Q1:

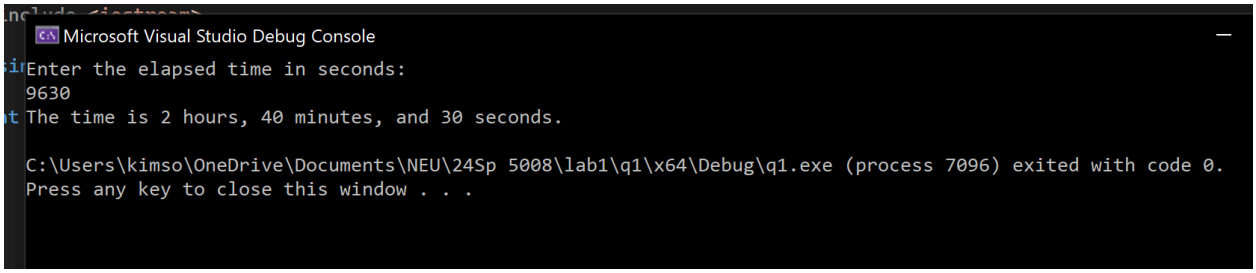
Code:

q1.cpp

q1 (Global Scope)

```cpp
#include <iostream>

using namespace std;

int main() {
    int hours;
    int minutes;
    int seconds;
    int elapsed_time;
    int seconds_remaining;

    cout << "Enter the elapsed time in seconds: " << endl;
    cin >> elapsed_time;

    hours = elapsed_time / 3600;
    seconds_remaining = elapsed_time % 3600;
    minutes = seconds_remaining / 60;
    seconds = seconds_remaining % 60;

    cout << "The time is " << hours << " hours, " << minutes
        << " minutes, and " << seconds << " seconds." << endl;
    return 0;
}
```

Output:



Q2:

Code:

```cpp
#include <iostream>
#include <cmath>

using namespace std;

int main() {

    double const CARTON_SIZE = 3.78;
    double const UNIT_COST = 0.38;
    double const UNIT_PROFIT = 0.27;

    int total_milk;
    int num_cartons;
    double cost;
    double profit;

    cout << "Enter the total amount of milk purchased in liters." << endl;
    cin >> total_milk;

    num_cartons = ceil(total_milk / CARTON_SIZE);
    cost = total_milk * UNIT_COST;
    profit = UNIT_PROFIT * num_cartons;

    cout << "The number of milk cartons needed: " << num_cartons << endl;
    cout << "The cost of producing milk: $" << cost << endl;
    cout << "The profit for producing milk: $" << profit << endl;

    return 0;
}
```

Output:

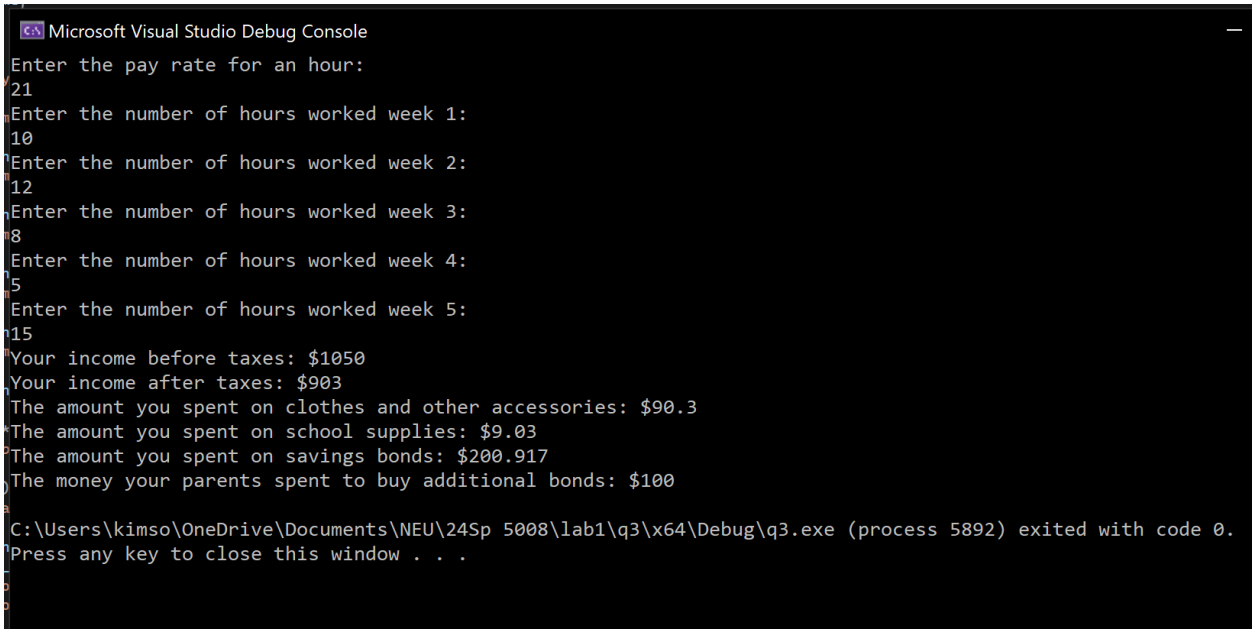
```
Microsoft Visual Studio Debug Console
Enter the total amount of milk purchased in liters.
100
The number of milk cartons needed: 27
The cost of producing milk: $38
The profit for producing milk: $7.29

C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q2\x64\Debug
Press any key to close this window . . .
```

Q3:
Code:

q3 (Global Scope)

```cpp
#include <iostream>

using namespace std;

int main() {

    double const TAX = 0.14;
    double hourly_rate;
    int hours_worked = 0;
    int curr_hours;
    double income;
    double net_income;
    double clothes;
    double supplies;
    double remaining_income;
    double bonds;
    double addl_bonds;

    cout << "Enter the pay rate for an hour: " << endl;
    cin >> hourly_rate;
    cout << "Enter the number of hours worked week 1: " << endl;
    cin >> curr_hours;
    hours_worked += curr_hours;
    cout << "Enter the number of hours worked week 2: " << endl;
    cin >> curr_hours;
    hours_worked += curr_hours;
    cout << "Enter the number of hours worked week 3: " << endl;
    cin >> curr_hours;
    hours_worked += curr_hours;
    cout << "Enter the number of hours worked week 4: " << endl;
    cin >> curr_hours;
    hours_worked += curr_hours;
    cout << "Enter the number of hours worked week 5: " << endl;
    cin >> curr_hours;
    hours_worked += curr_hours;

    income = hourly_rate * hours_worked;
    cout << "Your income before taxes: $" << income << endl;

    net_income = (1 - TAX) * income;
    cout << "Your income after taxes: $" << net_income << endl;

    clothes = 0.1 * net_income;
    supplies = 0.01 * net_income;
    cout << "The amount you spent on clothes and other accessories: $" << clothes << endl;
    cout << "The amount you spent on school supplies: $" << supplies << endl;

    remaining_income = net_income - (clothes + supplies);
    bonds = 0.25 * remaining_income;
    cout << "The amount you spent on savings bonds: $" << bonds << endl;

    addl_bonds = static_cast<int> (bonds) * .5;
    cout << "The money your parents spent to buy additional bonds: $" << addl_bonds << endl;

    return 0;
}
```

Output:

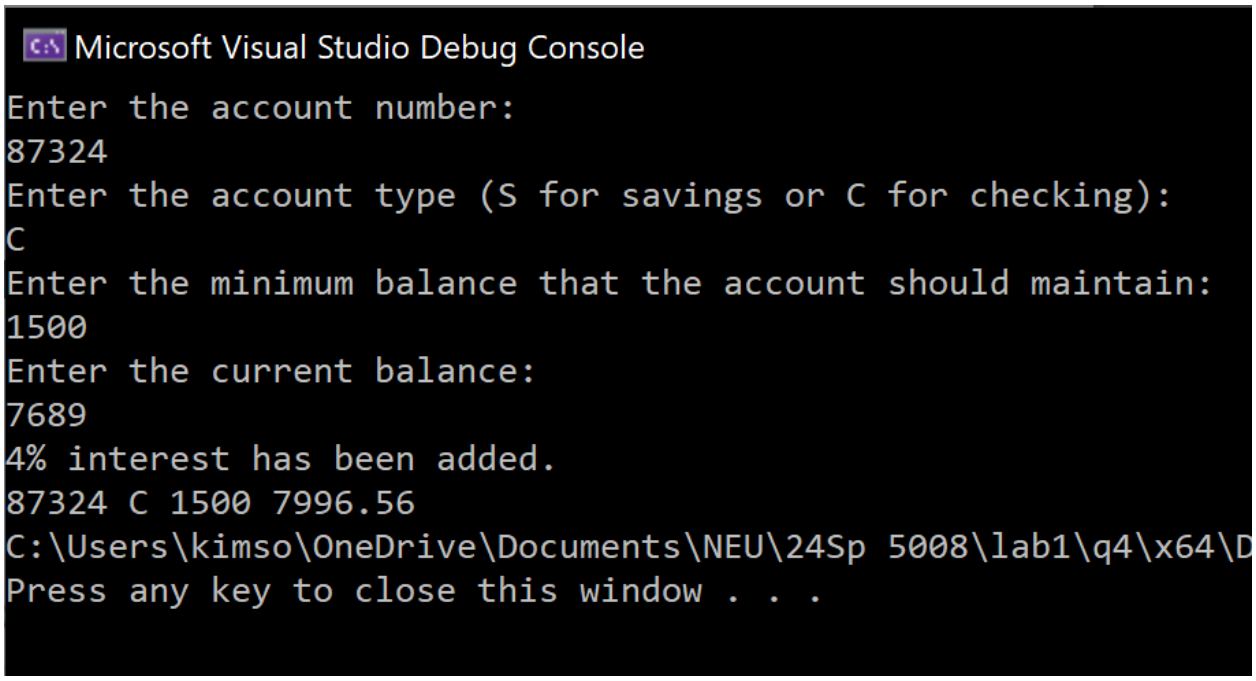

Microsoft Visual Studio Debug Console
Enter the pay rate for an hour:
21
Enter the number of hours worked week 1:
10
Enter the number of hours worked week 2:
12
Enter the number of hours worked week 3:
8
Enter the number of hours worked week 4:
5
Enter the number of hours worked week 5:
15
Your income before taxes: $1050
Your income after taxes: $903
The amount you spent on clothes and other accessories: $90.3
The amount you spent on school supplies: $9.03
The amount you spent on savings bonds: $200.917
The money your parents spent to buy additional bonds: $100
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q3\x64\Debug\q3.exe (process 5892) exited with code 0.
Press any key to close this window . . .

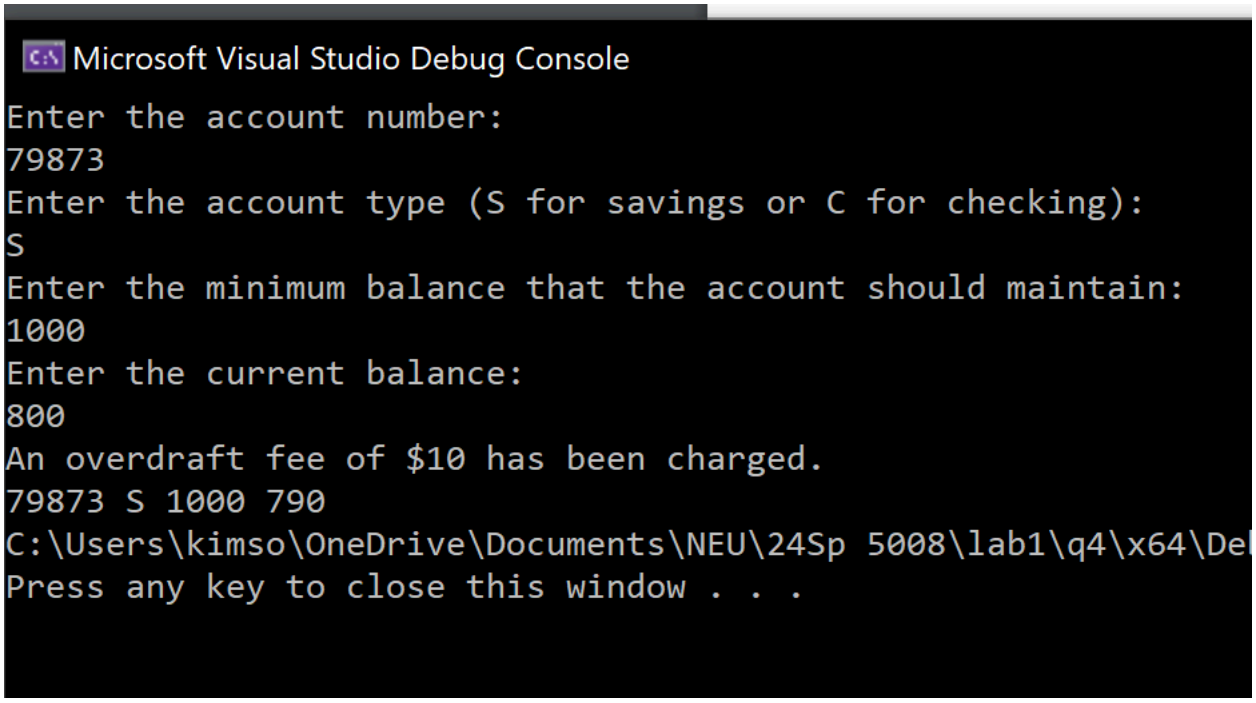
Q4:
Code:

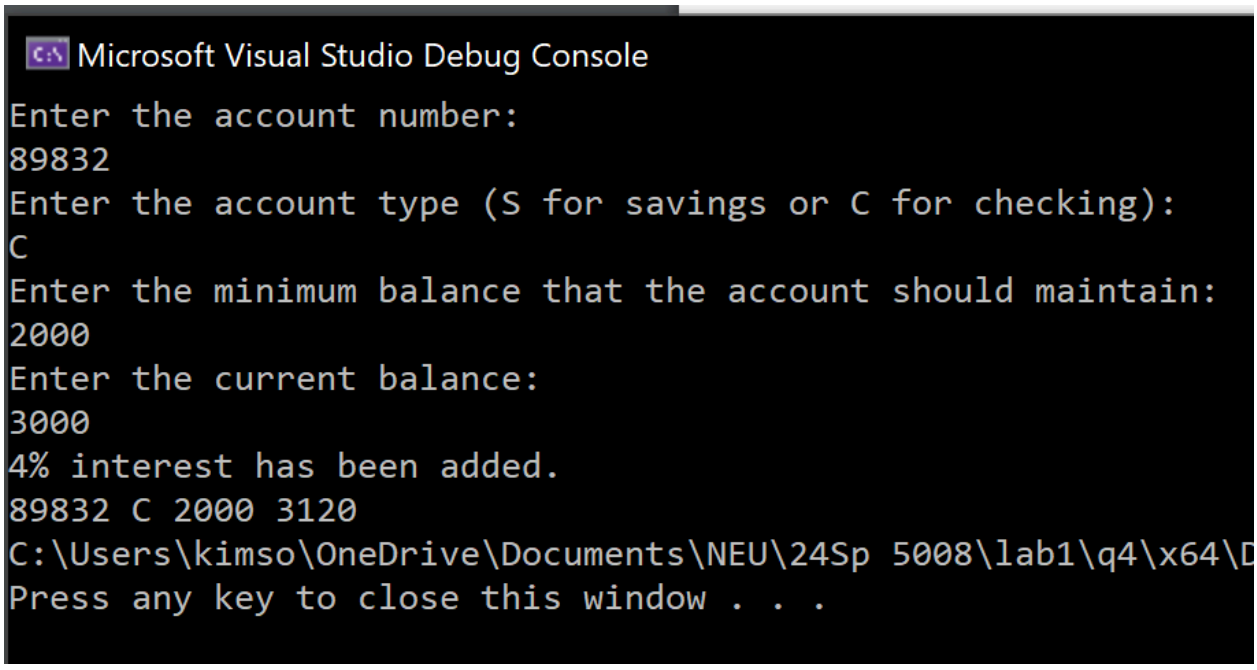
```cpp
#include <iostream>

using namespace std;

int main() {
    int acc_number;
    char acc_type;
    double min_balance;
    double curr_balance;

    cout << "Enter the account number: " << endl;
    cin >> acc_number;
    cout << "Enter the account type (S for savings or C for checking): " << endl;
    cin >> acc_type;
    cout << "Enter the minimum balance that the account should maintain: " << endl;
    cin >> min_balance;
    cout << "Enter the current balance: " << endl;
    cin >> curr_balance;

    if (curr_balance < min_balance) {
        if (acc_type == 'S') {
            curr_balance -= 10;
            cout << "An overdraft fee of $10 has been charged." << endl;
        }
        else {
            curr_balance -= 25;
            cout << "An overdraft fee of $25 has been charged." << endl;
        }
    }
    else {
        if (acc_type == 'C') {
            curr_balance *= 1.04;
            cout << "4% interest has been added." << endl;
        }
        else {
            if (curr_balance <= (min_balance + 5000)) {
                curr_balance *= 1.03;
                cout << "3% interest has been added." << endl;
            }
            else {
                curr_balance *= 1.05;
                cout << "5% interest has been added." << endl;
            }
        }
    }

    cout << acc_number << " " << acc_type << " " << min_balance << " " <<  curr_balance;

    return 0;
}
```

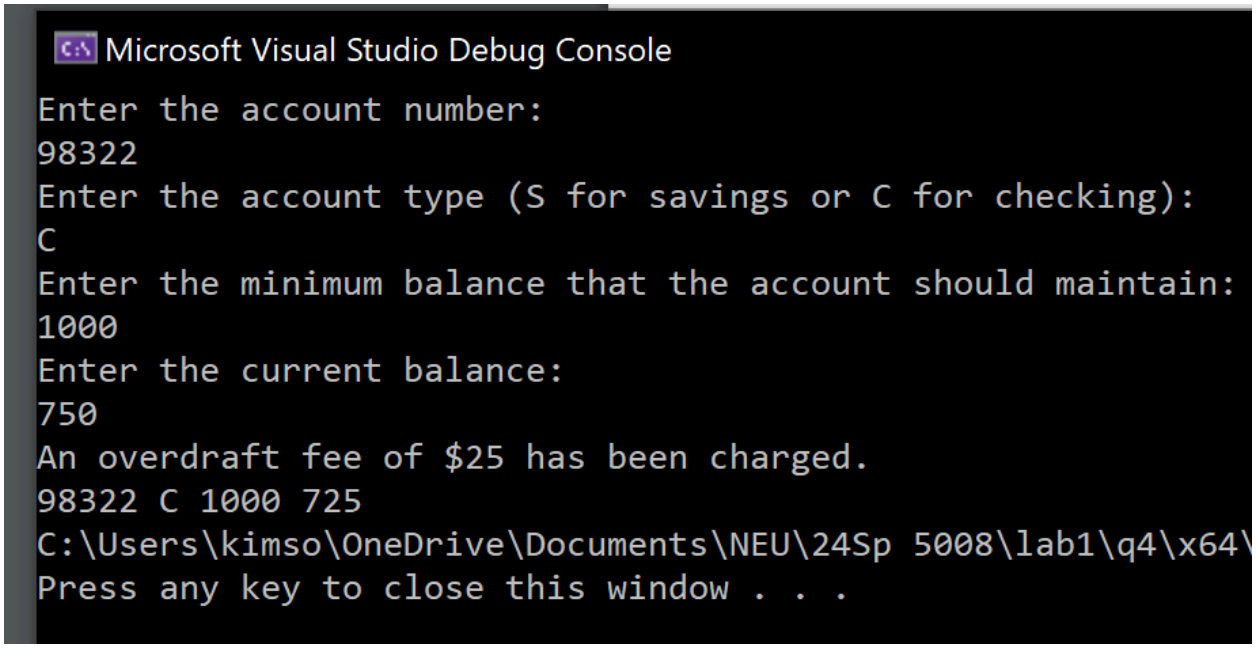
Output:

```
Enter the account number:
46728
Enter the account type (S for savings or C for checking):
S
Enter the minimum balance that the account should maintain:
1000
Enter the current balance:
2700
3% interest has been added.
46728 S 1000 2781
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q4\x64\De
Press any key to close this window . . .
```




Microsoft Visual Studio Debug Console
Enter the account number:
79873
Enter the account type (S for savings or C for checking):
S
Enter the minimum balance that the account should maintain:
1000
Enter the current balance:
800
An overdraft fee of $10 has been charged.
79873 S 1000 790
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q4\x64\De
Press any key to close this window . . .

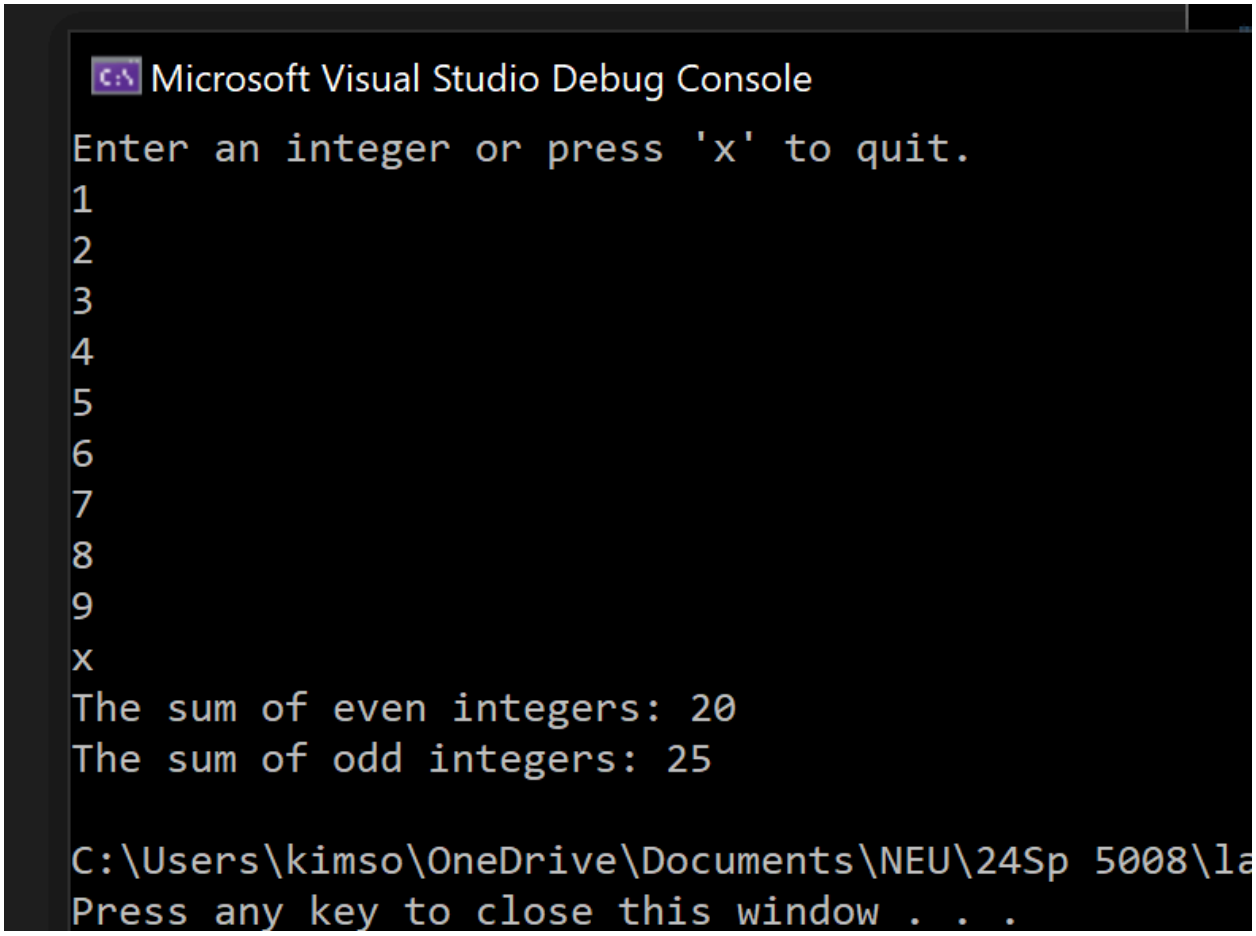

Microsoft Visual Studio Debug Console
Enter the account number:
89832
Enter the account type (S for savings or C for checking):
C
Enter the minimum balance that the account should maintain:
2000
Enter the current balance:
3000
4% interest has been added.
89832 C 2000 3120
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q4\x64\D
Press any key to close this window . . .


Microsoft Visual Studio Debug Console
Enter the account number:
98322
Enter the account type (S for savings or C for checking):
C
Enter the minimum balance that the account should maintain:
1000
Enter the current balance:
750
An overdraft fee of $25 has been charged.
98322 C 1000 725
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\lab1\q4\x64\
Press any key to close this window . . .

Q5:
Code:

```cpp
#include <iostream>

using namespace std;

int main() {
    int evenSum = 0;
    int oddSum = 0;
    char curr;

    cout << "Enter an integer or press 'x' to quit." << endl;
    cin >> curr;

    while (curr != 'x') {
        curr = int(curr) - 48;
        if (curr % 2 == 0) {
            evenSum += curr;
        }
        else {
            oddSum += curr;
        }
        cin >> curr;
    }

    cout << "The sum of even integers: " << evenSum << endl;
    cout << "The sum of odd integers: " << oddSum << endl;

    return 0;
}
```

Output:


Microsoft Visual Studio Debug Console
Enter an integer or press 'x' to quit.
1
2
3
4
5
6
7
8
9
x
The sum of even integers: 20
The sum of odd integers: 25
C:\Users\kimso\OneDrive\Documents\NEU\24Sp 5008\la
Press any key to close this window . . .