

// name 1:Muhammad Afiq Danial bin Rozaidie A23CS0117

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// SET 1

```
#include <iostream>
```

```
using namespace std;
```

```
const int MAX_BOOKS = 5;
```

```
int displayMainMenu();
```

```
void addBook (string[MAX_BOOKS], string[MAX_BOOKS], int[MAX_BOOKS], int &);
```

```
void displayLibrary (string[MAX_BOOKS], string[MAX_BOOKS], int[MAX_BOOKS], int &);
```

```
void searchByTitle (string[MAX_BOOKS], string[MAX_BOOKS], int[MAX_BOOKS]);
```

```
int main(){
```

```
    string title[MAX_BOOKS];
```

```
    string author[MAX_BOOKS];
```

```
    int i, years[MAX_BOOKS];
```

```
    int value = 0;
```

```
    do{
```

```
        i = displayMainMenu();
```

```
        cout << endl;
```

```
        switch(i){
```

```
            case 1: addBook(title, author, years, value); break;
```

```
            case 2: displayLibrary(title, author, years, value); break;
```

```
            case 3: searchByTitle(title, author, years); break;
```

```
            default: cout << endl << "Goodbye!\n" << endl;
```

```
        }
```

```
    } while (i != 4 );
```

```
    return 0;
```

```
}
```

```
int displayMainMenu(){
```

```
    int choice;
```

```
    cout << "<<<<<Library Management System>>>>>\n" <<
```

```
"===== " << endl;
```

```
    cout << "1. Add a Book\n2. Display Library\n3. Search Library\n4. Quit\n" << "Enter your
```

```
choice: ";
```

```
    cin >> choice;
```

```
    return choice;
```

```
}
```

```
void addBook (string title[MAX_BOOKS],string author[MAX_BOOKS], int year[MAX_BOOKS], int & i){
```

```
    if (i < MAX_BOOKS){
```

```
        cout << "Enter book title: ";
```

```
        cin >> title[i];
```

```
        cout << "Enter author name: ";
```

```
        cin >> author[i];
```

```
        cout << "Enter publication year: ";
```

```

        cin >> year[i];
        cout << "\nBook added successfully!" << endl << endl;
    }
    else
        cout << "The capacity of books in the library has full" << endl << endl;
    i++;
}

void displayLibrary(string title[MAX_BOOKS], string author[MAX_BOOKS], int year[MAX_BOOKS], int
&total ){
    cout << "Library Contents:\n===== " << endl;
    for (int x = 0; x < total; x++){
        cout << "Title: " << title[x] << endl;
        cout << "Author: " << author[x] << endl;
        cout << "Year: " << year[x] << endl << endl;
    }
}

void searchByTitle (string title[MAX_BOOKS], string author[MAX_BOOKS], int year[MAX_BOOKS] ){
    bool found = true;
    string search;
    cout << "Enter the title to search: " ;
    cin >> search;
    cout << endl;
    int y;
    for (y = 0; y < MAX_BOOKS; y++){
        if (search == title[y]){
            cout << "\nBook found:\n===== " << endl;
            cout << "Title: " << title[y] << endl;
            cout << "Author: " << author[y] << endl;
            cout << "Year: " << year[y] << endl << endl;
            found = false;}
        }
    if (found)
        cout << "That book doesn't exist\n===== " << endl << endl;
}

```

// SET 2

// Name 1: Muhammad Afiq Danial bin Rozaidie A23CS0117

// Name 2: Mohamed Alif Fathi bin Abdul Latif A23CS0112

```
#include <iostream>
```

```
using namespace std;
```

```
#define MAX_OPERATIONS 100
```

```
int multiplyUsingAddition(int, int);
```

```
void displayMainMenu();
```

```
void performMultiplication(int [], int [], int &);
```

```
void displayResults(int [], int [], int);
```

```
int main()
```

```
{
```

```
    int operands1[MAX_OPERATIONS];
```

```
    int results[MAX_OPERATIONS];
```

```
    int operationCount = 0;
```

```
    int choice;
```

```
    do
```

```
    {
```

```
        displayMainMenu();
```

```
        cout << "Enter your choice: ";
```

```
        cin >> choice;
```

```
        switch (choice)
```

```
        {
```

```
            case 1:
```

```
                performMultiplication(operands1, results, operationCount);
```

```
                break;
```

```
            case 2:
```

```
                if (operationCount == 0)
```

```
                {
```

```
                    cout << endl << "Please perform multiplication first before  
display the results." << endl << endl << endl;
```

```
                    break;
```

```
                }
```

```
                displayResults(operands1, results, operationCount);
```

```
                break;
```

```
            case 3:
```

```
                cout << endl << "Goodbye!";
```

```
                break;
```

```

                default:
                    cout << endl << "Invalid choice. Please enter a valid option." << endl
<< endl;
            }

        }
        while (choice != 3);

        return 0;
    }

int multiplyUsingAddition(int a, int b)
{
    int result;

    for (int i = 0 ; i < a ; i++)
    {
        result += b;
    }

    return result;
}

void displayMainMenu()
{
    cout << "<<<<<Main Menu>>>>>" << endl << endl;
    cout << "===== " << endl << endl;
    cout << "1. Perform Multiplication" << endl << endl;
    cout << "2. Display Results" << endl << endl;
    cout << "3. Quit" << endl << endl;
}

void performMultiplication(int operands1[], int results[], int &operationCount)
{
    int numOperand;
    int operand;
    int result = 1;

    cout << endl << "Enter the number of operands for multiplication: ";
    cin >> numOperand;

    while (numOperand < 2)
    {
        cout << endl << "Invalid number of operands. Please enter number more than 1." <<
endl;
        cin >> numOperand;
    }
}

```

```

for (int i = 0 ; i < numOperand ; i++)
{
    cout << endl << "Enter operand " << i+1 << ": ";
    cin >> operand;

    result = multiplyUsingAddition(operand, result);
    operands1[operationCount] = numOperand;
}

results[operationCount] = result;
operationCount++;

cout << endl << "Multiplication performed successfully!" << endl << endl << endl;
}

void displayResults(int operands1[], int results[], int operationCount)
{
    cout << endl << endl << "Results of Mathematical Operations:" << endl << endl;
    cout << "=====" << endl << endl;

    for (int i = 0 ; i < operationCount ; i++)
    {
        cout << "Operation " << i+1 << ": " << results[i] << " (Operands: " << operands1[i] <<
        ")" << endl << endl << endl;
    }
}

```