Basic Programming Lab

— — 0x05

Formatting output in printf

Description	Code	Result
Width 6	printf("\n|%6d|", 73);	| 73|
Width 6, left-justified	printf("\n|%-6d|", 73);	|73 |
Width 6, zero-filled	printf("\n|%06d|", 73);	|000073|
Width 6, with sign	printf("\n|%+6d|", 73);	| +73|

Description	Code	Result
%f usage	printf("\n|%f|", 12.3456);	|12.345600|
%e usage	printf("\n|%e|", 12.3456);	|1.234560e+01|
Print one position after the decimal	printf("\n|%.1f|", 12.3456);	|12.3|
Two positions after the decimal	printf("\n|%.2f|", 12.3456);	|12.35|
Width 10, two positions after the decimal	printf("\n|%10.2f|", 12.3456);	| 12.35|
Width 10, four positions after the decimal	printf("\n|%10.4f|", 12.3456);	| 12.3456|
Width 10, two positions after the decimal, zero-filled	printf("\n|%010.2f|", 12.3456);	|0000012.35|
Width 10, two positions after the decimal, left-justified	printf("\n|%-10.2f|", 12.3456);	|12.35 |

for loop

Syntax:

```
for (initialization; condition; updation)
{
        //code
}
```

// Program to print nos 0 to 9

```
#include <stdio.h>

int main()
{
        int i;

        for (i = 0; i < 10; ++i)
        {
                printf("%d ", i);
        }
        return 0;
}
```

while loop

Syntax:

```
//Generally initialization condition is given here

while (condition)
{
        //code
        //Generally updation condition is given here
}
```

// Program to print nos 0 to 9

```
#include <stdio.h>

int main()
{
        int i;

        i = 0;
        while( i < 10)
        {
                printf("%d ", i);
                ++i;
        }

        return 0;
}
```

do while loop

Syntax:

```
//Generally initialization condition is given here

Do
{
        //code
        //Generally updation condition is given here
}
while (condition)
```

// Program to print nos 0 to 9

```
#include <stdio.h>

int main()
{
        int i;

        i = 0;
        do
        {
                printf("%d ", i);
                ++i;
        }
        while( i < 10);

        return 0;
}
```

Assignment

//0x05

//Use scanf for input in Every Program

1. Write a program to print following patterns:

a)
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 ..... upto nth line
```

b)
```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
..... upto nth line
```

c)
```
            1
          2 1 2
        3 2 1 2 3
      4 3 2 1 2 3 4
    5 4 3 2 1 2 3 4 5
    ..... upto nth line
```

2. Write a program check whether a number is a **prime number or not.**

3. Write a program to find the first n numbers of a **Fibonacci sequence.**

4. Write a program to check whether an input integer is **perfect number or not.**

Points to Remember

1. Filetype: .c

2. Naming Convention for Directory: Assignment_X
   where X = Lab No
   example: Assignment_1

3. Naming Convention for File: RollNo_Q_Y.c
   where Y = Question No in that Assignment
   example: 123XXX4567_Q_1.c

Commands:

	Command	Example
Create Directory	mkdir <directory_name>	mkdir test_directory
Create File	vi <filename>	vi test.c
Compile a C Program	gcc <filename>	gcc test.c
Run a C Program	./a.out	

4. Write your details in every program

```
/*
 ------------------------------------------------
|Author : Your_Name                              |
|Roll No: Your_Roll_No                           |
|Department: Your_Department                     |
 ------------------------------------------------
*/
```