

PRACTICAL 2: Conditional and loops

AIM:

To write programs using conditionals and loops

Theory:

Loops:

- **Syntax:**

```
for (initial value; test; increment)
```

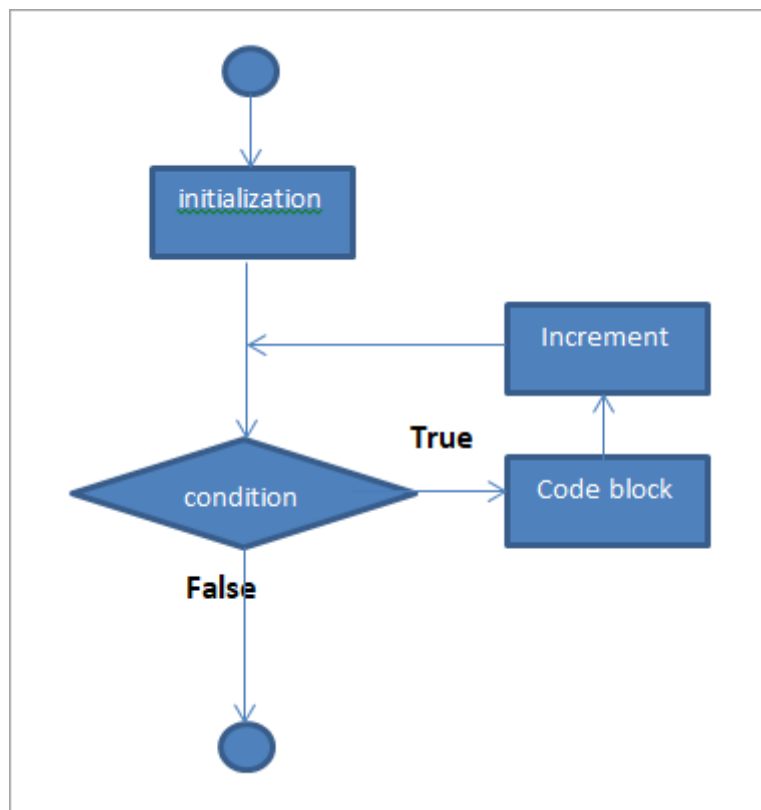
```
{
```

```
    action1;
```

```
}
```

```
action2;
```

- **Diagram:**

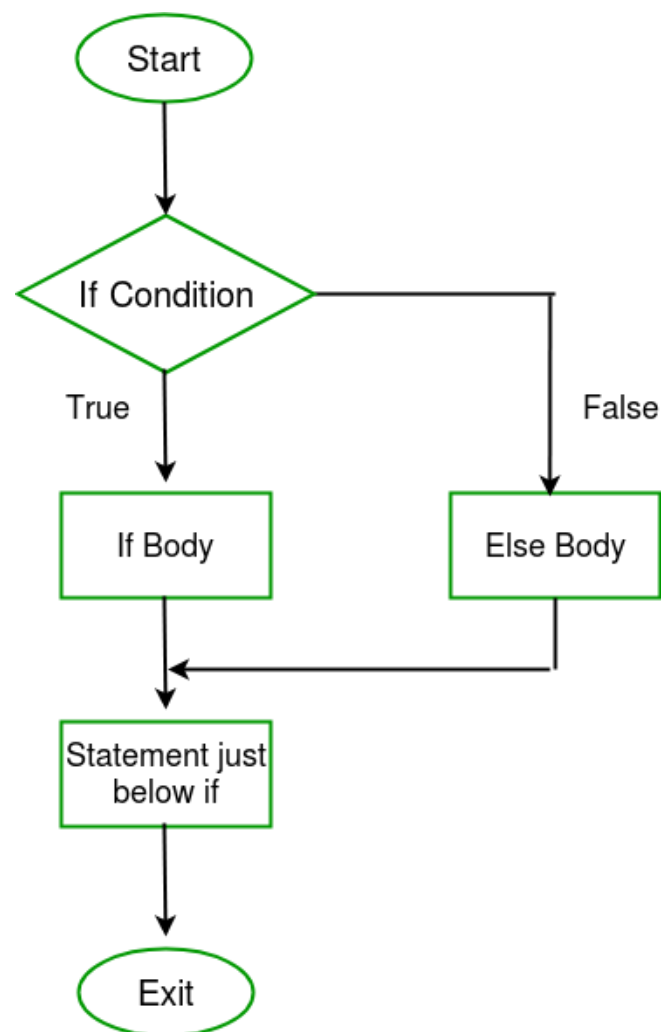


Conditionals:

- **Syntax:**

```
if (expression is true)
{
    action1;
}
else
{
    action2;
}
action3;
```

- **Diagram:**



Q1. Write a program in C++ that takes a number as input and prints its multiplication table up to 10.

CODE:

```
#include <iostream>

using namespace std;

int main()
{
    int num, mul;

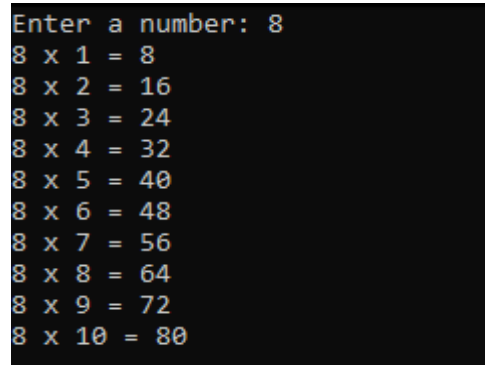
    cout << "Enter a number: ";

    cin >> num;

    for (int i=1; i<=10; i++)
    {
        mul = num * i;

        cout << num << " x " << i << " = " << mul << endl;
    }
}
```

OUTPUT:



```
Enter a number: 8
8 x 1 = 8
8 x 2 = 16
8 x 3 = 24
8 x 4 = 32
8 x 5 = 40
8 x 6 = 48
8 x 7 = 56
8 x 8 = 64
8 x 9 = 72
8 x 10 = 80
```

Fig1. Output for C++ program to print its multiplication table up to 10

Q2. Write a C++ program which prints three highest numbers from entered 3 numbers

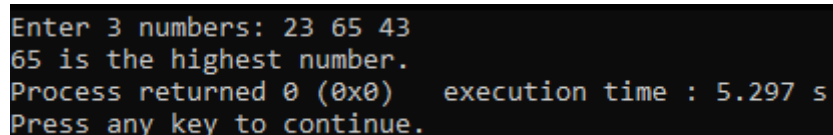
CODE:

```
#include <iostream>

using namespace std;

int main()
{
    int a, b, c, highest;
    cout << "Enter 3 numbers: ";
    cin >> a >> b >> c;
    if (a > b && b > c)
    {
        cout << a << " is the highest number.";
    }
    else if (b > c)
    {
        cout << b << " is the highest number.";
    }
    else
    {
        cout << c << " is the highest number.";
    }
}
```

OUTPUT:



```
Enter 3 numbers: 23 65 43
65 is the highest number.
Process returned 0 (0x0)    execution time : 5.297 s
Press any key to continue.
```

Fig2. Output for C++ program which prints highest number out of 2 given numbers.

Q3. Write a C++ program to compute the sum of even numbers

CODE:

```
#include <iostream>

using namespace std;

int main()
{
    int num, sum = 0;
    cout << "Enter a number: ";
    cin >> num;
    cout << "Numbers to be added: ";
    for (int i=1; i<=num; i++)
    {
        if (i % 2 == 0)
        {
            cout << i << " ";
            sum = sum + i;
        }
    }
    cout << "\nTotal of all numbers is: " << sum;
}
```

OUTPUT:

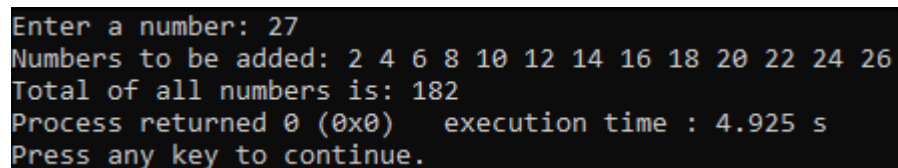
A screenshot of a terminal window showing the output of the C++ program. The text is as follows:
Enter a number: 27
Numbers to be added: 2 4 6 8 10 12 14 16 18 20 22 24 26
Total of all numbers is: 182
Process returned 0 (0x0) execution time : 4.925 s
Press any key to continue.

Fig3. Output of C++ program to compute the sum of even numbers

Q4. Write a C++ program to accept side of a triangle and display equilateral, isosceles and scalene.

CODE:

```
#include <iostream>

using namespace std;

int main()
{
    int a, b, c;

    cout << "Enter sides of a triangle: ";

    cin >> a >> b >> c;

    if (a == b && b == c)
    {
        cout << "It is an Equilateral triangle";
    }

    else if (a == b || b == c || a == c)
    {
        cout << "It is an isosceles triangle";
    }

    else
    {
        cout << "It is a scalar triangle";
    }
}
```

OUTPUT:

```
Enter sides of a triangle: 5 5 8
It is an isosceles triangle
Process returned 0 (0x0)    execution time : 5.822 s
Press any key to continue.
```

Fig4. Output with the program identifying Isosceles triangle

```
Enter sides of a triangle: 5 5 5
It is an Equilateral triangle
Process returned 0 (0x0)    execution time : 1.930 s
Press any key to continue.
```

Fig5. Output of the program identifying equilateral triangle

```
Enter sides of a triangle: 5 6 7
It is a scalene traingle
Process returned 0 (0x0)    execution time : 1.368 s
Press any key to continue.
```

Fig6. Output of the program identifying scalene triangle