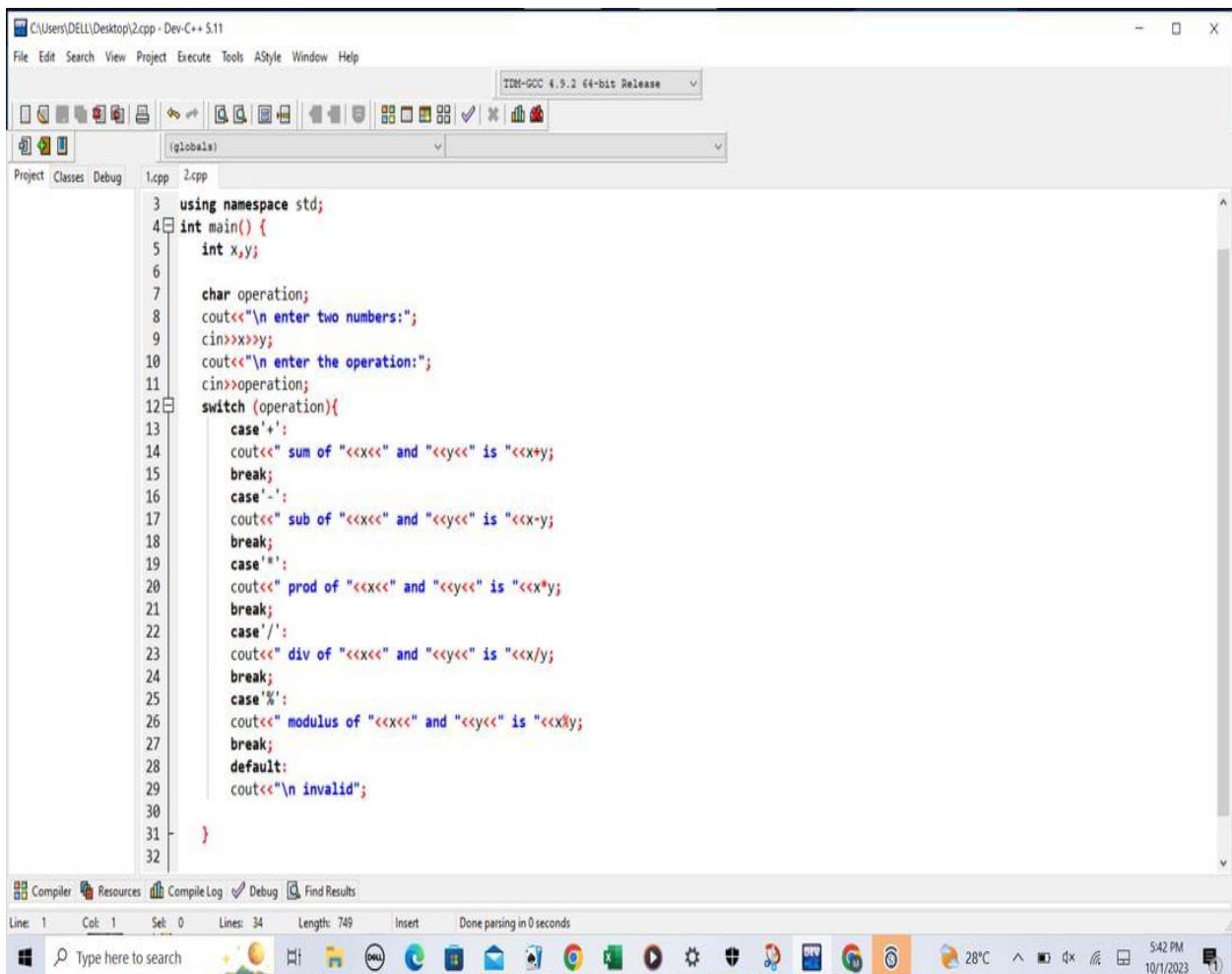


PROGRAMMING FUNDAMENTALS

Dr Ashfaq Hussain

By : Duaa Dara (232481)

PROGRAM 1 BY SWITCH STATEMENT :



The screenshot shows the Dev-C++ IDE interface with a C++ code editor. The code implements a simple calculator using a switch statement to handle different arithmetic operations based on user input. The code is as follows:

```
3 using namespace std;
4 int main() {
5     int x,y;
6
7     char operation;
8     cout<<"\n enter two numbers:"; 
9     cin>>x>>y;
10    cout<<"\n enter the operation:"; 
11    cin>>operation;
12    switch (operation){
13        case '+':
14            cout<<" sum of "<<x<<" and "<<y<<" is "<<x+y;
15            break;
16        case '-':
17            cout<<" sub of "<<x<<" and "<<y<<" is "<<x-y;
18            break;
19        case '*':
20            cout<<" prod of "<<x<<" and "<<y<<" is "<<x*y;
21            break;
22        case '/':
23            cout<<" div of "<<x<<" and "<<y<<" is "<<x/y;
24            break;
25        case '%':
26            cout<<" modulus of "<<x<<" and "<<y<<" is "<<x%y;
27            break;
28        default:
29            cout<<"\n invalid";
30
31    }
32 }
```

The code uses standard input-output streams (`<<`) and conditional statements (`if`, `switch`, `case`, `break`) to perform calculations and handle invalid inputs.

The screenshot shows the Dev-C++ IDE interface. The main window displays a terminal-like output where a user has run a C++ program named '2.cpp'. The program prompts the user to enter two numbers (4 and 5) and then calculates their product (20). The terminal also shows the compilation process and the resulting executable file '2.exe'.

```
3 using namespace std;
4
5 enter two numbers:4
6
7 enter the operation:
8 prod of 4 and 5 is 20
9
10 Process exited after 37.96 seconds with return value 0
11 Press any key to continue . . .
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
```

Compiler Output:

```
Compiling 2.cpp
--> 2.cpp
- Warnings: 0
- Output Filename: C:\Users\DELL\Desktop\2.exe
- Output Size: 1.03291149139404 MiB
- Compilation Timer: 5.25s
```

System Taskbar:

```
Line: 1 Col: 1 Sel: 0 Lines: 34 Length: 749 Insert Done parsing in 0 seconds
Type here to search 28°C 5:43 PM 10/1/2023
```

PROGRAM 1 BY ELSE IF STATEMENTS:

The screenshot shows the Dev-C++ IDE interface. The main window displays a C++ source code file named 3.cpp. The code implements a simple calculator that takes two integers and an operator from the user, then performs addition, subtraction, multiplication, division, or modulus based on the operator provided. The code uses cout for output and cin for input. The IDE's toolbar and menu bar are visible at the top, and the status bar at the bottom shows the current date and time.

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int x,y;
6     char operation;
7     cout<<"\n enter two numbers:"; 
8     cin>>x>>y;
9     cout<<"\n enter the operation:"; 
10    cin>>operation;
11    if(operation=='+' ){
12        cout<<"\n The sum is :"<<x+y;
13    }
14    else if(operation=='-'){
15        cout<<"\n The subtraction is"<<x-y;
16    }
17    else if(operation=='*'){
18        cout<<"\n The product is:"<<x*y;
19    }
20    else if(operation=='/'){
21        cout<<"\n The division is:"<<x/y;
22    }
23    else if(operation=='%'){
24        cout<<"\n The modulus is"<<x%y;
25    }
26    else
27        cout<<"\n invalid operator";
28    return 0;
}
```

The screenshot shows the terminal window of the Dev-C++ IDE displaying the execution of the program. The user enters two numbers (1 and 2) and the operator (+). The program outputs the sum (3). The terminal also shows the compilation results, which indicate 0 errors and 0 warnings, and provides details about the compiled executable file.

```
C:\Users\DELL\Desktop\3.cpp - [Executing] - Dev-C++ 5.11
File C:\Users\DELL\Desktop\3.exe

enter two numbers:
1
2
enter the operation:
+
Program: The sum is :13
Process exited after 36.55 seconds with return value 0
Press any key to continue . . .
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\DELL\Desktop\3.exe
- Output Size: 1.83291149139404 MiB
- Compilation Time: 4.81s

PROGRAM 2:

_compiler

```
main.cpp
```

```
1 #include<iostream>
2 using namespace std;
3 int main() {
4     int n1,n2,n3,n4;
5     cout<<"Enter four numbers";
6     cin>>n1>>n2>>n3>>n4;
7     ofstream fout;
8     fout.open("input.txt");
9     fout<<n1<<"\n";
10    fout<<n2<<"\n";
11    fout<<n3<<"\n";
12    fout<<n4<<"\n"
13    fout.close();
14    return 0;
15 }
```

PROGRAM 3:

```
1 #include<iostream>
2 using namespace std;
3 int main() {
4     ifstream fin;
5     fin.open("input.txt");
6     int n1,n2,n3,n4, largest, smallest;
7     while(fin>>n1>>n2>>n3>>n4);
8     smallest=largest=n1;
9     if(n2>largest){
10         largest=n2;
11     }
12     else if(n2<smallest){
13         smallest=n2;
14     }
15     if(n3>largest){
16         largest=n3;
17     }
18     else if(n3<smallest){
19         smallest=n3;
20     }
21     if(n4>largest){
22         largest=n4;
23     }
24     else if(n4<smallest){
25         smallest=n4;
26     }
27     cout<<largest;
28     cout<<smallest;
```

PROGRAM 4:

```
1 #include<iostream>
2 using namespace std;
3 int main() {
4     const int maxworkers=3;
5     double ovt=1.5;
6     double hourswork,hourlyrate,salary;
7     cout<<"\n WORKERS SALARY CALCULATOR ";
8     for (int workers=1;workers=maxwork;worker++){
9         cout<<"enter hours worked"<<workers;
10        cin>>hourswork;
11        cout<<"\n enter hourly rate($)";
12        cin>>hourlyrate;
13
14        if(hourswork==40){
15            salarylaray=hourswork*hourlyrate;
16        }
17        else
18            double regsalary=40*hourlyrate;
19            double overtimehrs=hourswork-40;
20            double overtimesalary=overtimehrs*hourlyrate*overtimerate;
21            salary= regsalary+overtimesalary;
22        }
23        cout<<"\n salary="<<salary;
24    }
25    return0;
26 }
```