Dr. Vishwanath Karad
MIT WORLD PEACE UNIVERSITY | PUNE
TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

Third Year B. Tech (EL & CE)

Semester: V **Subject:** Object-Oriented Programming Lab

Name: Shreerang Mhatre **Class: TY**

Roll No: 52 **Batch: A3**

Experiment No: 08

Name of the Experiment: List and Arrays

Performed on: 01/11/2023

Submitted on: 01/11/2023

Problem Statement:
Write a program in C++ to manage a shopping list. Each shopping list item is represented by a string stored in a container. Your design requires a print function that prints out the contents of the shopping list.

- Create an empty list.
- Append the items, "eggs", "milk", "sugar", "chocolate" and "flour" to the list. Print the list.
- Remove the first element from the list. Print the list.
- Insert the item, "coffee" at the beginning of the list. Print the list.
- Find the item, "sugar" and replace it with "honey." Print the list.
- Insert the item, "baking powder" before "milk" in the list. Print the list.
- Sort and search the item in the list.

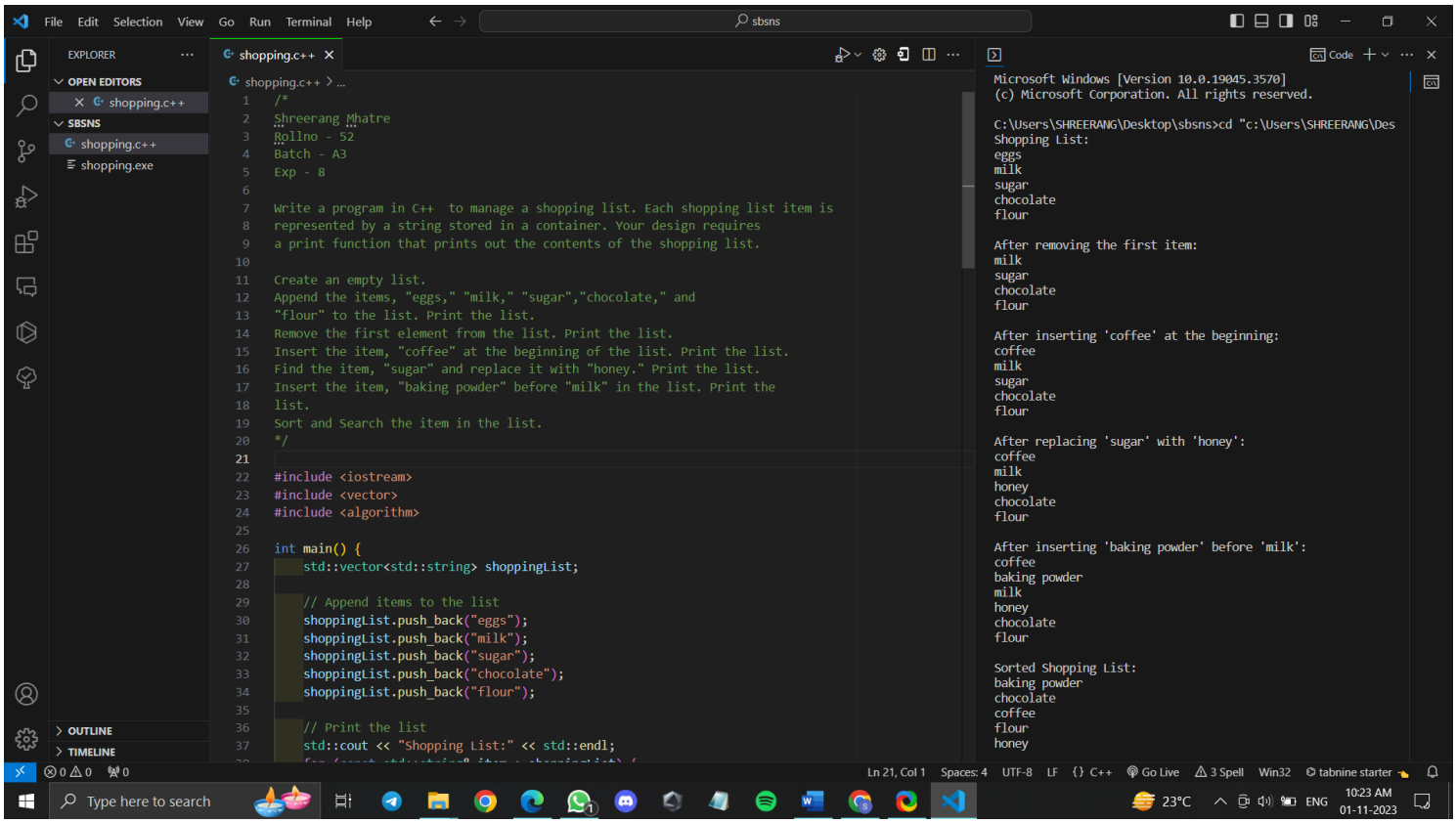
Output:

```
// C:\Users\SHREERANG\Desktop\sbsns>cd "c:\Users\SHREERANG\Desktop\sbsns\" && g++
Shopping List:
eggs
milk
sugar
chocolate
flour

After removing the first item:
milk
sugar
chocolate
flour

After inserting 'coffee' at the beginning:
coffee
milk
sugar
chocolate
flour

After replacing 'sugar' with 'honey':
coffee
milk
honey
chocolate
flour

After inserting 'baking powder' before 'milk':
coffee
baking powder
milk
honey
chocolate
flour

Sorted Shopping List:
baking powder
chocolate
coffee
flour
honey
milk

'chocolate' found in the list.
```

Code:

```
#include <iostream>
#include <vector>
#include <algorithm>

int main() {
    std::vector<std::string> shoppingList;

    // Append items to the list
    shoppingList.push_back("eggs");
    shoppingList.push_back("milk");
    shoppingList.push_back("sugar");
    shoppingList.push_back("chocolate");
    shoppingList.push_back("flour");

    // Print the list
    std::cout << "Shopping List:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Remove the first element
    shoppingList.erase(shoppingList.begin());

    // Print the modified list
    std::cout << "\nAfter removing the first item:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Insert "coffee" at the beginning
    shoppingList.insert(shoppingList.begin(), "coffee");

    // Print the modified list
    std::cout << "\nAfter inserting 'coffee' at the beginning:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Find and replace "sugar" with "honey"
    for (std::string& item : shoppingList) {
```

```
        if (item == "sugar") {
            item = "honey";
        }
    }

    // Print the modified list
    std::cout << "\nAfter replacing 'sugar' with 'honey':" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Insert "baking powder" before "milk"
    auto it = std::find(shoppingList.begin(), shoppingList.end(), "milk");
    if (it != shoppingList.end()) {
        shoppingList.insert(it, "baking powder");
    }

    // Print the modified list
    std::cout << "\nAfter inserting 'baking powder' before 'milk':" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Sort the list
    std::sort(shoppingList.begin(), shoppingList.end());

    // Print the sorted list
    std::cout << "\nSorted Shopping List:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Search for an item in the list
    std::string searchItem = "chocolate";
    auto searchResult = std::find(shoppingList.begin(), shoppingList.end(), searchItem);
    if (searchResult != shoppingList.end()) {
        std::cout << "\n'" << searchItem << "' found in the list." << std::endl;
    } else {
        std::cout << "\n'" << searchItem << "' not found in the list." << std::endl;
    }

    return 0;
}
```



```
/*
Shreerang Mhatre
Rollno - 52
Batch - A3
Exp - 8

Write a program in C++  to manage a shopping list. Each shopping list item is
represented by a string stored in a container. Your design requires
a print function that prints out the contents of the shopping list.

Create an empty list.
Append the items, "eggs," "milk," "sugar","chocolate," and
"flour" to the list. Print the list.
Remove the first element from the list. Print the list.
Insert the item, "coffee" at the beginning of the list. Print the list.
Find the item, "sugar" and replace it with "honey." Print the list.
Insert the item, "baking powder" before "milk" in the list. Print the
list.
Sort and Search the item in the list.
*/

#include <iostream>
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int main() {
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    shoppingList.push_back("chocolate");
    shoppingList.push_back("flour");

    // Print the list
    std::cout << "Shopping List:" << std::endl;
```
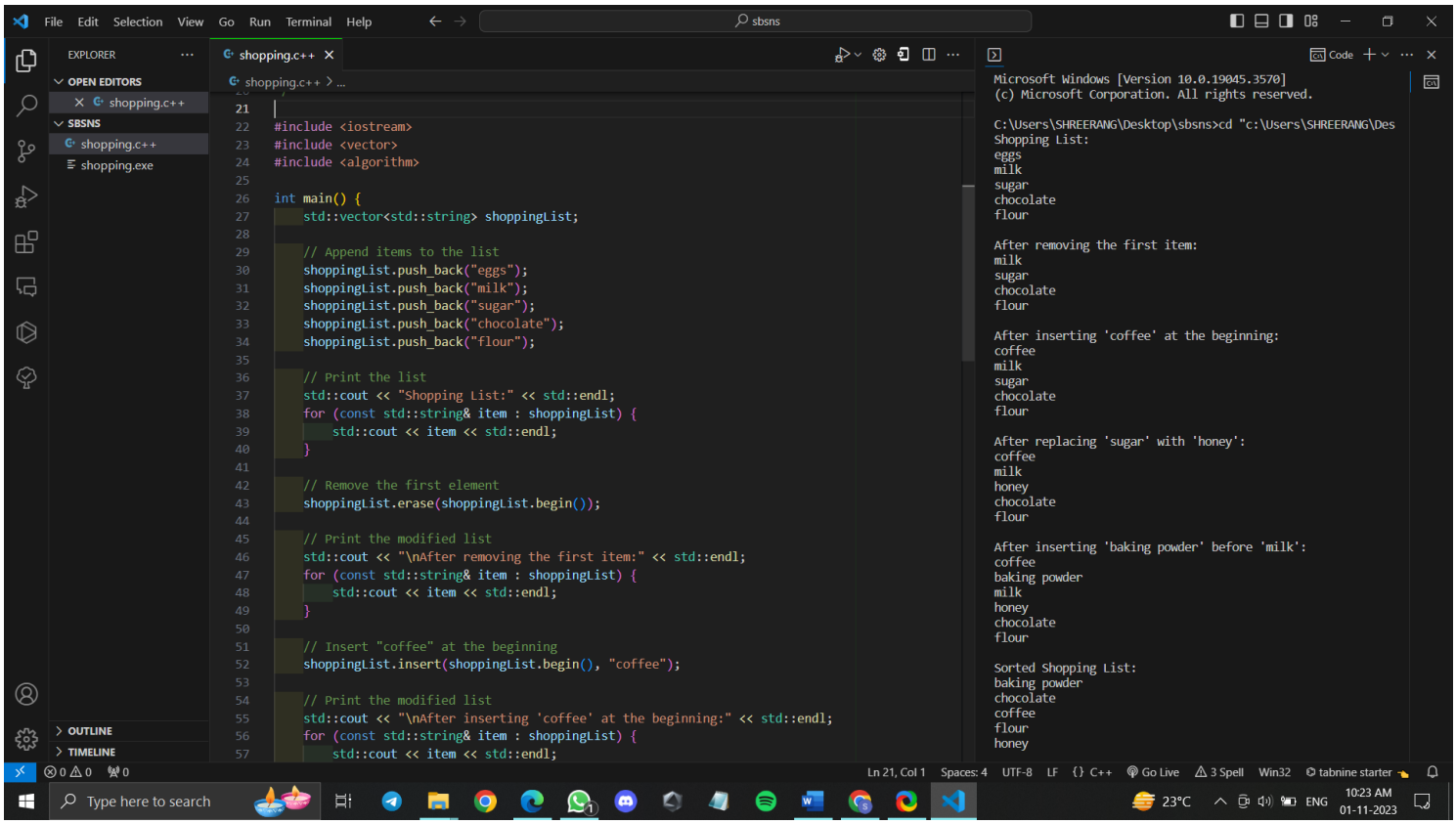

```
Microsoft Windows [Version 10.0.19045.3570]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SHREERANG\Desktop\sbsns>cd "c:\Users\SHREERANG\Des
Shopping List:
eggs
milk
sugar
chocolate
flour

After removing the first item:
milk
sugar
chocolate
flour

After inserting 'coffee' at the beginning:
coffee
milk
sugar
chocolate
flour

After replacing 'sugar' with 'honey':
coffee
milk
honey
chocolate
flour

After inserting 'baking powder' before 'milk':
coffee
baking powder
milk
honey
chocolate
flour

Sorted Shopping List:
baking powder
chocolate
coffee
flour
honey
```



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    shoppingList.push_back("flour");

    // Print the list
    std::cout << "Shopping List:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Remove the first element
    shoppingList.erase(shoppingList.begin());

    // Print the modified list
    std::cout << "\nAfter removing the first item:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Insert "coffee" at the beginning
    shoppingList.insert(shoppingList.begin(), "coffee");

    // Print the modified list
    std::cout << "\nAfter inserting 'coffee' at the beginning:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
```

```
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Shopping List:
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After removing the first item:
milk
sugar
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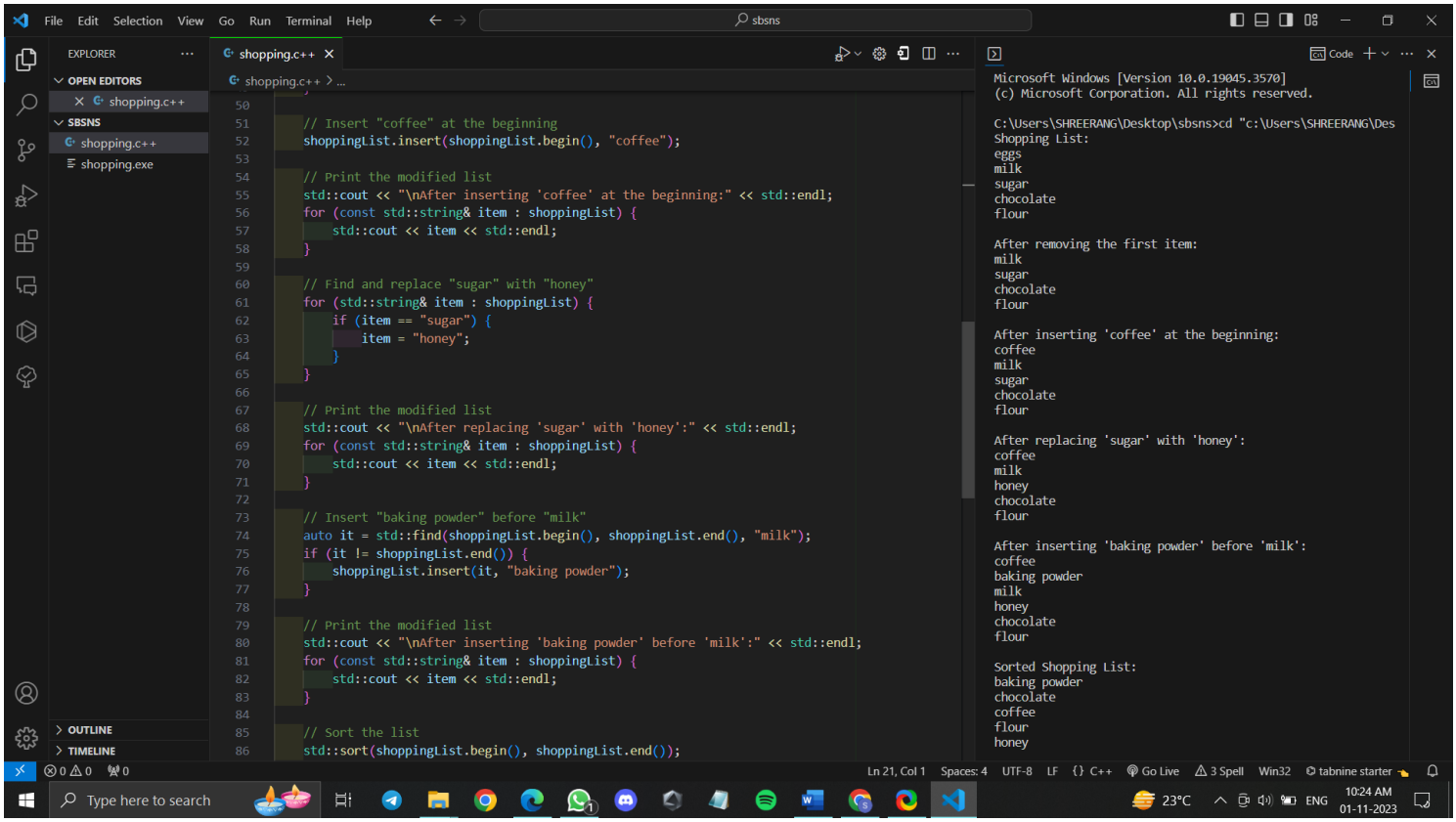
flour

After inserting 'coffee' at the beginning:
coffee
milk
sugar
chocolate
flour

After replacing 'sugar' with 'honey':
coffee
milk
honey
chocolate
flour

After inserting 'baking powder' before 'milk':
coffee
baking powder
milk
honey
chocolate
flour

Sorted Shopping List:
baking powder
chocolate
coffee
flour
honey
```



```
    // Insert "coffee" at the beginning
    shoppingList.insert(shoppingList.begin(), "coffee");

    // Print the modified list
    std::cout << "\nAfter inserting 'coffee' at the beginning:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Find and replace "sugar" with "honey"
    for (std::string& item : shoppingList) {
        if (item == "sugar") {
            item = "honey";
        }
    }

    // Print the modified list
    std::cout << "\nAfter replacing 'sugar' with 'honey':" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Insert "baking powder" before "milk"
    auto it = std::find(shoppingList.begin(), shoppingList.end(), "milk");
    if (it != shoppingList.end()) {
        shoppingList.insert(it, "baking powder");
    }

    // Print the modified list
    std::cout << "\nAfter inserting 'baking powder' before 'milk':" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Sort the list
    std::sort(shoppingList.begin(), shoppingList.end());
```

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Shopping List:
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After inserting 'baking powder' before 'milk':
coffee
baking powder
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honey
chocolate
flour

Sorted Shopping List:
baking powder
chocolate
coffee
flour
honey
```

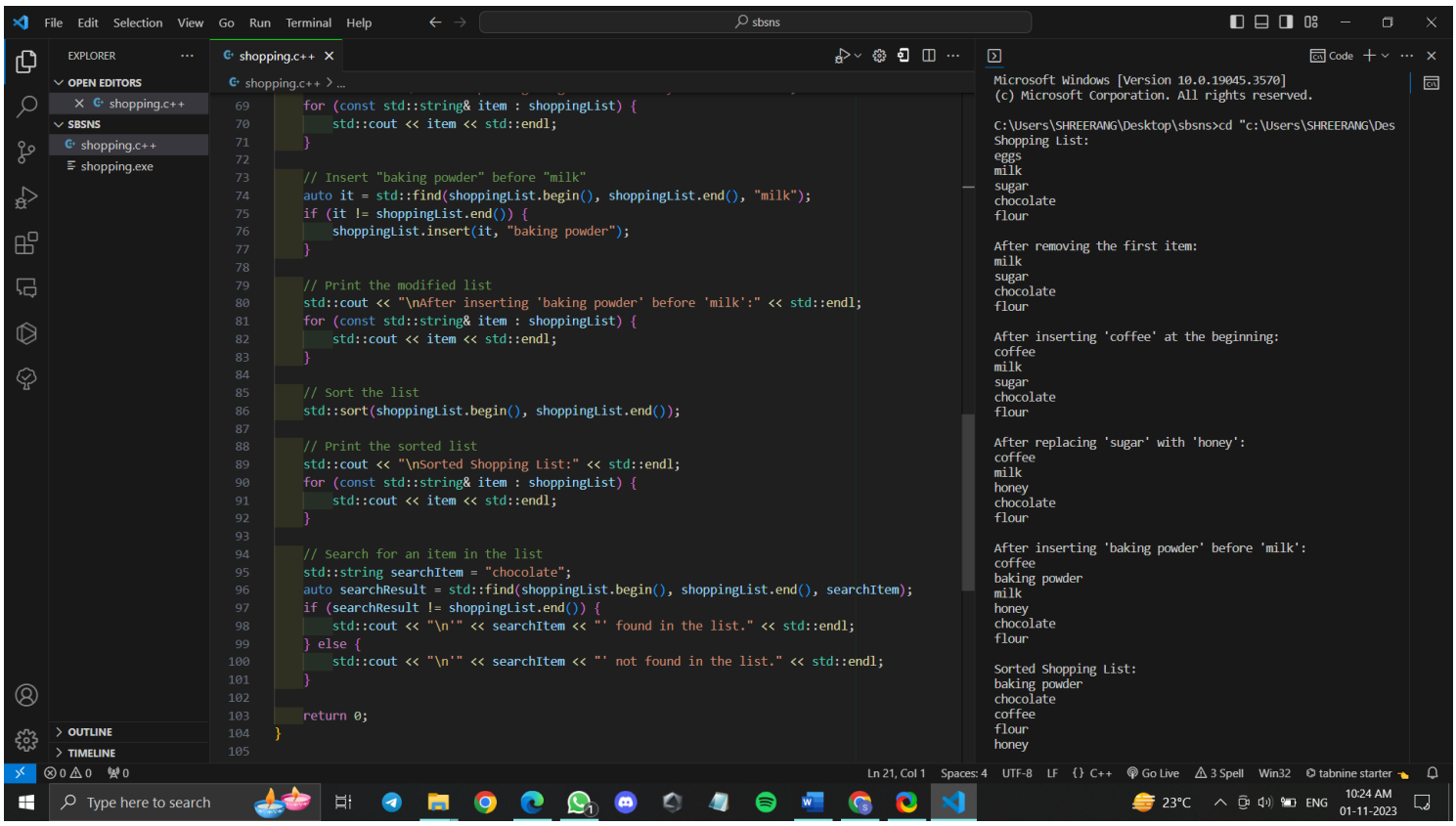

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    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
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    auto it = std::find(shoppingList.begin(), shoppingList.end(), "milk");
    if (it != shoppingList.end()) {
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    }

    // Print the modified list
    std::cout << "\nAfter inserting 'baking powder' before 'milk':" << std::endl;
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    std::sort(shoppingList.begin(), shoppingList.end());

    // Print the sorted list
    std::cout << "\nSorted Shopping List:" << std::endl;
    for (const std::string& item : shoppingList) {
        std::cout << item << std::endl;
    }

    // Search for an item in the list
    std::string searchItem = "chocolate";
    auto searchResult = std::find(shoppingList.begin(), shoppingList.end(), searchItem);
    if (searchResult != shoppingList.end()) {
        std::cout << "\n'" << searchItem << "' found in the list." << std::endl;
    } else {
        std::cout << "\n'" << searchItem << "' not found in the list." << std::endl;
    }

    return 0;
}
```

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chocolate
flour

After replacing 'sugar' with 'honey':
coffee
milk
honey
chocolate
flour

After inserting 'baking powder' before 'milk':
coffee
baking powder
milk
honey
chocolate
flour

Sorted Shopping List:
baking powder
chocolate
coffee
flour
honey
```