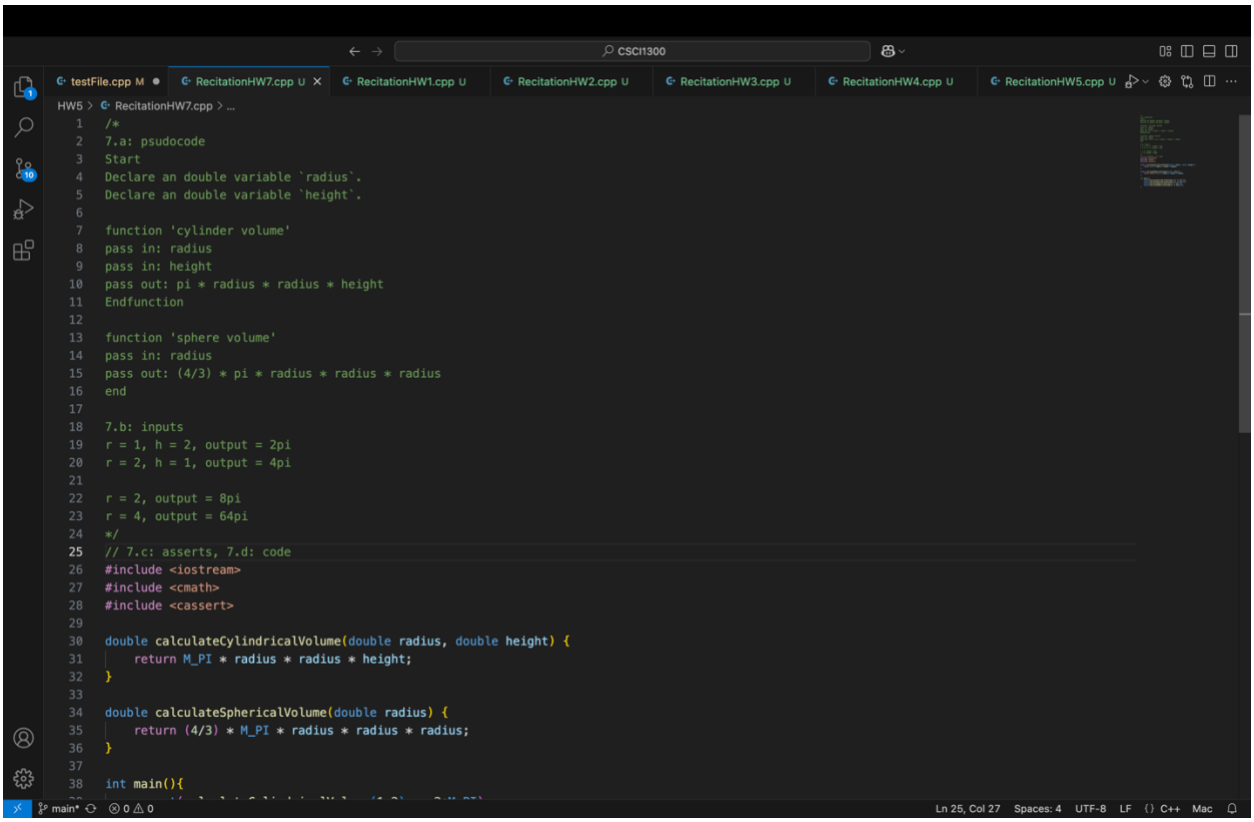
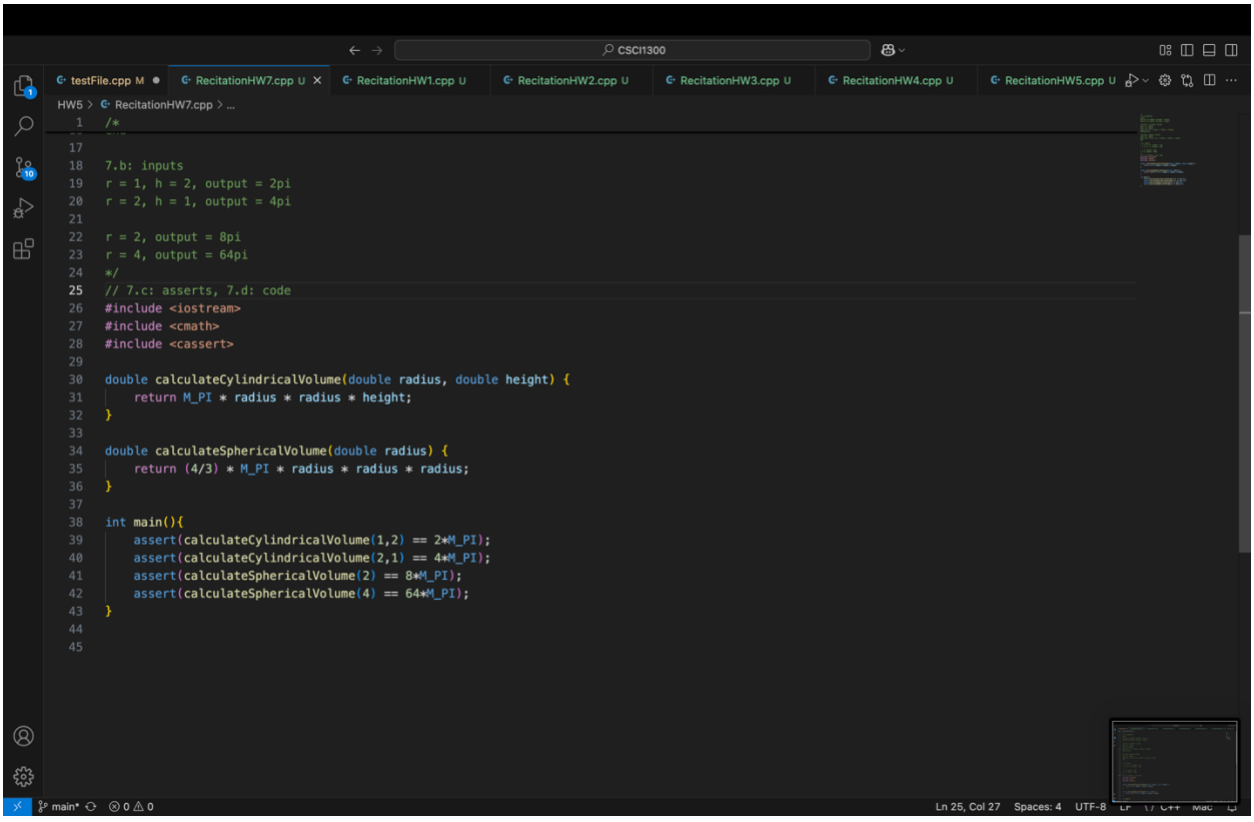
Recitation Problem 7

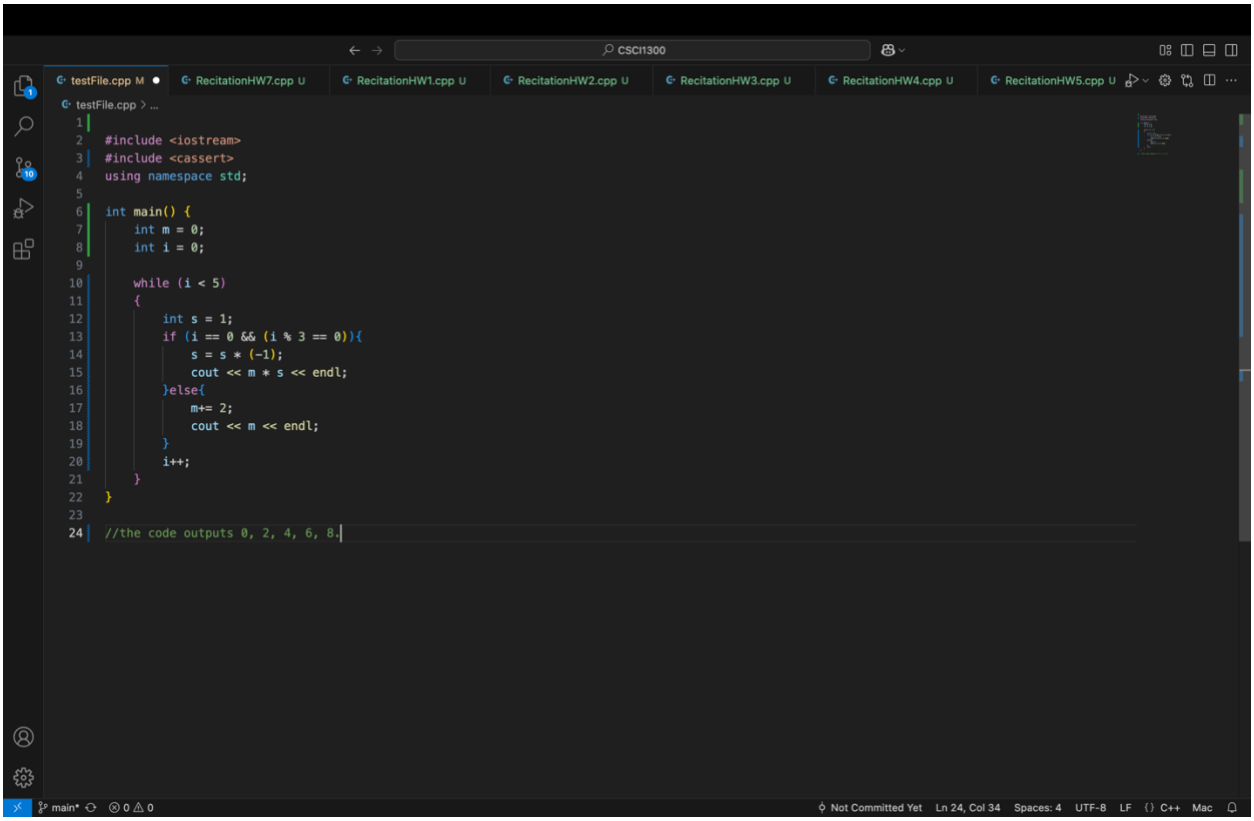


```
/*
7.a: psudocode
Start
Declare an double variable `radius`.
Declare an double variable `height`.

function 'cylinder volume'
pass in: radius
pass in: height
pass out: pi * radius * radius * height
Endfunction

function 'sphere volume'
pass in: radius
pass out: (4/3) * pi * radius * radius * radius
end

7.b: inputs
r = 1, h = 2, output = 2pi
r = 2, h = 1, output = 4pi

r = 2, output = 8pi
r = 4, output = 64pi
*/
// 7.c: asserts, 7.d: code
#include <iostream>
#include <cmath>
#include <cassert>

double calculateCylindricalVolume(double radius, double height) {
    return M_PI * radius * radius * height;
}

double calculateSphericalVolume(double radius) {
    return (4/3) * M_PI * radius * radius * radius;
}

int main(){
```

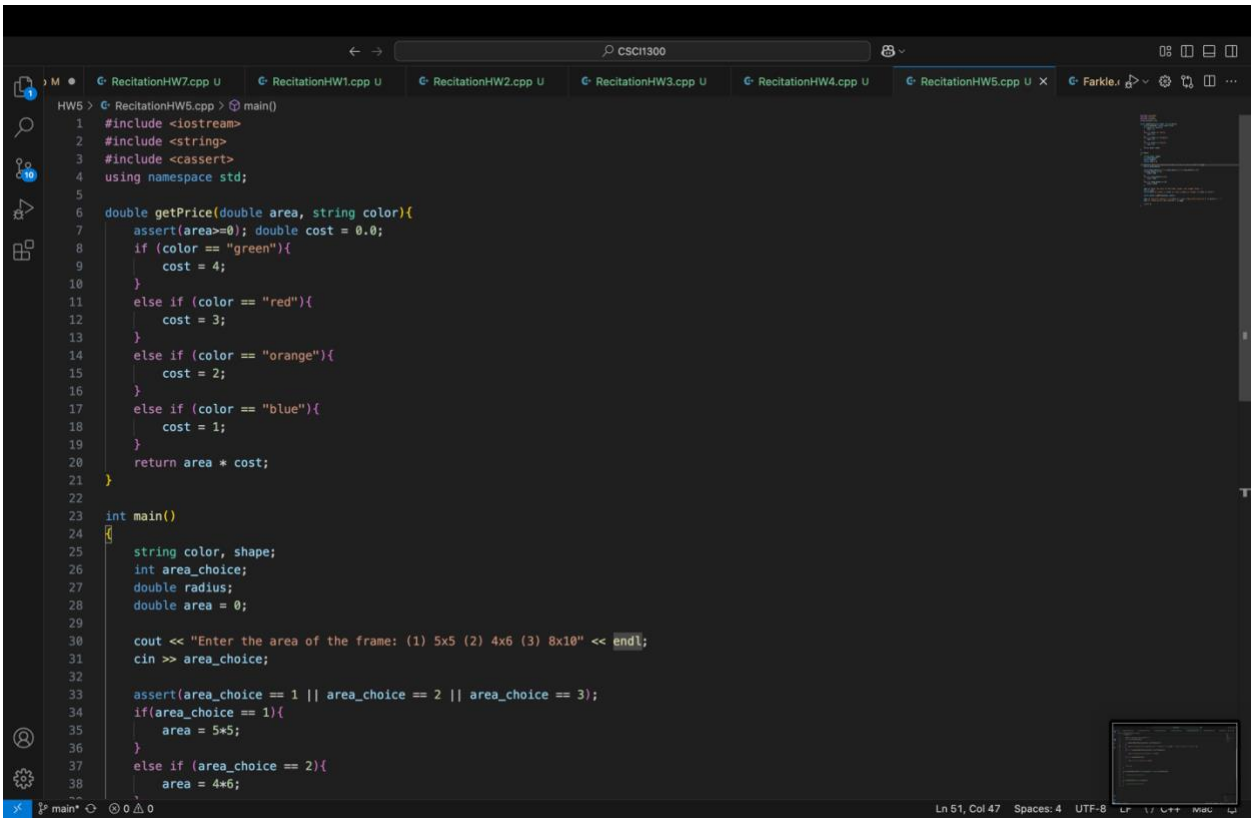


```
/*

7.b: inputs
r = 1, h = 2, output = 2pi
r = 2, h = 1, output = 4pi

r = 2, output = 8pi
r = 4, output = 64pi
*/
// 7.c: asserts, 7.d: code
#include <iostream>
#include <cmath>
#include <cassert>

double calculateCylindricalVolume(double radius, double height) {
    return M_PI * radius * radius * height;
}

double calculateSphericalVolume(double radius) {
    return (4/3) * M_PI * radius * radius * radius;
}

int main(){
    assert(calculateCylindricalVolume(1,2) == 2*M_PI);
    assert(calculateCylindricalVolume(2,1) == 4*M_PI);
    assert(calculateSphericalVolume(2) == 8*M_PI);
    assert(calculateSphericalVolume(4) == 64*M_PI);
}
```

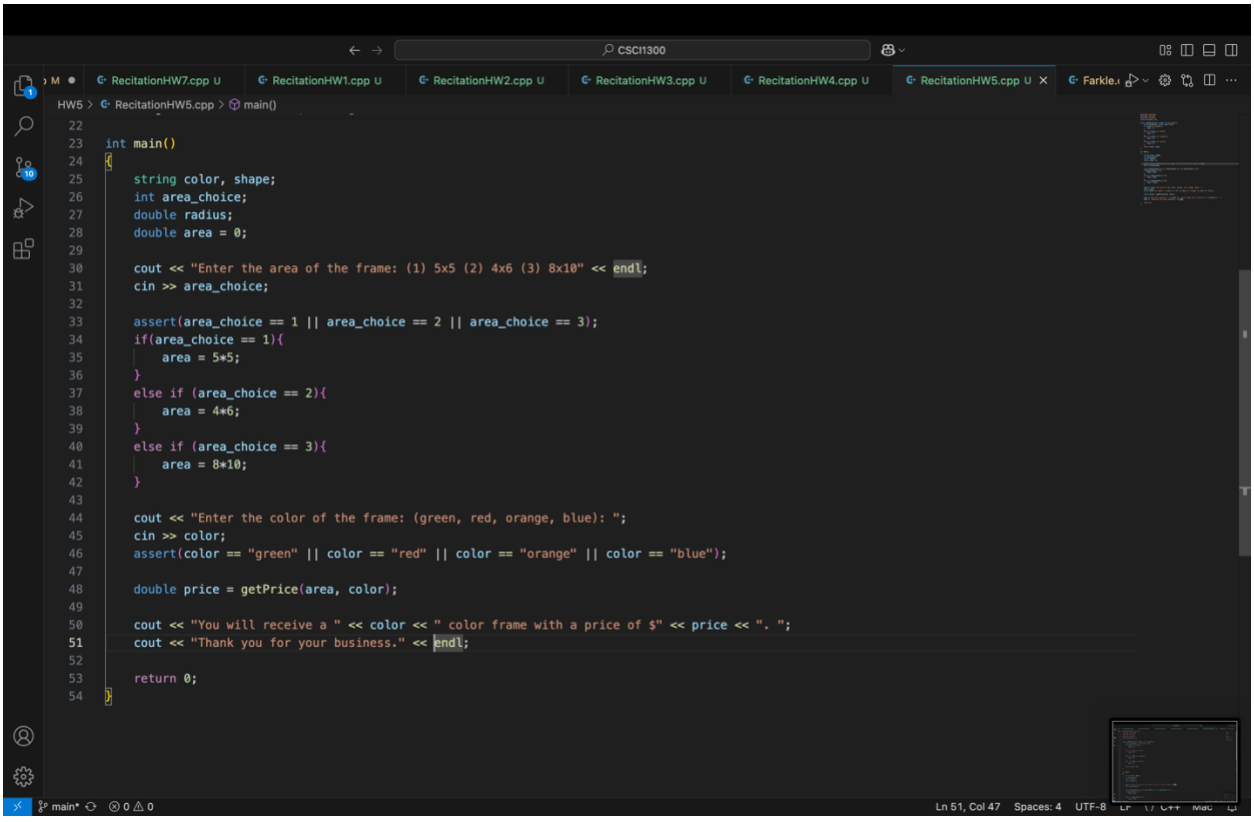
Recitation Problem 6



Recitation Problem 5

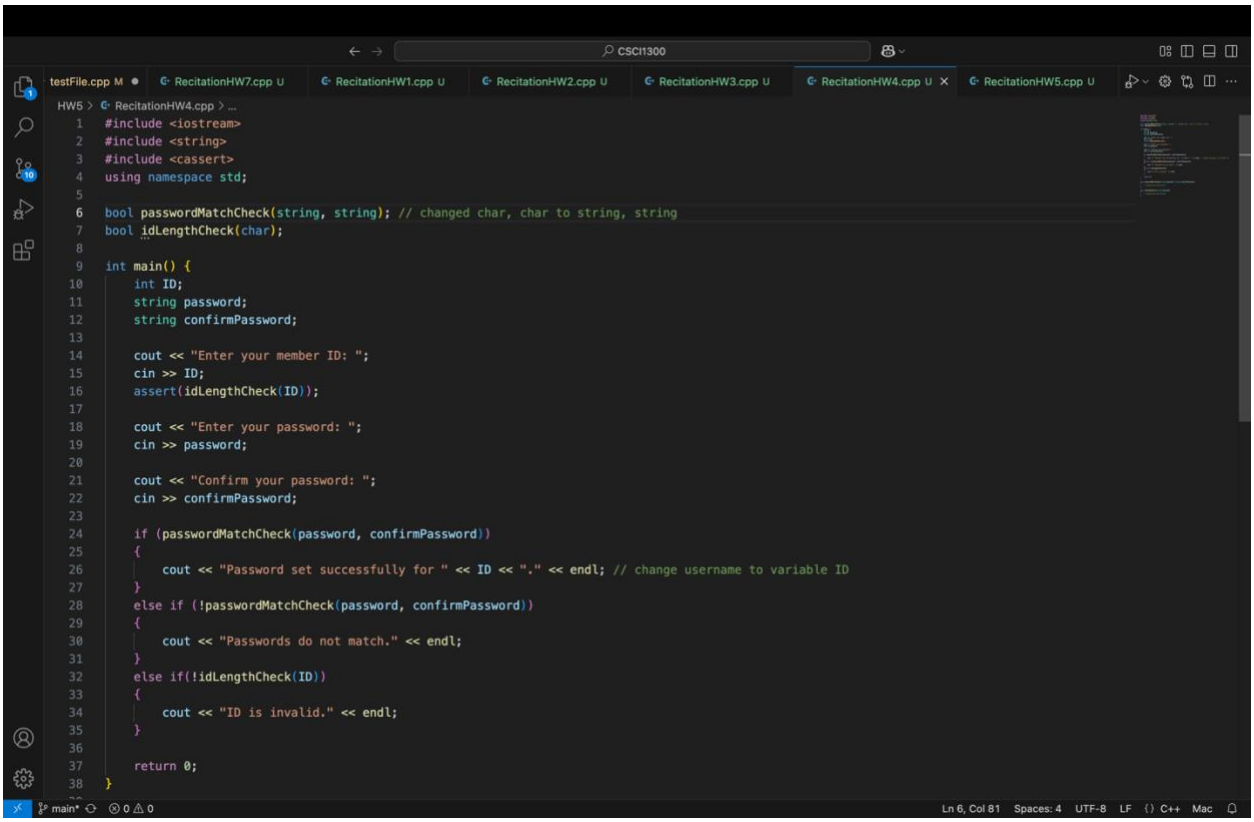


```cpp
#include <iostream>
#include <string>
#include <cassert>
using namespace std;

double getPrice(double area, string color){
    assert(area>=0); double cost = 0.0;
    if (color == "green"){
        cost = 4;
    }
    else if (color == "red"){
        cost = 3;
    }
    else if (color == "orange"){
        cost = 2;
    }
    else if (color == "blue"){
        cost = 1;
    }
    return area * cost;
}

int main()
{
    string color, shape;
    int area_choice;
    double radius;
    double area = 0;

    cout << "Enter the area of the frame: (1) 5x5 (2) 4x6 (3) 8x10" << endl;
    cin >> area_choice;

    assert(area_choice == 1 || area_choice == 2 || area_choice == 3);
    if(area_choice == 1){
        area = 5*5;
    }
    else if (area_choice == 2){
        area = 4*6;
```

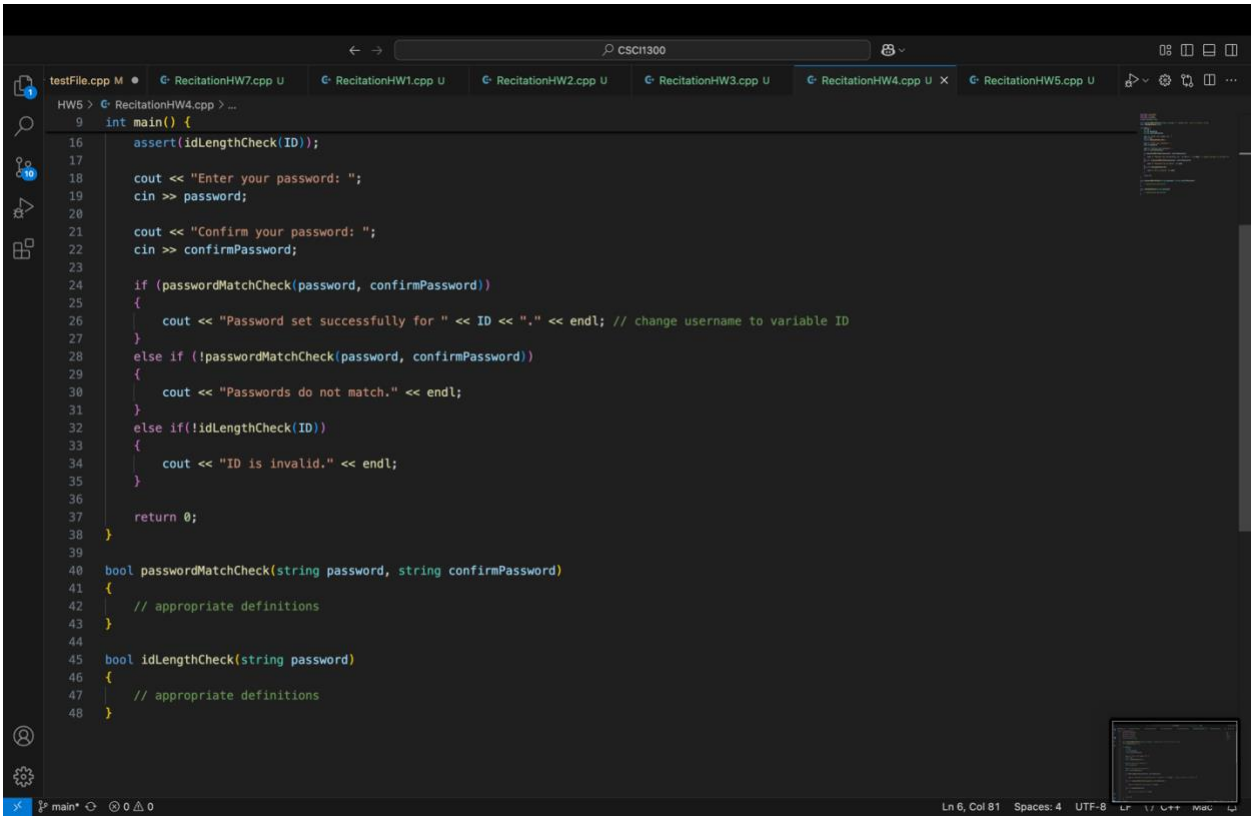


```cpp
int main()
{
    string color, shape;
    int area_choice;
    double radius;
    double area = 0;

    cout << "Enter the area of the frame: (1) 5x5 (2) 4x6 (3) 8x10" << endl;
    cin >> area_choice;

    assert(area_choice == 1 || area_choice == 2 || area_choice == 3);
    if(area_choice == 1){
        area = 5*5;
    }
    else if (area_choice == 2){
        area = 4*6;
    }
    else if (area_choice == 3){
        area = 8*10;
    }

    cout << "Enter the color of the frame: (green, red, orange, blue): ";
    cin >> color;
    assert(color == "green" || color == "red" || color == "orange" || color == "blue");

    double price = getPrice(area, color);

    cout << "You will receive a " << color << " color frame with a price of $" << price << ". ";
    cout << "Thank you for your business." << endl;

    return 0;
}
```

Recitation Problem 4

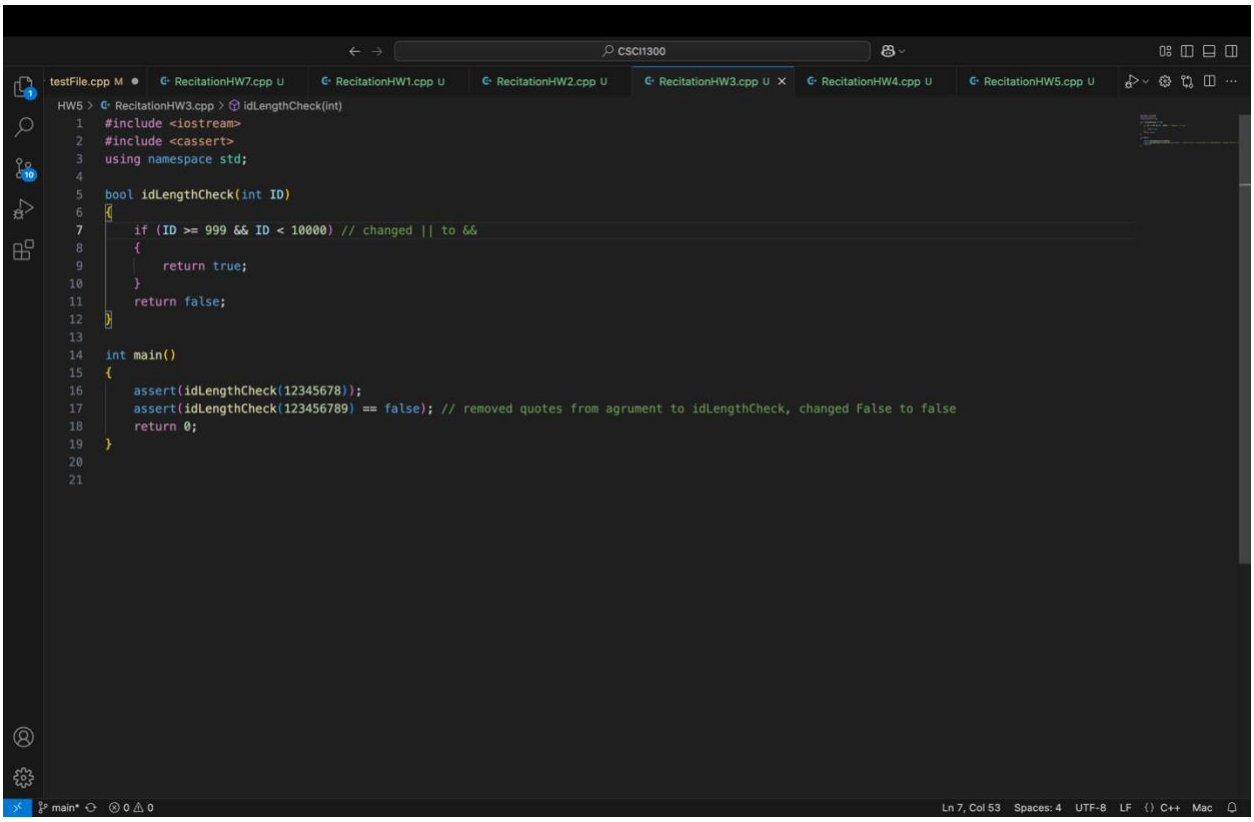


```cpp
#include <iostream>
#include <string>
#include <cassert>
using namespace std;

bool passwordMatchCheck(string, string); // changed char, char to string, string
bool idLengthCheck(char);

int main() {
    int ID;
    string password;
    string confirmPassword;

    cout << "Enter your member ID: ";
    cin >> ID;
    assert(idLengthCheck(ID));

    cout << "Enter your password: ";
    cin >> password;

    cout << "Confirm your password: ";
    cin >> confirmPassword;

    if (passwordMatchCheck(password, confirmPassword))
    {
        cout << "Password set successfully for " << ID << "." << endl; // change username to variable ID
    }
    else if (!passwordMatchCheck(password, confirmPassword))
    {
        cout << "Passwords do not match." << endl;
    }
    else if(!idLengthCheck(ID))
    {
        cout << "ID is invalid." << endl;
    }

    return 0;
}
```

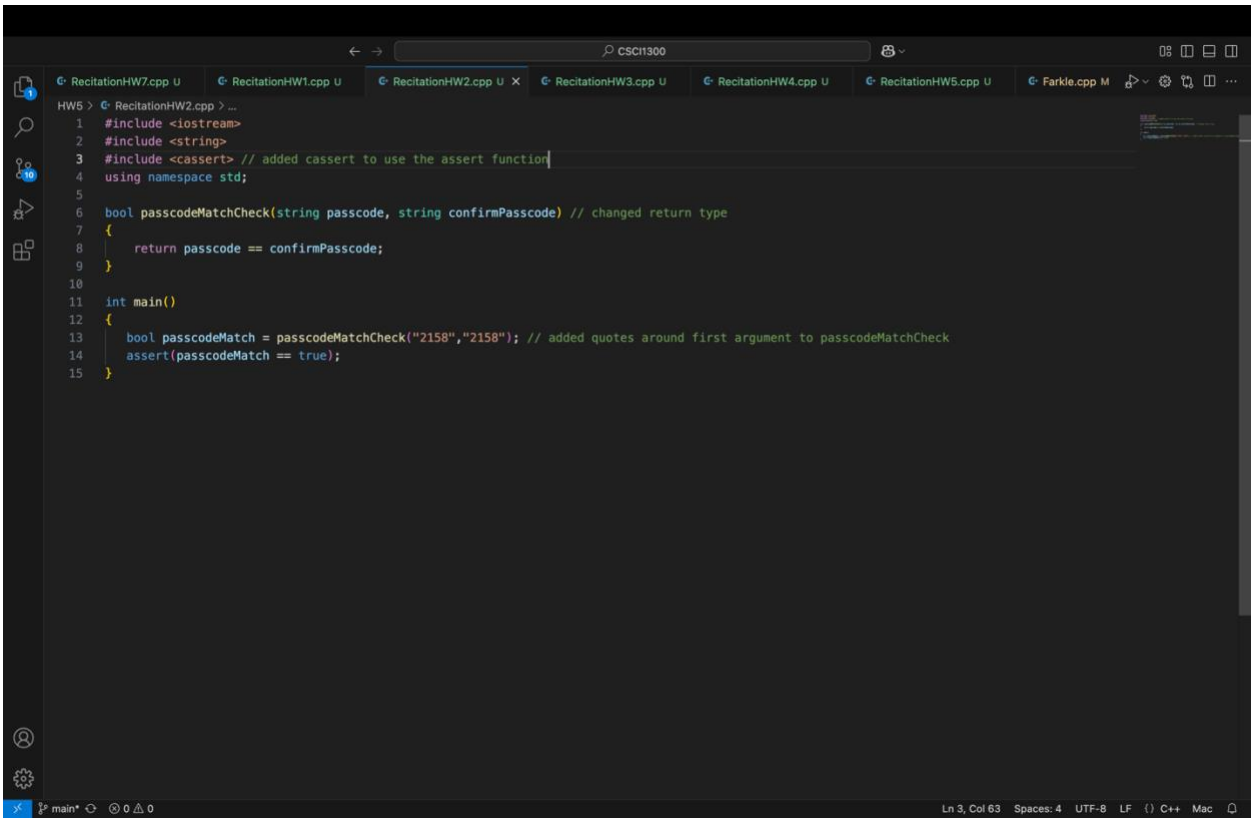


```cpp
int main() {
    assert(idLengthCheck(ID));

    cout << "Enter your password: ";
    cin >> password;

    cout << "Confirm your password: ";
    cin >> confirmPassword;

    if (passwordMatchCheck(password, confirmPassword))
    {
        cout << "Password set successfully for " << ID << "." << endl; // change username to variable ID
    }
    else if (!passwordMatchCheck(password, confirmPassword))
    {
        cout << "Passwords do not match." << endl;
    }
    else if(!idLengthCheck(ID))
    {
        cout << "ID is invalid." << endl;
    }

    return 0;
}

bool passwordMatchCheck(string password, string confirmPassword)
{
    // appropriate definitions
}

bool idLengthCheck(string password)
{
    // appropriate definitions
}
```

Recitation Problem 3



Recitation Problem 2



Recitation Problem 1