Problem Statement

In a voting system, a person must be at least 18 years old to be eligible to vote. If a user enters an age below 18, the system should raise a user-defined exception indicating that they are not eligible to vote.

#### ***Input Format***

The input contains a positive integer representing age.

#### ***Output Format***

If the age is less than 18, the output displays "Not eligible to vote".

Otherwise, the output displays "Eligible to vote".

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 18

Output: Eligible to vote

### **Answer**

```
class NotEligibleToVote(Exception):  
    pass
```

```
try:  
    age = int(input())  
    if age < 18:  
        raise NotEligibleToVote  
    else:  
        print("Eligible to vote")  
except NotEligibleToVote:  
    print("Not eligible to vote")  
except ValueError:  
    print("Invalid input")
```

**Status :** Correct

**Marks :** 10/10

## **2. Problem Statement**

Write a program that calculates the average of a list of integers. The program prompts the user to enter the length of the list (n) and each element of the list. It performs error handling to ensure that the length of the list is a non-negative integer and that each input element is a numeric value.

### **Input Format**

The first line of the input is an integer n, representing the length of the list as a positive integer.

The second line of the input consists of an element of the list as an integer, separated by a new line.

### **Output Format**

If the length of the list is not a positive integer or zero, the output displays "Error: The length of the list must be a non-negative integer."

If a non-numeric value is entered for the length of the list, the output displays "Error: You must enter a numeric value."

If a non-numeric value is entered for a list element, the output displays "Error: You must enter a numeric value."

If the inputs are valid, the program calculates and prints the average of the provided list of integers with two decimal places: "The average is: [average]".

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: -2

1

2

Output: Error: The length of the list must be a non-negative integer.

### **Answer**

```
def calculate_average():
    try:
        n = int(input())
        if n < 0:
            print("Error: The length of the list must be a non-negative integer.")
            return

        if n == 0:
            print("Error: The length of the list must be a non-negative integer.")
            return

        numbers = []
        for _ in range(n):
            try:
                num = int(input())
```

```
        numbers.append(num)
    except ValueError:
        print("Error: You must enter a numeric value.")
    return
```

```
average = sum(numbers) / n
print(f"The average is: {average:.2f}")
```

```
except ValueError:
    print("Error: You must enter a numeric value.")
calculate_average()
```

**Status :** Correct

**Marks : 10/10**

### 3. Problem Statement

Tara is a content manager who needs to perform case conversions for various pieces of text and save the results in a structured manner.

She requires a program to take a user's input string, save it in a file, and then retrieve and display the string in both upper-case and lower-case versions. Help her achieve this task efficiently.

File Name: text\_file.txt

#### **Input Format**

The input consists of a single line containing a string provided by the user.

#### **Output Format**

The first line displays the original string read from the file in the format: "Original String: {original\_string}".

The second line displays the upper-case version of the original string in the format: "Upper-Case String: {upper\_case\_string}".

The third line displays the lower-case version of the original string in the format: "Lower-Case String: {lower\_case\_string}".

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: #SpecialSymBoLs1234

Output: Original String: #SpecialSymBoLs1234

Upper-Case String: #SPECIALSYMBOLS1234

Lower-Case String: #specialsymbols1234

### **Answer**

```
def case_converter(input_string, file_name="text_file.txt"):
    with open(file_name, "w") as file:
        file.write(input_string)

    with open(file_name, "r") as file:
        original_string = file.read()

        upper_case_string = original_string.upper()
        lower_case_string = original_string.lower()

        print(f"Original String: {original_string}")
        print(f"Upper-Case String: {upper_case_string}")
        print(f"Lower-Case String: {lower_case_string}")
```

```
if __name__ == "__main__":
    input_string = input()
    case_converter(input_string)
```

**Status :** Correct

**Marks :** 10/10

## **4. Problem Statement**

Sophie enjoys playing with words and wants to count the number of words in a sentence. She inputs a sentence, saves it to a file, and then reads it from the file to count the words.

Write a program to determine the number of words in the input sentence.

File Name: sentence\_file.txt

### **Input Format**

The input consists of a single line of text containing words separated by spaces.

### **Output Format**

The output displays the count of words in the sentence.

Refer to the sample output for the formatting specifications.

### **Sample Test Case**

Input: Four Words In This Sentence

Output: 5

### **Answer**

```
def count_words_from_file(filename="sentence_file.txt"):
    try:
        with open(filename, 'r') as file:
            sentence = file.readline().strip()
            if not sentence:
                return 0
            words = sentence.split()
            return len(words)
    except FileNotFoundError:
        return 0

def main():
    sentence = input()
    with open("sentence_file.txt", "w") as file:
        file.write(sentence)
    word_count = count_words_from_file()
    print(word_count)

if __name__ == "__main__":
    main()
```

**Status :** Correct

**Marks :** 10/10

## 5. Problem Statement

A retail store requires a program to calculate the total cost of purchasing a product based on its price and quantity. The program performs validation to ensure valid inputs and handles specific error conditions using exceptions:

**Price Validation:** If the price is zero or less, raise a `ValueError` with the message: "Invalid Price".  
**Quantity Validation:** If the quantity is zero or less, raise a `ValueError` with the message: "Invalid Quantity".  
**Cost Threshold:** If the total cost exceeds 1000, raise `RuntimeError` with the message: "Excessive Cost".

### ***Input Format***

The first line of input consists of a double value, representing the price of a product.

The second line consists of an integer, representing the quantity of the product.

### ***Output Format***

If the calculation is successful, print the total cost rounded to one decimal place.

If the price is zero or less prints "Invalid Price".

If the quantity is zero or less prints "Invalid Quantity".

If the total cost exceeds 1000, prints "Excessive Cost".

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 20.0

5

Output: 100.0

### ***Answer***

```
def calculate_total_cost(price, quantity):  
    if price <= 0:
```

```
        raise ValueError("Invalid Price")
    if quantity <= 0:
        raise ValueError("Invalid Quantity")
    total_cost = price * quantity

    if total_cost > 1000:
        raise RuntimeError("Excessive Cost")
    return round(total_cost, 1)
try:
    price = float(input())
    quantity = int(input())
    total_cost = calculate_total_cost(price, quantity)
    print(total_cost)
except ValueError as e:
    print(e)
except RuntimeError as e:
    print(e)
```

**Status :** Correct

**Marks :** 10/10