

Lab : 4

Objective(s):

To understand the programming using Loop & nested loop Statements (for, while, do-while)

Program: Write a program to print positive integers from 1 to 10.

Code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i;
    for(i=1; i<=10;i++)
        printf("%d \n", i);
    getch();
}
```

//Using WHILE LOOP

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=1;
    while(i<=10)
    {
        printf("%d \n", i);
        i++;
    }
    getch();
}
```

//Using DO-WHILE LOOP

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i=1;
do
    {
        printf("%d \n", i);
        i++;
    }
while(i<=10);
getch();
}
```

Output:

1
2
3
4
5
6
7
8
9
10

SAMPLE PROGRAM

(Students are to code the following programs in the lab and show the output to instructor/course Teacher)

Instructions

- Write comment to make your programs readable.
- Use descriptive variables in your programs (Name of the variables should show their purposes)

Programs List

1. Write a program to count number of digits in a given integer.
2. Write a program to reverse a given integer.
3. Write a program to print number in reverse order with a difference of 2.
4. Write a program to print the sum of digits of a number using **for** loop.
5. Write a program to check whether a number is Palindrome or not. A palindrome number is a number such that if we reverse it, it will not change.
6. Write a program to generate Fibonacci series.
7. If a four-digit number is input through the keyboard, write a program to obtain the sum of the first and last digit of this number.
8. Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.
9. Write a C program to find a list of prime numbers.

Program: Write a program to display the following pattern.

```
*
* *
* * *
* * * *
* * * * *
```

Code:

```
#include<stdio.h>
#include<conio.h>

void main()
{
    int i,j;
    for(i=1; i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("*");
        }
        printf("\n");
    }
}
```

```
getch();  
}
```

10. Write programs to display each of the following patterns.

(i)

```
* * * * *
* * * *
* * *
* *
*
```

(ii)

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

(iii)

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(iv)

```
A
B
A B C
A B C D
A B C D E
```

(v)

```
      *
    * * *
  * * * * *
* * * * * *
* * * * * * *
* * * * * * * *
```

(vi)

```
* * * * * * * *
* * * * * * *
* * * * *
* * * *
* * *
*
```

(vii)

```
1
1 2 1
1 2 3 2 1
1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1
```

(viii)

```
A B C D
E F A B C
D E A B
C D
A B
C A
B A
```

(ix)

```
1
1 2 3
1 2 3 4 5
1 2 3
1
```

(x)

```
* * * * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

(xi)

```
* * * * * *
      *
      *
      *
      *
      *
* * * * * *
```

(xii)

```
* * * * *
*       *
*       *
*       *
*       *
* * * * *
```

