**Session 2: Control Flow and Functions**

* Basic syntax, data types, and variables
* Conditional statements (if, elif, else)
* Loops (for loops, while loops)
* Functions and parameter passing

**Exercise:**

We want to create a program to calculate the total cost of items purchased by a customer at a grocery store. We'll divide the problem into three questions:

1. Prompt the user to enter the number of items they purchased.
2. Prompt the user to enter the price of each item.
3. Calculate and display the total cost of the items

**Solution Guide:**

1. **Understanding the Question:**
   * The question is to create a program that calculates the total cost of items purchased by a customer at a grocery store.
   * Identify the inputs needed from the user (e.g., number of items purchased, price of each item).
   * Identify the expected output (e.g., total cost of items).
2. **Divide the Question into Three Parts:**
   * **Part 1: Prompt for the Number of Items:**
     + Write a function to prompt the user for the number of items purchased.
     + Validate if the input is a positive integer.
   * **Part 2: Prompt for the Price of Each Item:**
     + Write a function to prompt the user for the price of each item.
     + Calculate the total cost by summing up the prices of all items.
   * **Part 3: Calculate Total Cost and Display:**
     + Write a function to calculate the total cost based on the number of items and their prices.
     + Display the total cost to the user.

**def** **get\_positive\_integer**(prompt):

**while** **True**:

**try**:

value = int(input(prompt))

**if** value > **0**:

**return** value

**else**:

print("Please enter a positive integer.")

**except** **ValueError**:

print("Please enter a valid integer.")

**def** **calculate\_total\_cost**(num\_items):

total\_cost = **0**

**for** i **in** range(**1**, num\_items + **1**):

item\_price = float(input(f"Enter the price of item {i}: $"))

total\_cost += item\_price

**return** total\_cost

**def** **main**():

print("Welcome to the Grocery Store!")

num\_items = get\_positive\_integer("How many items did you purchase? ")

total\_cost = calculate\_total\_cost(num\_items)

print(f"The total cost of {num\_items} items is: ${total\_cost:.2f}")

**if** \_\_name\_\_ == "\_\_main\_\_":

main()