**Part 1. Average Rainfall**

**Problem Statement:**Write a program utilizing nested loops to collect data and calculate the average rainfall over a span of years. The program initiates by prompting the user for the number of years. The outer loop iterates once per year, while the inner loop iterates twelve times, representing each month. During each iteration of the inner loop, the user is prompted to input the inches of rainfall for that specific month. After completing all iterations, the program displays the total number of months, the overall inches of rainfall, and the average rainfall per month for the entire period.

**Solution:**The task involves creating two loops, one for the year and one for the month. The user is prompted to input rainfall data for each month, and the program calculates the average rainfall. This necessitates the use of variables to keep track of total rainfall and total months, enabling the calculation of the average as total rain / total months.

**Challenges**:One challenge is handling different inputs and storing them effectively. Since each year consists of 12 entries, creating individual variables for each month is impractical. To address this, an additional variable is introduced within the inner loop to accumulate the input values.

Other challenges can be while user enters a text value instead of number the program will fail, we can add try catch block to handle that but for now I am not adding it as the problem doesn’t explicitly call upon the error handling.

**Program:**

def averageRainfall():

    num\_years = int(input("Enter number of years to calculate average rainfall: "))

    start\_year = 1

    num\_months = num\_years \* 12

    total\_rain  = 0.0

    while start\_year <= num\_years:

        for month in range(1,13):

            rainfall = float(input(f"enter the rainfall for the year {start\_year} and month {month} in inches: " ))

            total\_rain = total\_rain + rainfall

        start\_year = start\_year+1

    avg\_rain = total\_rain/num\_months

    print("\nResults")

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

    print(f"total rainfall in inches : {total\_rain}")

    print(f"average rainfall in inches : {avg\_rain:.2f}")

averageRainfall()

**Result:**

**A screenshot of a computer

Description automatically generated**

**Part2.**