Week 4: Collections

`W4_Practical.cpp`

Objective: Use `std::vector` to manage a collection of items. **Task:** Create a "shopping list" program. Your program should:

1. Create a `std::vector` of `std::string`s to store shopping items.
2. Add at least four items to the list (e.g., "Milk", "Bread", "Eggs", "Butter").
3. Print the total number of items on the list.
4. Use a range-based `for` loop to print out each item.

Solution:

C++

```
#include <iostream>
#include <vector>  // Required for std::vector
#include <string>  // Required for std::string

int main() {
    // 1. Create a vector of strings.
    std::vector<std::string> shoppingList;

    // 2. Add items to the list using push_back().
    shoppingList.push_back("Milk");
    shoppingList.push_back("Bread");
    shoppingList.push_back("Eggs");
    shoppingList.push_back("Butter");

    // 3. Print the number of items using the .size() method.
    std::cout << "You have " << shoppingList.size() << " items on your shopping list." << std::endl;
    std::cout << "----------------------------" << std::endl;

    // 4. Use a range-based for loop to print each item.
    // 'const auto&' is efficient as it avoids making copies of the strings.
```

```
    for (const auto& item : shoppingList) {
        std::cout << "- " << item << std::endl;
    }

    return 0;
}
```