Format specifiers in C are used in printf() & scanf() functions to determine the datatype of printing value.

Float Format Specifier

Everything you should know about float format specifier is given below,

Example :-

```
If you want to print float value, program will be look like this
    a = 1.12
    printf(“ a = %f ”, a );

    Output :-
    a = 1.12
```

Here, %f :- is format specifier for float types.

Example :-

```
    a = 1
    printf(“ a = %f ”, a );

    Output :-
    a = 1.000000
```

Here,

you assigned a = 1, but used %f so compiler will recognize it as a float value so output will be in decimal value which is 1.000000

Similarly,

```
For double format specifier is %lf
    For String format specifier is %s
    For integer format specifier is %d
```

Now the output of float and double is too long if you have observed in theabove example. Output was a = 1.0000000

Float Output Format

You can restrict the decimal values after dot like this,

```
float a = 3.122222223;
    printf(“a = %.2f ”, a);

    Output :-
    a = 3.12
```

%.2f will restrict the values upto two decimal values.

```
    Example :-
    %.3f will restrict the values upto three decimal values.
    float a = 3.122222223;
    printf(“a = %.3f ”, a);

    Output:-
     a = 3.122
```

One more format specifier is mostly asked in interview questions ,

```
    Example:-
    float a = 1.289999;
    printf(“ a = %6.2f ”, a);

    Output:-
    _ _1.29 where _ are spaces
```

%6.2f :- means output will be in 6 columns

Here ,

a = 1.28999;

So after applying %6.2f it will print two spaces before 1 and .2f means two digits after dot. Include dot also in count it also requires space to get stored.

1	2	3	4	5	6
space	space	1	.	2	9

Example :-

```
    float a = 1.289999;
    printf(“ a = %5.3f ”, a);
```

Output :-

1	2	3	4	5
1	.	2	9	0

Here ,

```
%5.3f :- prints answer in 5 columns .
            three digits after dot as there is .3f
            a 1 before dot .
    Include dot also in the count it also requires space to get stored.
```

Example:-

```
float a = 1.289999;
    printf(“ a = %5.2f ”, a);
```

Output:-

1	2	3	4	5
space	1	.	2	9

Here,

```
%5.2f :- prints answer in 5 columns.
            two digits after dot as there is .2f
            and space and 1 before dot.
```

Example:-

```
    float a = 1111.289999;
    printf(“ a = %5.3f ”, a);
```

Output :-

a = 1111.290

Here,

Before dot it contains enough digits than 5 so it will store 1111 in one block and rest in another.

Space will only be added when there are not enough digits.

Quick Recap:-

Question

```
printf(“ %5.2f “, a);
```

Answer

```
    If a is 1111.2344444, it prints 1111.23
    If a is 11.2344444, it prints 11.23
    If a is 1.2344444 , it prints _1.234 ,
    where _ is one leading whitespace character.
```

All about integers

Example:-

If you want to print an integer value

```
    a = 1,
    printf(“a =  %d ”, a );
```

Here,

%d :- is format specifier for integer types.

Output:-

a = 1

Example:-

Even if you give float value to int like,

```
int a = 1.12;
    printf(“ a = %d ”, a);
```

Output :- a = 1

Since you used %d in printf(), compiler will recognise it as an integer value . So it skips decimal value .12 from 1.12.

Integer Output Format

```
int a = 1234;
    printf(“a = %3d”, a);
    Output :-
    a = 1234
```

```
    int a = 123;
    printf(“a = %3d”, a);
    Output :-
    a = 123
```

```
    int a = 12;
    printf(“a = %3d”, a);
    Output :-
    a = _12
    where, _ is space
```

```
    int a = 1;
    printf(“a = %3d”, a);
    Output :-
    a = _ _1
    where, _ are spaces.
```

Recommended Articles

1) Write C programs to implement i) strcpy(), ii) strlen() library function by yourself

2) Write C program to insert a node after a given node in a linked list

3) How to use %5.2f format specifier in C Programming?

4) Question on C Program referencing the Increment and Decrement Operators concept asked in GATE CSE

5) Article on different storage classes in C.

6) C Tutorial on Calloc() vs malloc() functions is explained in depth in this article.