**Creating Python Programs**

**Part 1:** **collect data and calculate the average rainfall over a period of years**

**Source code:**

# Input the number of years

No\_Years = int(input("Enter the number of years: "))

# Initialize variables to store total rainfall and number of months

total\_rainfall\_entered = 0

total\_MonthsOfRainfall = 0

# Outer loop for each year

for Year in range(1, No\_Years + 1):

print(f"\nYear {Year}:")

# Inner loop for each month

for month in range(1, 13):

rainfall = float(input(f"Enter the rainfall (in inches) for month {month}: "))

total\_rainfall\_entered += rainfall

total\_MonthsOfRainfall += 1

# Calculate the average rainfall per month

average\_rainfall = total\_rainfall\_entered / total\_MonthsOfRainfall

# Display the results

print(f"\nTotal number of months: {total\_months}")

print(f"Total inches of rainfall: {total\_rainfall\_entered:.2f}")

print(f"Average rainfall per month over the entire period: {average\_rainfall:.2f} inches")

**Results:**

Enter the number of years: 2

Year 1:

Enter the rainfall (in inches) for month 1: 3

Enter the rainfall (in inches) for month 2: 4

Enter the rainfall (in inches) for month 3: 5

Enter the rainfall (in inches) for month 4: 5

Enter the rainfall (in inches) for month 5: 6

Enter the rainfall (in inches) for month 6: 34

Enter the rainfall (in inches) for month 7: 53

Enter the rainfall (in inches) for month 8: 52

Enter the rainfall (in inches) for month 9: 34

Enter the rainfall (in inches) for month 10: 23

Enter the rainfall (in inches) for month 11: 12

Enter the rainfall (in inches) for month 12: 4

Year 2:

Enter the rainfall (in inches) for month 1: 11

Enter the rainfall (in inches) for month 2: 34

Enter the rainfall (in inches) for month 3: 34

Enter the rainfall (in inches) for month 4: 12

Enter the rainfall (in inches) for month 5: 23

Enter the rainfall (in inches) for month 6: 35

Enter the rainfall (in inches) for month 7: 12

Enter the rainfall (in inches) for month 8: 13

Enter the rainfall (in inches) for month 9: 7

Enter the rainfall (in inches) for month 10: 6

Enter the rainfall (in inches) for month 11: 8

Enter the rainfall (in inches) for month 12: 21

Total number of months: 24

Total inches of rainfall: 451.00

Average rainfall per month over the entire period: 18.79 inches

**Pseudocode:**

1. The program initially requests the user to input the number of years.

2. It then utilizes a nested loop: the outer loop goes through each year, and the inner loop goes through each month of the year.

3. For each month, the user inputs the amount of rainfall.

4. The program efficiently tracks the total rainfall and the total number of months, ensuring accurate results.

5. After all the data is collected, the program meticulously calculates and displays the total number of months, total rainfall, and average rainfall per month over the entire period, ensuring accurate results.

**Part 2:** **book club that awards points to its students based on the number of books purchased each month**

**Source code:**

# Ask the user for the number of books purchased this month

books\_purchased = int(input("Enter the number of books you have purchased this month: "))

# Determine the number of points awarded based on the number of books purchased

if books\_purchased == 0:

points\_awarded = 0

elif books\_purchased == 2:

points\_awarded = 5

elif books\_purchased == 4:

points\_awarded = 15

elif books\_purchased == 6:

points\_awarded = 30

elif books\_purchased >= 8:

points\_awarded = 60

else:

points\_awarded = 0 # This handles any cases where the input does not match the specified conditions.

# Display the number of points awarded

print(f"You have earned {points\_awarded} points.")

**Results:**

**Enter the number of books you have purchased this month: 8**

**You have earned 60 points.**

**Pseudocode:**

1. The program starts by asking the user to input the number of books they’ve purchased.
2. Based on the number of books, the program uses a series of conditional statements to determine the corresponding points.
3. Finally, it prints out the points earned.

This program effectively calculates and displays the points based on the number of books purchased according to the given rules.

Screenshots:

A screenshot of a computer program

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

**Link for GitHub Repository:**

[github.com/rramya386/Python-Assigments](%20https:/github.com/rramya386/Python-Assigments)