

# Assignment 1 – July 28th

## OOP Lab

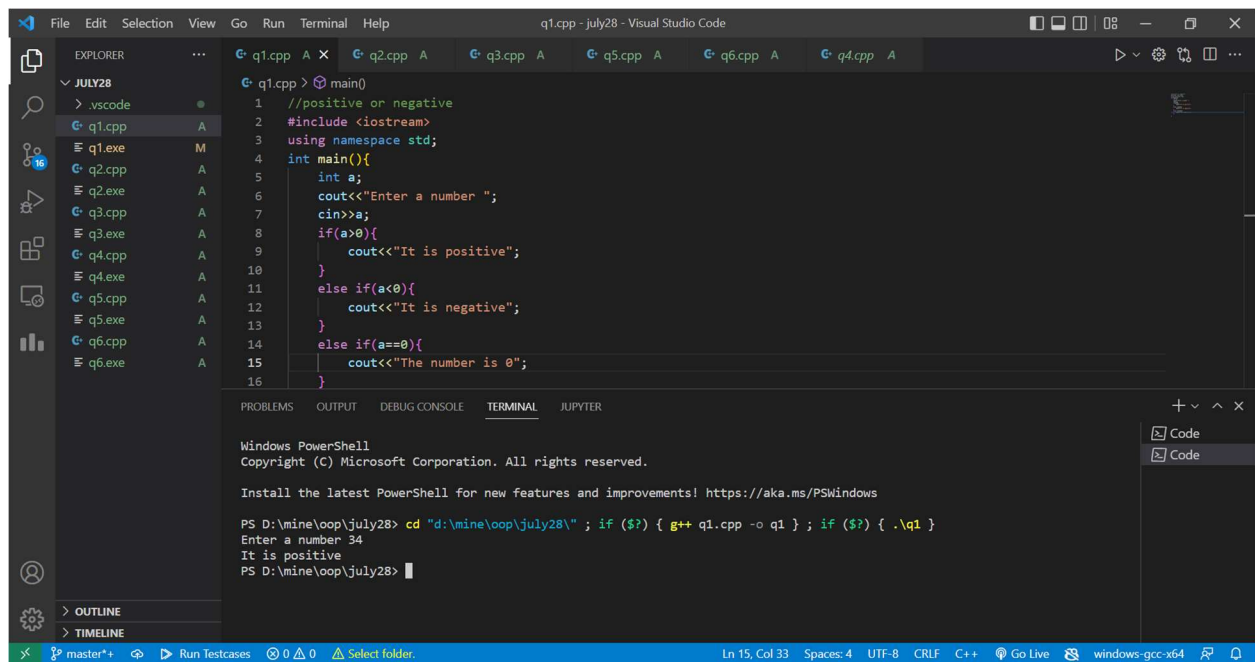
Submitted By:

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Section: CS34

## Question No 1:



The screenshot shows the Visual Studio Code interface with a C++ file named `q1.cpp` open. The code is as follows:

```
1 //positive or negative
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int a;
6     cout<<"Enter a number ";
7     cin>>a;
8     if(a>0){
9         cout<<"It is positive";
10    }
11    else if(a<0){
12        cout<<"It is negative";
13    }
14    else if(a==0){
15        cout<<"The number is 0";
16    }
17 }
```

The Explorer sidebar on the left shows a project named `JULY28` with files `q1.cpp` through `q6.cpp` and their corresponding executables `q1.exe` through `q6.exe`.

The TERMINAL panel at the bottom shows the following output:

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS D:\mine\oop\july28> cd "d:\mine\oop\july28\" ; if ($?) { g++ q1.cpp -o q1 } ; if ($?) { .\q1 }
Enter a number 34
It is positive
PS D:\mine\oop\july28> |
```

The status bar at the bottom indicates the current file is `q1.cpp` at line 15, column 33, with 4 spaces, UTF-8 encoding, CRLF line endings, and C++ language.

## Question No 2:

The screenshot shows the Visual Studio Code interface with a C++ file named `q2.cpp` open. The Explorer sidebar on the left shows a project named `JULY28` containing several files: `.vscode`, `q1.cpp`, `q1.exe`, `q2.cpp`, `q2.exe`, `q3.cpp`, `q3.exe`, `q4.cpp`, `q4.exe`, `q5.cpp`, `q5.exe`, `q6.cpp`, and `q6.exe`. The `q2.cpp` file is selected and its content is displayed in the editor. The code is a C++ program that prompts the user to enter three numbers and then prints the maximum of them using a ternary operator.

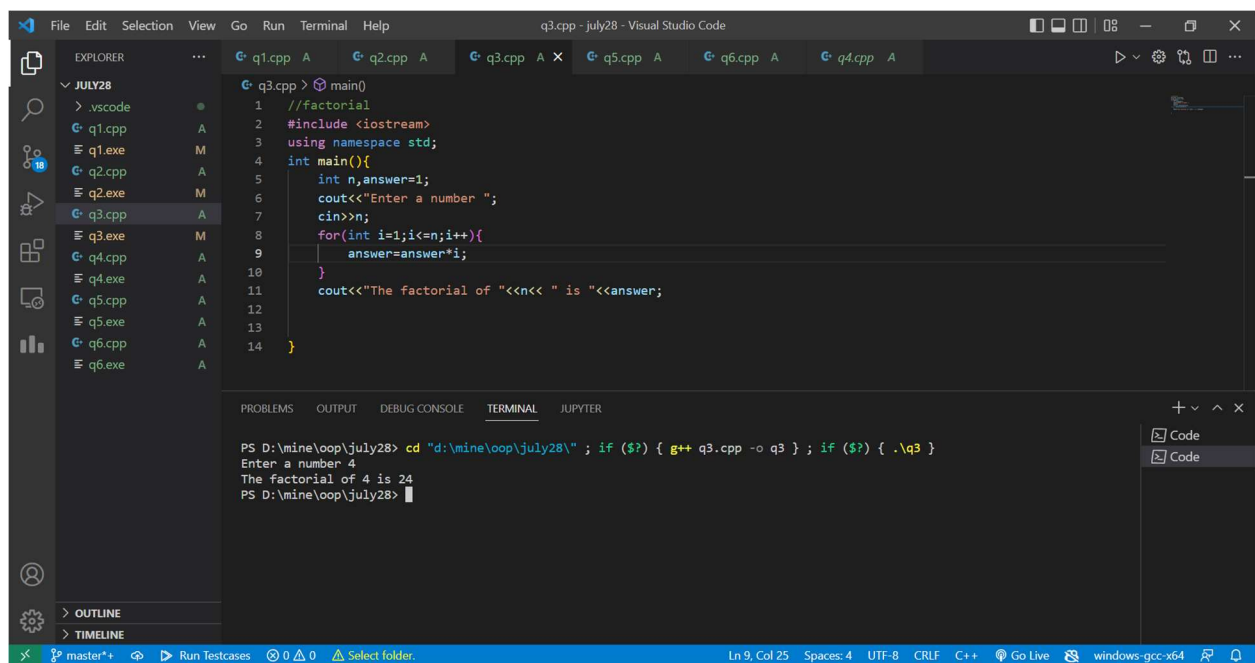
```
1 //max number
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int a,b,c,d;
6     cout<<"Enter three numbers ";
7     cin>>a>>b>>c;
8     d=(a>b)?(a>c)?a:c:(b>c)?b:c;
9     cout<<"The maximum number is "<<d;
10 }
```

The TERMINAL panel at the bottom shows the command prompt output for running the program:

```
PS D:\mine\oop\july28> cd "d:\mine\oop\july28\" ; if ($?) { g++ q2.cpp -o q2 } ; if ($?) { .\q2 }
Enter three numbers 5 3 8
The maximum number is 8
PS D:\mine\oop\july28>
```

The status bar at the bottom indicates the current file is `q2.cpp` at line 7, column 18, with 4 spaces, UTF-8 encoding, CRLF line endings, and C++ language. The compiler is identified as `windows-gcc-x64`.

### Question No 3:



The screenshot displays the Visual Studio Code interface with a C++ file named `q3.cpp` open. The Explorer sidebar on the left shows a project named `JULY28` containing several files: `.vscode`, `q1.cpp`, `q1.exe`, `q2.cpp`, `q2.exe`, `q3.cpp` (selected), `q3.exe`, `q4.cpp`, `q4.exe`, `q5.cpp`, `q5.exe`, `q6.cpp`, and `q6.exe`. The main editor shows the code for `q3.cpp`, which is a C++ program to calculate the factorial of a number. The code is as follows:

```
1 //factorial
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int n,answer=1;
6     cout<<"Enter a number ";
7     cin>>n;
8     for(int i=1;i<=n;i++){
9         answer=answer*i;
10    }
11    cout<<"The factorial of "<<n<<" is "<<answer;
12
13
14 }
```

Below the code editor, the TERMINAL panel shows the execution of the program. The command prompt is at `PS D:\mine\oop\july28>`. The user enters `cd "d:\mine\oop\july28\" ; if ($?) { g++ q3.cpp -o q3 } ; if ($?) { .\q3 }`. The program prompts `Enter a number`, the user enters `4`, and the program outputs `The factorial of 4 is 24`. The status bar at the bottom indicates the file is `q3.cpp` at line 9, column 25, with 4 spaces, UTF-8 encoding, and CRLF line endings. The active window is `master*` and the system is `windows-gcc-x64`.

#### Question No 4:

The screenshot displays the Visual Studio Code interface with a C++ file named `q4.cpp` open. The code implements a function to swap two numbers using a temporary variable `c`. The `main` function prompts the user to enter two numbers, displays the values before and after swapping, and prints the final state of the variables.

```
1 //swapping number
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int a,b,c;
6     cout<<"Enter two number :\n";
7     cin>>a>>b;
8     cout<<"Before swapping";
9     cout<<"\nThe value of a is "<<a<<" the value of b is "<<b;
10    c=a;
11    a=b;
12    b=c;
13    cout<<"\nAfter swapping";
14    cout<<"\nThe value of a is "<<a<<"the value of b is"<<b;
15 }
```

The terminal output shows the execution of the program, where the user enters 5 and 6. The output confirms the values before and after swapping, and the final values of `a` and `b` are 6 and 5, respectively.

```
PS D:\mine\oop\july28> cd "d:\mine\oop\july28\" ; if ($?) { g++ q4.cpp -o q4 } ; if ($?) { .\q4 }
Enter two number :
5 6
Before swapping
The value of a is 5 the value of b is 6
After swapping
The value of a is 6the value of b is5
PS D:\mine\oop\july28>
```

Question No 5:

The screenshot shows the Visual Studio Code interface with a C++ file named `q5.cpp` open. The Explorer sidebar on the left shows a project named `JULY28` containing several files: `.vscode`, `q1.cpp`, `q1.exe`, `q2.cpp`, `q2.exe`, `q3.cpp`, `q3.exe`, `q4.cpp`, `q4.exe`, `q5.cpp`, `q5.exe`, `q6.cpp`, and `q6.exe`. The `q5.cpp` file is selected and its content is displayed in the editor. The code is a C++ program that prompts the user to enter a number from 1 to 10 and then prints a multiplication table for that number. The terminal at the bottom shows the command `cd "d:\mine\oop\july28" ; if ($?) { g++ q5.cpp -o q5 } ; if ($?) { .\q5 }` and the output of the program, which is a multiplication table for the number 7.

```
1 //table
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int a,b,i=1;
6     cout<<"enter a number form 1 to 10 ";
7     cin>>a;
8     cout<<"\nThe table of "<<a<<" is : \n";
9     do{
10         b=a*i;
11         cout<<a<<" * "<<i<<" = "<<b<<"\n";
12         i++;
13     }
14     while(i<=10);
15 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

```
PS D:\mine\oop\july28> cd "d:\mine\oop\july28" ; if ($?) { g++ q5.cpp -o q5 } ; if ($?) { .\q5 }
enter a number form 1 to 10 7

The table of 7 is :
7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70
```

Ln 11, Col 43 Spaces: 4 UTF-8 CRLF C++ Go Live windows-gcc-x64

Question NO 6:

The screenshot shows the Visual Studio Code interface with a C++ file named `q6.cpp` open. The code implements a function to reverse a number using a while loop. The Explorer sidebar on the left shows a project named `JULY28` with various source files and executables. The Terminal at the bottom shows the command to compile and run the program, and the output of the program.

```
1 //Reverse a number
2 #include <iostream>
3 using namespace std;
4 int main(){
5     int a,b;
6     cout<<"Enter a number ";
7     cin>>a;
8     cout<<"The reverse of "<<a;
9     while(a>0){
10         b=b*10+a%10;
11         a=a/10;
12     }
13     cout<<" is "<<b;
14 }
```

Terminal Output:

```
PS D:\mine\oop\july28> cd "d:\mine\oop\july28\" ; if ($?) { g++ q6.cpp -o q6 } ; if ($?) { .\q6 }
Enter a number 5789
The reverse of 5789 is 9875
PS D:\mine\oop\july28>
```

