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.

```python
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()
```