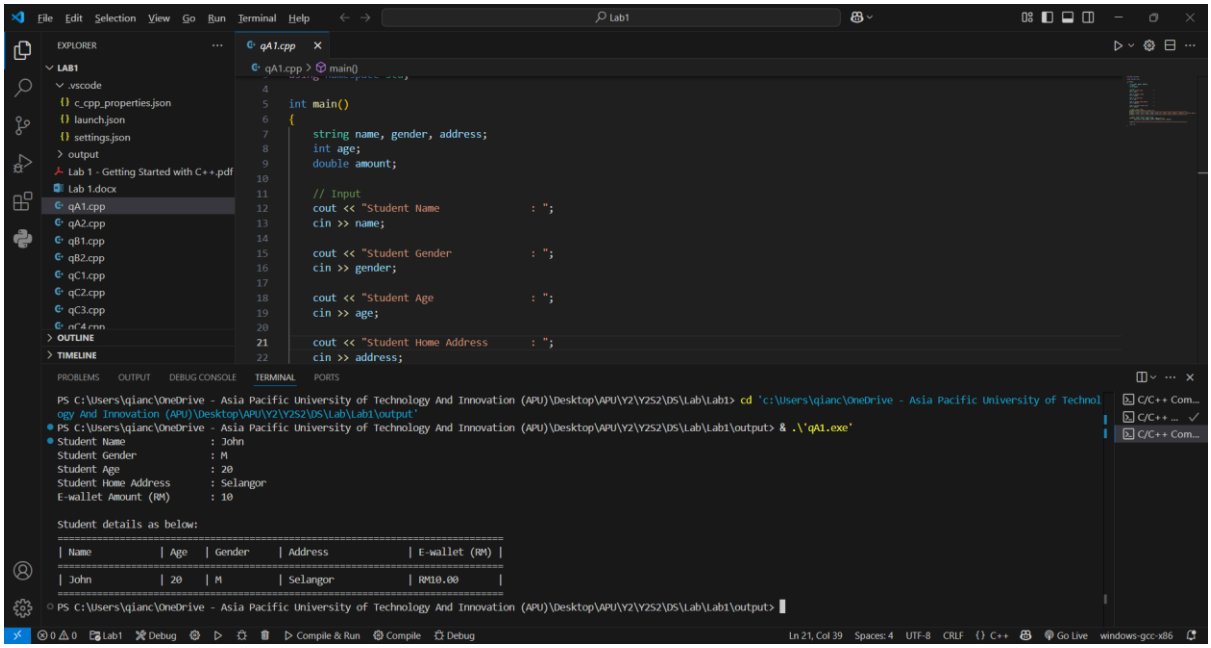
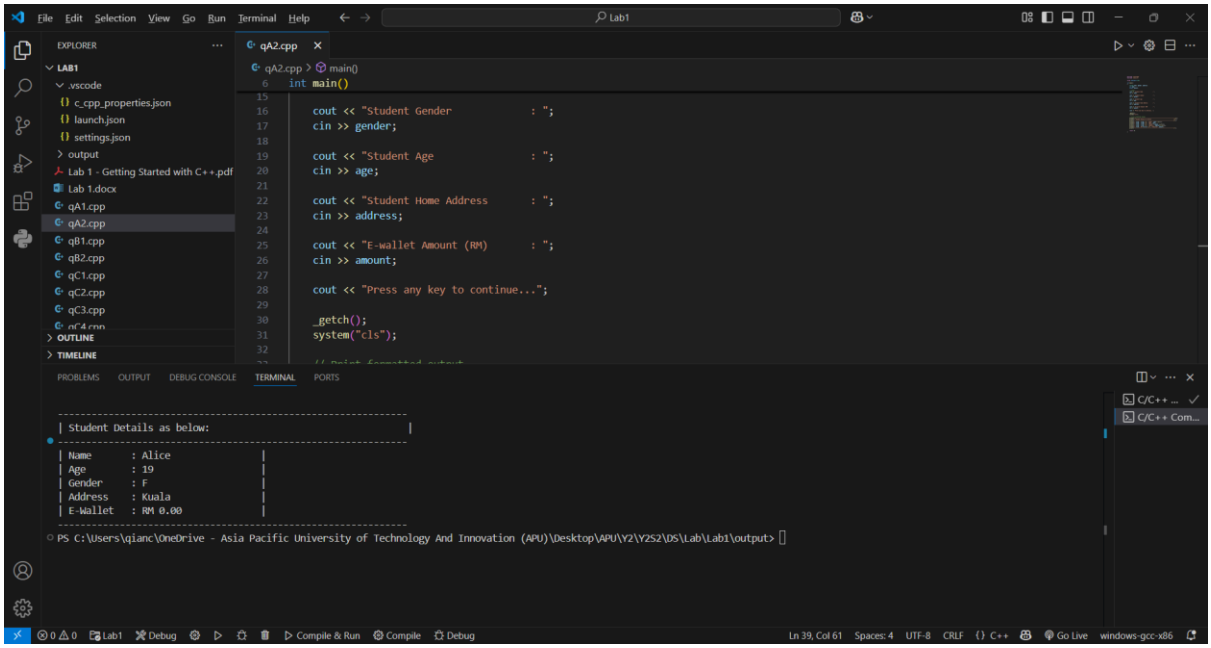
Lab 1

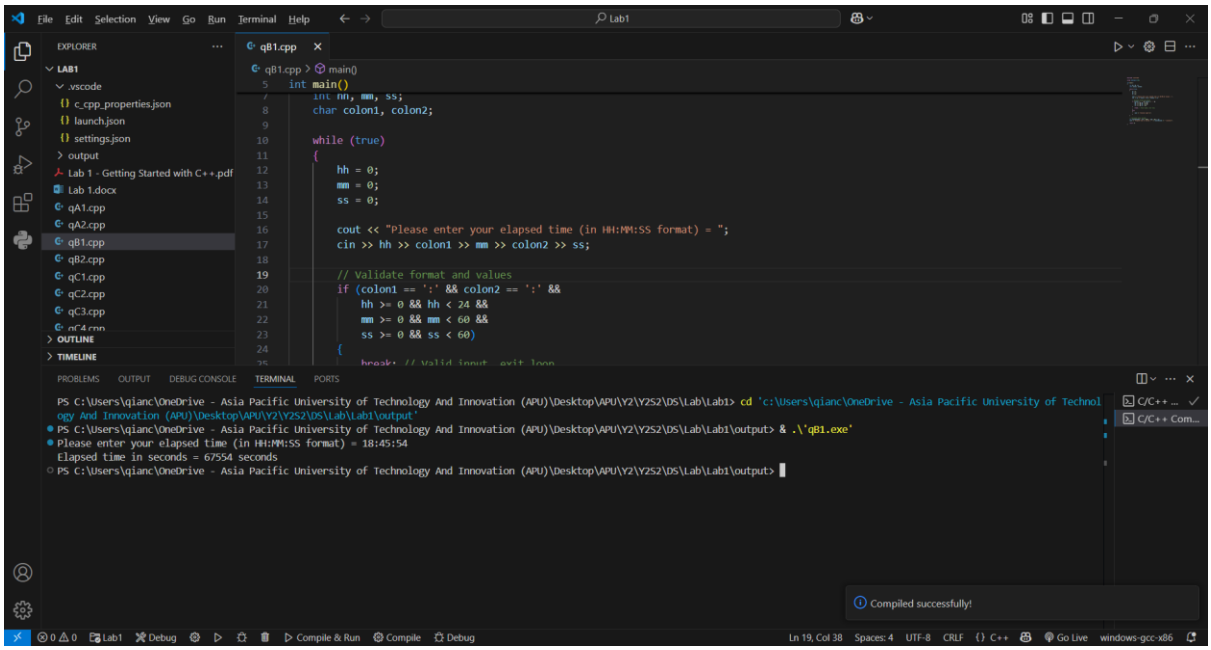
QA1


qA1.cpp
int main()
{
string name, gender, address;
int age;
double amount;
// Input
cout << "Student Name : ";
cin >> name;
cout << "Student Gender : ";
cin >> gender;
cout << "Student Age : ";
cin >> age;
cout << "Student Home Address : ";
cin >> address;
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qA1.exe'
Student Name : John
Student Gender : M
Student Age : 20
Student Home Address : Selangor
E-wallet Amount (RM) : 10
Student details as below:
| Name | Age | Gender | Address | E-wallet (RM) |
| John | 20 | M | Selangor | RM10.00 |
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>

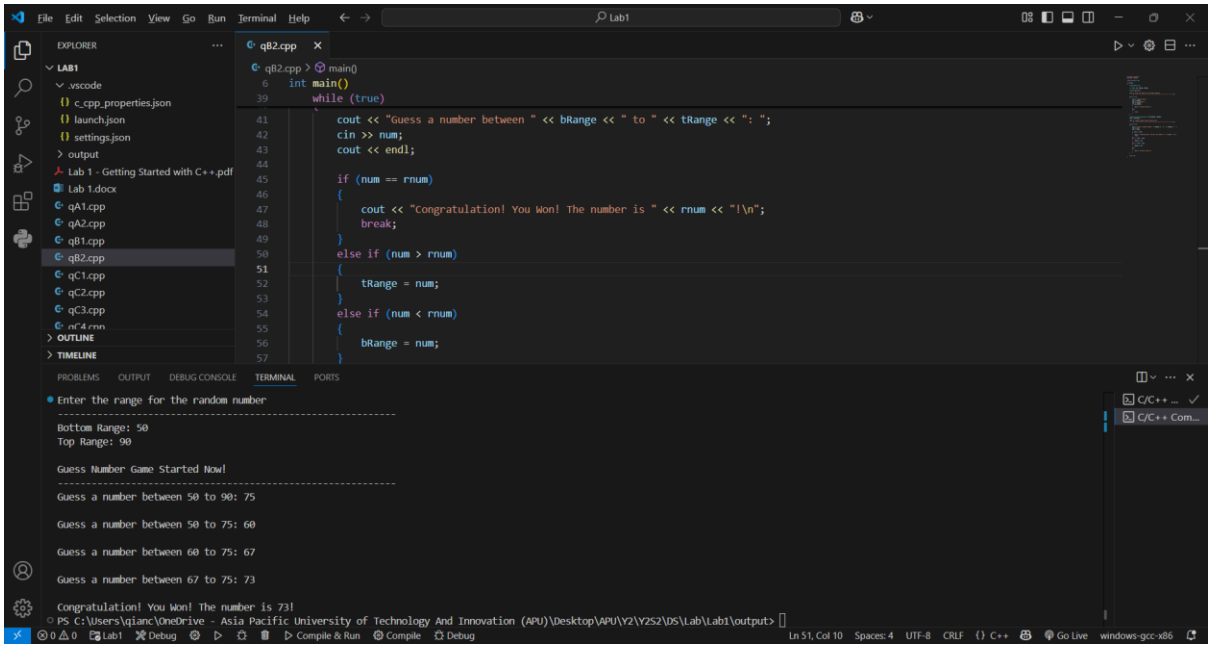
QA2


qA2.cpp
int main()
cout << "Student Gender : ";
cin >> gender;
cout << "Student Age : ";
cin >> age;
cout << "Student Home Address : ";
cin >> address;
cout << "E-wallet Amount (RM) : ";
cin >> amount;
cout << "Press any key to continue...";
_getch();
system("cls");
| Student Details as below: |
| Name : Alice |
| Age : 19 |
| Gender : F |
| Address : Kuala |
| E-Wallet : RM 0.00 |
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>

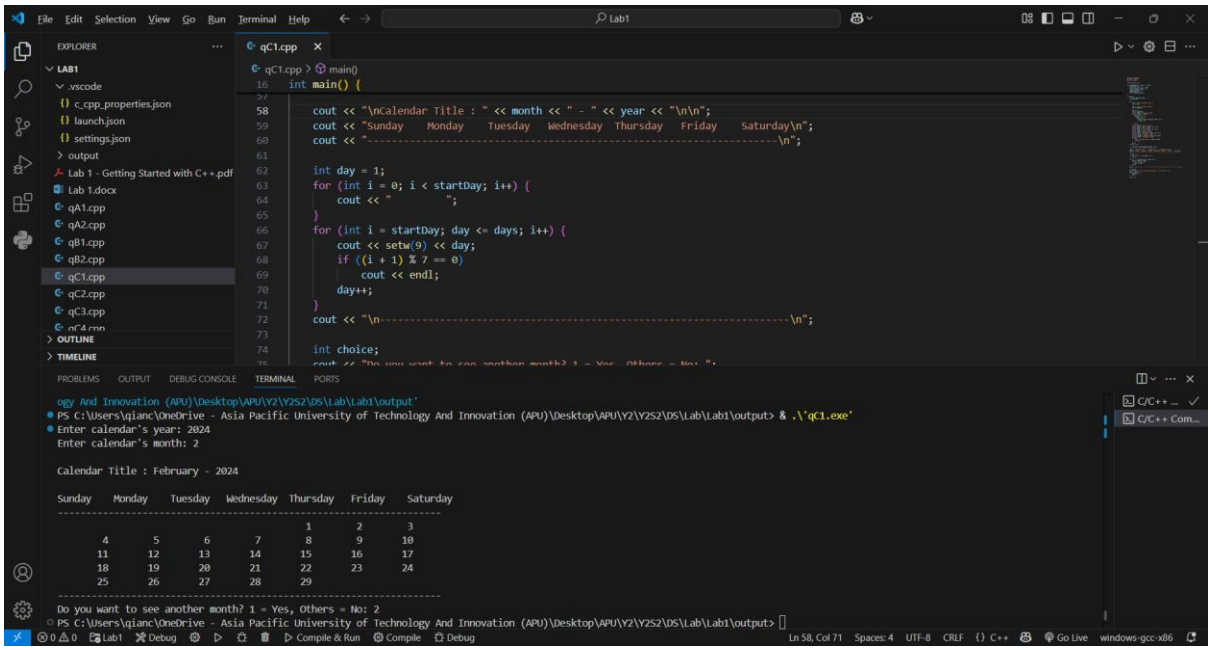
QB1


qB1.cpp
int main()
{
int hh, mm, ss;
char colon1, colon2;
while (true)
{
hh = 0;
mm = 0;
ss = 0;
cout << "Please enter your elapsed time (in HH:MM:SS format) = ";
cin >> hh >> colon1 >> mm >> colon2 >> ss;
// Validate format and values
if (colon1 == ':' && colon2 == ':' &&
hh >= 0 && hh < 24 &&
mm >= 0 && mm < 60 &&
ss >= 0 && ss < 60)
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qB1.exe'
Please enter your elapsed time (in HH:MM:SS format) = 18:45:54
Elapsed time in seconds = 67554 seconds
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>
Compiled successfully!

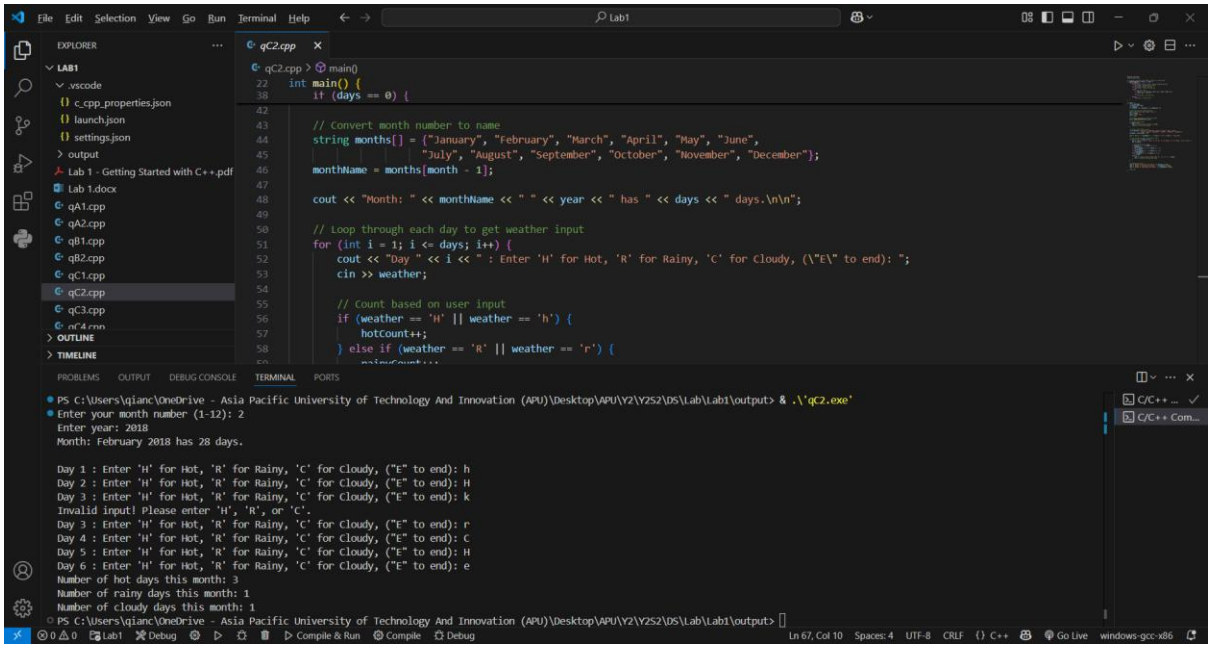
QB2


qB2.cpp
int main()
while (true)
cout << "Guess a number between " << bRange << " to " << tRange << ": ";
cin >> num;
cout << endl;
if (num == rnum)
cout << "Congratulation! You Won! The number is " << rnum << "!\n";
break;
else if (num > rnum)
tRange = num;
else if (num < rnum)
bRange = num;
Enter the range for the random number
Bottom Range: 50
Top Range: 90
Guess Number Game Started Now!
Guess a number between 50 to 90: 75
Guess a number between 50 to 75: 60
Guess a number between 60 to 75: 67
Guess a number between 67 to 75: 73
Congratulation! You Won! The number is 73!
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>

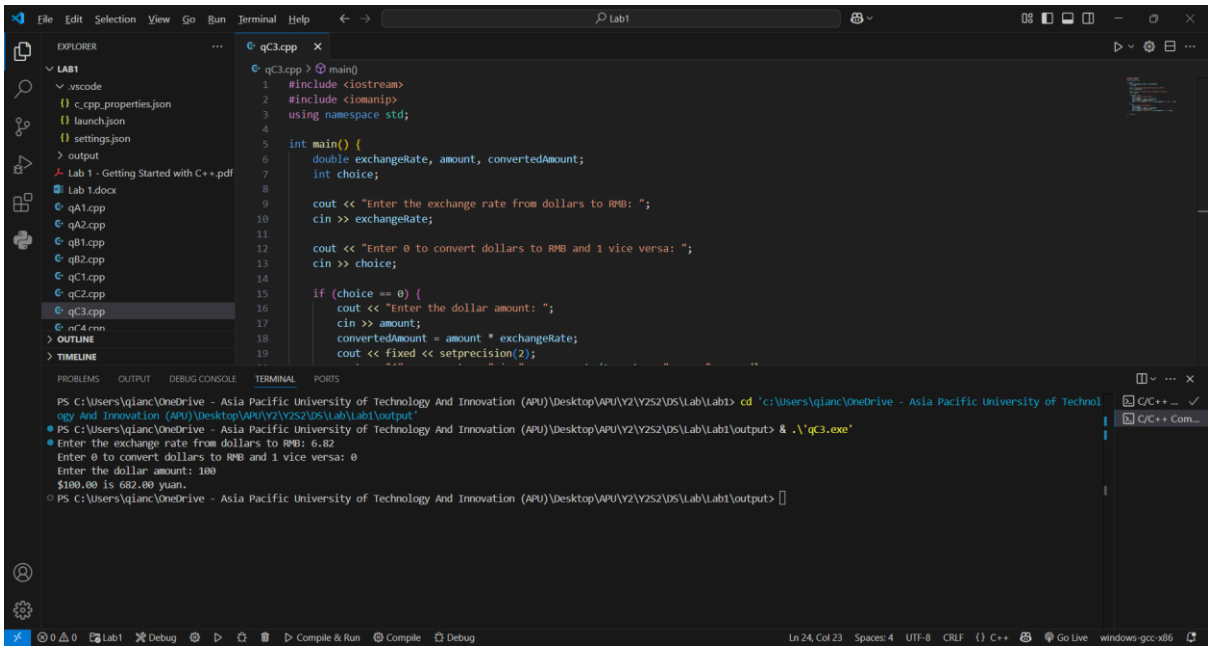
QC1


qC1.cpp
int main() {
cout << "\nCalendar Title : " << month << " - " << year << "\n\n";
cout << "Sunday Monday Tuesday Wednesday Thursday Friday Saturday\n";
int day = 1;
for (int i = 0; i < startDay; i++) {
cout << " ";
}
for (int i = startDay; day <= days; i++) {
cout << setw(9) << day;
if ((i + 1) % 7 == 0)
cout << endl;
day++;
}
int choice;
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC1.exe'
Enter calendar's year: 2024
Enter calendar's month: 2
Calendar Title : February - 2024
Sunday Monday Tuesday Wednesday Thursday Friday Saturday
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29
Do you want to see another month? 1 = Yes, Others = No: 2

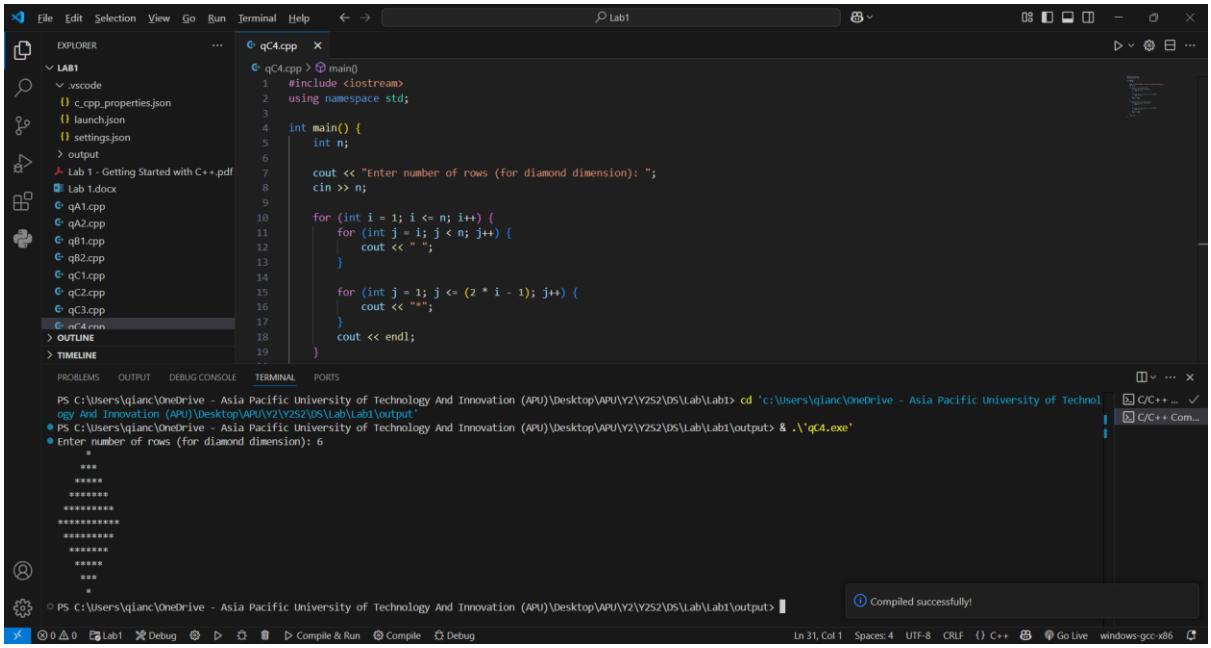
QC2


qC2.cpp
int main() {
if (days == 0) {
// Convert month number to name
string months[] = {"January", "February", "March", "April", "May", "June",
"July", "August", "September", "October", "November", "December"};
monthName = months[month - 1];
cout << "Month: " << monthName << " " << year << " has " << days << " days.\n\n";
// Loop through each day to get weather input
for (int i = 1; i <= days; i++) {
cout << "Day " << i << " : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, (\"E\" to end): ";
cin >> weather;
// Count based on user input
if (weather == 'H' || weather == 'h') {
hotCount++;
} else if (weather == 'R' || weather == 'r') {
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC2.exe'
Enter your month number (1-12): 2
Enter year: 2018
Month: February 2018 has 28 days.
Day 1 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): h
Day 2 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): H
Day 3 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): k
Invalid input! Please enter 'H', 'R', or 'C'.
Day 3 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): r
Day 4 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): C
Day 5 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): H
Day 6 : Enter 'H' for Hot, 'R' for Rainy, 'C' for Cloudy, ("E" to end): e
Number of hot days this month: 3
Number of rainy days this month: 1
Number of cloudy days this month: 1

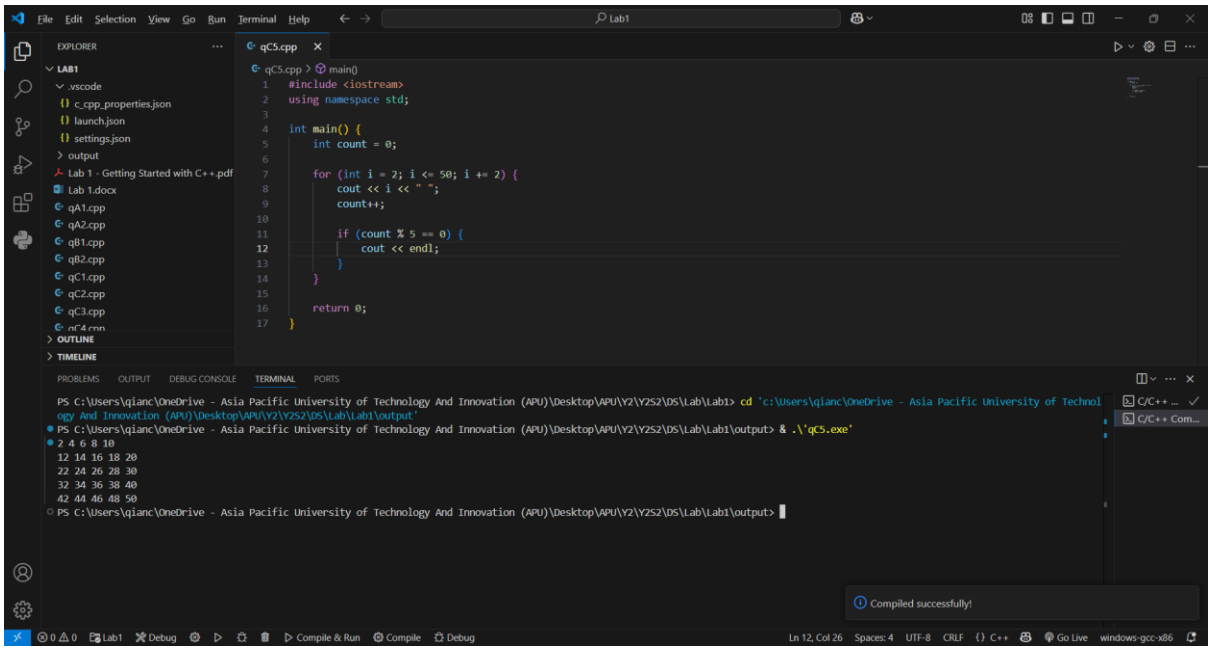
QC3


qC3.cpp
#include <iostream>
#include <iomanip>
using namespace std;
int main() {
double exchangeRate, amount, convertedAmount;
int choice;
cout << "Enter the exchange rate from dollars to RMB: ";
cin >> exchangeRate;
cout << "Enter 0 to convert dollars to RMB and 1 vice versa: ";
cin >> choice;
if (choice == 0) {
cout << "Enter the dollar amount: ";
cin >> amount;
convertedAmount = amount * exchangeRate;
cout << fixed << setprecision(2);
Enter the exchange rate from dollars to RMB: 6.82
Enter 0 to convert dollars to RMB and 1 vice versa: 0
Enter the dollar amount: 100
$100.00 is 682.00 yuan.

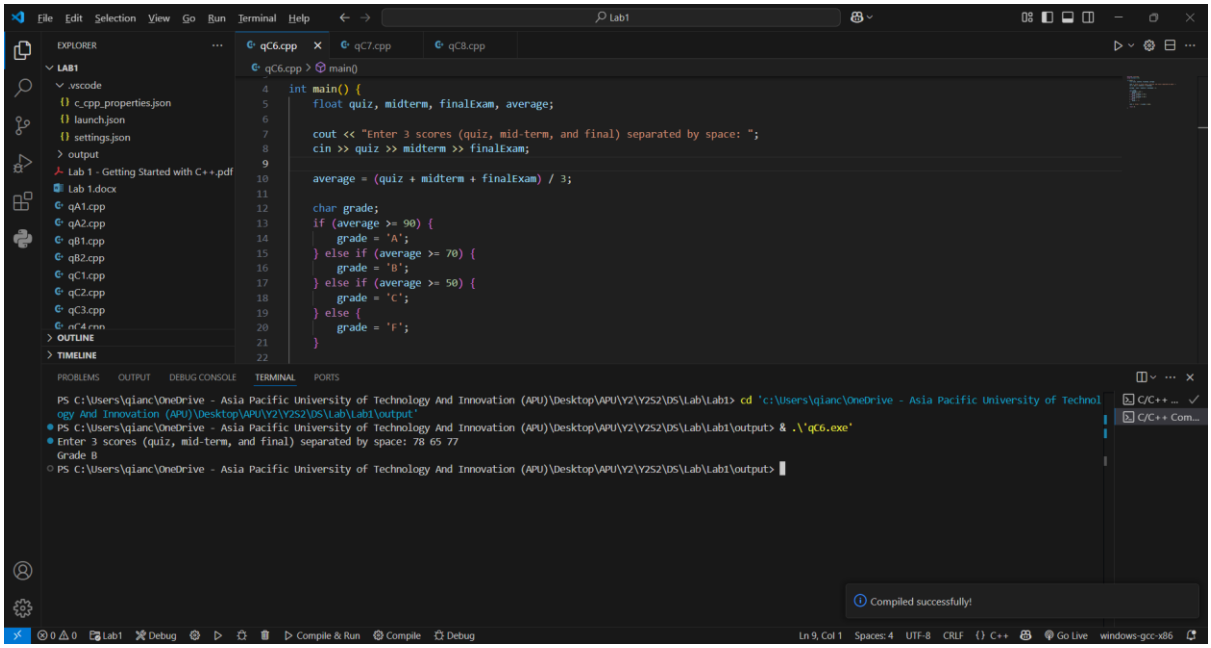
QC4


qC4.cpp
#include <iostream>
using namespace std;
int main() {
int n;
cout << "Enter number of rows (for diamond dimension): ";
cin >> n;
for (int i = 1; i <= n; i++) {
for (int j = i; j < n; j++) {
cout << " ";
}
for (int j = 1; j <= (2 * i - 1); j++) {
cout << "*";
}
cout << endl;
}
Enter number of rows (for diamond dimension): 6
Compiled successfully!

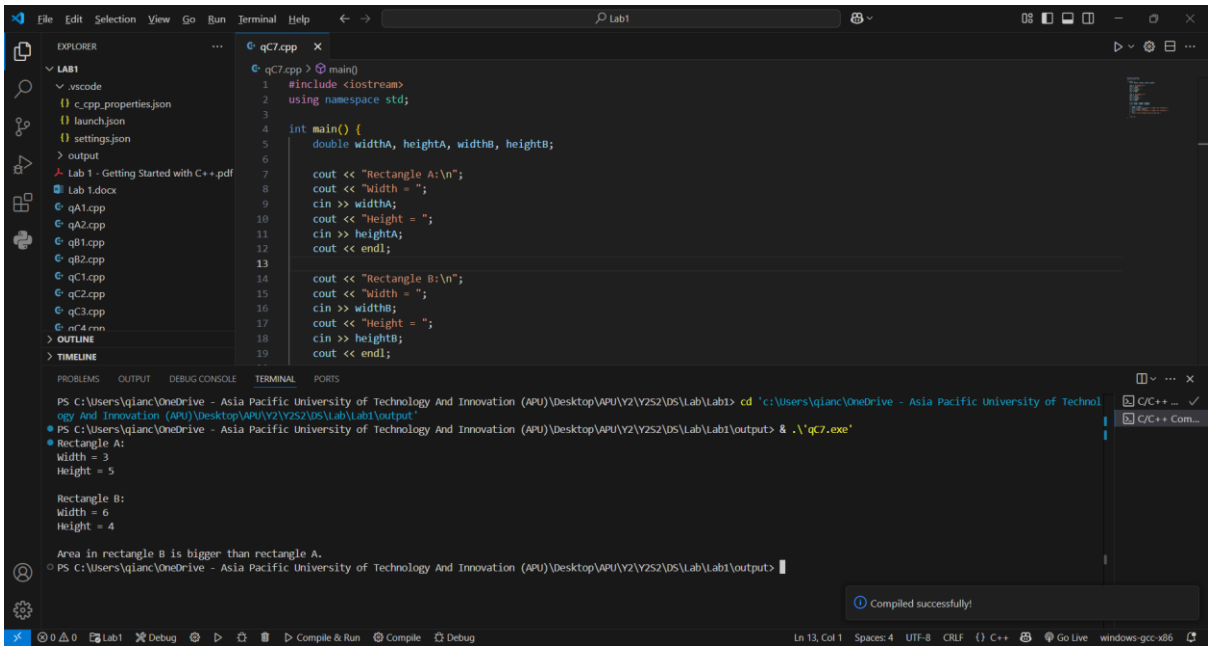
QC5


qC5.cpp
#include <iostream>
using namespace std;
int main() {
int count = 0;
for (int i = 2; i <= 50; i += 2) {
cout << i << " ";
count++;
if (count % 5 == 0) {
cout << endl;
}
}
return 0;
}
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC5.exe'
2 4 6 8 10
12 14 16 18 20
22 24 26 28 30
32 34 36 38 40
42 44 46 48 50
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>
Compiled successfully!

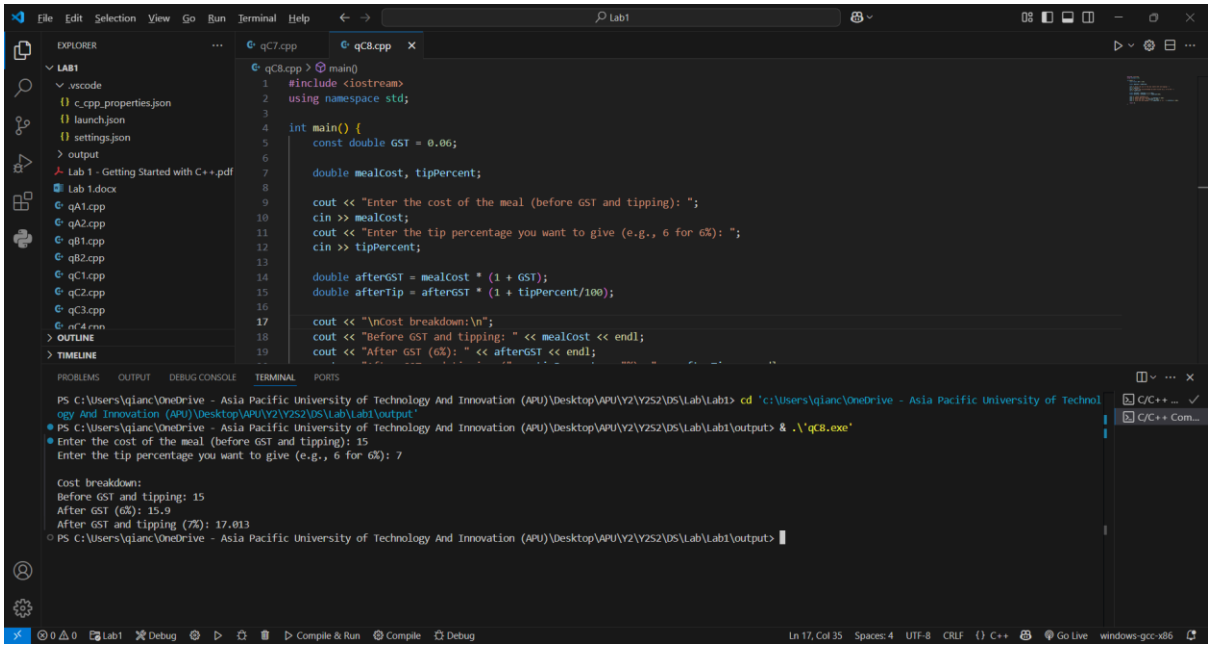
QC6


qC6.cpp
int main() {
float quiz, midterm, finalExam, average;
cout << "Enter 3 scores (quiz, mid-term, and final) separated by space: ";
cin >> quiz >> midterm >> finalExam;
average = (quiz + midterm + finalExam) / 3;
char grade;
if (average >= 90) {
grade = 'A';
} else if (average >= 70) {
grade = 'B';
} else if (average >= 50) {
grade = 'C';
} else {
grade = 'F';
}
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC6.exe'
Enter 3 scores (quiz, mid-term, and final) separated by space: 78 65 77
Grade B
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>
Compiled successfully!

QC7


qC7.cpp
#include <iostream>
using namespace std;
int main() {
double widthA, heightA, widthB, heightB;
cout << "Rectangle A:\n";
cout << "Width = ";
cin >> widthA;
cout << "Height = ";
cin >> heightA;
cout << endl;
cout << "Rectangle B:\n";
cout << "Width = ";
cin >> widthB;
cout << "Height = ";
cin >> heightB;
cout << endl;
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC7.exe'
Rectangle A:
Width = 3
Height = 5
Rectangle B:
Width = 6
Height = 4
Area in rectangle B is bigger than rectangle A.
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>
Compiled successfully!

QC8


qC8.cpp
#include <iostream>
using namespace std;
int main() {
const double GST = 0.06;
double mealCost, tipPercent;
cout << "Enter the cost of the meal (before GST and tipping): ";
cin >> mealCost;
cout << "Enter the tip percentage you want to give (e.g., 6 for 6%): ";
cin >> tipPercent;
double afterGST = mealCost * (1 + GST);
double afterTip = afterGST * (1 + tipPercent/100);
cout << "\nCost breakdown:\n";
cout << "Before GST and tipping: " << mealCost << endl;
cout << "After GST (6%): " << afterGST << endl;
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1> cd 'c:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output'
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output> & .\'qC8.exe'
Enter the cost of the meal (before GST and tipping): 15
Enter the tip percentage you want to give (e.g., 6 for 6%): 7
Cost breakdown:
Before GST and tipping: 15
After GST (6%): 15.9
After GST and tipping (7%): 17.013
PS C:\Users\qianc\OneDrive - Asia Pacific University of Technology And Innovation (APU)\Desktop\APU\Y2\Y2S2\DS\Lab\Lab1\output>