C Language

Chapter # 10

Input and Output

Lecture: 17

Today's Lecture

- Input and Output
- printf Function

Input

- The process of giving something to the computer is known as input.
- The input is mostly given by the keyboard.
- The term “standard input” refers to the input using keyboard.
- C languge provides many functions to get input from the user.

Some input functions are:

- scanf()
- gets()
- getch()
- getche()

Output

- The process of getting something from the computer is known as output.
- The output is mostly displayed on the monitor.
- The term “standard output” refers to the output displayed on the monitor.
- The result of the program is the output of that program.
- C languge provides many functions to display output to the user.

Some output functions are:

- printf()
- puts()

The functions used for input and output are stored in header file stdio.h. if a program uses any input or output function, it is necessary to include this header file in the program.

printf Function

- The printf function is used to display output on the monitor.
- It can display text, constants or values of variables.
- The function printf is pronounced as print-eff.

Syntax:

```
Printf("Format string", argument_list);
```

Format string:

Format string is written in double quotes, it is also called control string. The format string may consist of the following:

- **Text**: it is the message to be displayed on the screen.
- **Format specifiers**: it specifies how the values of variables will be displayed.
- **Escape sequences:** it specifies the format of the output.

Argument List:

- The argument list consist of constants, variables and expressions whose values are to be printed on the screen.
- Each argument in the list is separated by comma.
- The values of the argument is printed according to the format specifiers given in the format string.
- Different specifiers are used for different type of values.
- The use of argument list is optional.

Using format string without argument list

printf(“Hello world”);

In the above example, printf function contains only format string. There is no argument list, format specifiers, escape sequences.

It will display display the message “Hello world” on the screen.

Using format string with single argument

printf("Your marks are %d", m);

In the above example, Format string contains %d. it is related to m variable. It indicates that the value of m will be displayed as integer.

Using format string with multiple arguments

printf("Your marks are %d and grade is %c", m, g);

- In the above example, Format string contains two format specifiers %d and %c.
- %d is related to m variable. (%d is used with integers)
- %c is related to g variable. (%c is used with characters)
- The sign % indicates the beginning of a format specifier.

Example 10.1

Write a program that displays a message and values of integer and character variable.

```
#include<stdio.h>
#include<conio.h>
main()
{
	int n = 10;
	char ch = '*';
	printf("Testing output...");
	printf("%d", n);
	printf("%c", ch);
}
```

Example 10.2

Write a program that adds two floating point numbers and shows the sum on screen.

```
#include<stdio.h>
#include<conio.h>
main()
{
	float var1, var2, res;
	var1 = 24.27;
	var2 = 41.50;
	res = var1 + var2;
	printf("%f + %f = %f", var1, var2, res);
}
```

Example 10.3

Write a program to calculate and print the area of a square with given height and width.

```
#include<stdio.h>
#include<conio.h>
main()
{
    int height, width, area;
    height = 5;
    width = 4;
    area = height * width;
    printf("Area of Square = %d", area);
    }
```

The End

Read this topic from your books and ask question if any confusion.

JAZAKALLAH