Format Specifiers

- Format specifiers are used when displaying variables as output.
  - ➔ They specify the type of data of the variable to be displayed

```
int sum = 89;
printf("The sum is %d\n", sum);
```

- The printf() function can display as output the values of variables.
  - ➔ Has two items or arguments enclosed within the parentheses
  - ➔ Arguments are separated by a comma.
  - ➔ First argument to the printf() routine is always the character string to be displayed.
  - ➔ Along with the display of the character string, you might also frequently want to have the value of certain program variables displayed.
- The percent character inside the first argument is a special character recongnized by the printf() function.
  - ➔ The character that immediately follows the percent sign specifies what type of value is to be displayed
  - ➔

Code Walkthrough

```
#include <stdio.h>

int main (void)
{
   int      integerVar = 100;
   float    floatingVar = 331.79;
   double   doubleVar = 8.44e+11;
   char     charVar = 'W';

   _Bool    boolVar = 0;

   printf ("integerVar = %i\n", integerVar);
   printf ("floatingVar = %f\n", floatingVar);
   printf ("doubleVar = %e\n", doubleVar);
   printf ("doubleVar = %g\n", doubleVar);
   printf ("charVar = %c\n", charVar);

   printf ("boolVar = %i\n", boolVar);

   return 0;
}
```

Executes to:

```
integerVar = 100
floatingVar = 331.790009
doubleVar = 8.440000e+011
doubleVar = 8.44e+011
charVar = W
boolVar = 0

Process returned 0 (0x0)   execution time : 2.342 s
Press any key to continue.
```

Width specifiers:

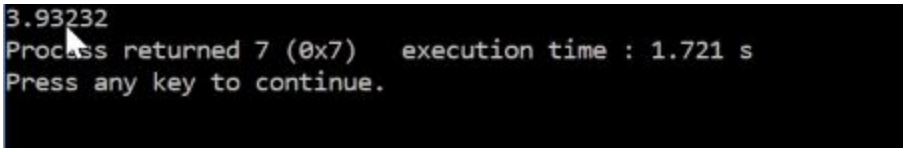
“%.5f”

```c
int main()
{
   float x = 3.93232323;

   printf("%.5f", x);

}
```

Compiles to:



List of all the format specifiers:

Format specifier	Description	Supported data types
`%c`	Character	`char` `unsigned char`

`%d`	Signed Integer	`short`
		`unsigned short`
		`int`

		`long`
`%e or %E`	Scientific notation of float values	`float` `double`
`%f`	Floating point	`float`
`%g or %G`	Similar as %e or %E	`float` `double`
`%hi`	Signed Integer(Short)	`short`
`%hu`	Unsigned Integer(Short)	`unsigned short`

`%i`	Signed Integer	`short`
		`unsigned short`
		`int`
		`long`

`%l or %ld or %li`	Signed Integer	`long`
`%lf`	Floating point	`double`

`%Lf`	Floating point	`long double`

`%lu`	Unsigned integer	`unsigned int`
		
		`unsigned long`

`%lli, %lld`	Signed Integer	`long long`
`%llu`	Unsigned Integer	`unsigned long long`

`%o`	Octal representation of Integer.	`short`
		
		`unsigned short`
		
		`int`
		
		`unsigned int`
		
		`long`

`%p`	Address of pointer to void void *	`void *`
`%s`	String	`char *`

`%u`	Unsigned Integer	`unsigned int`
		
		`unsigned long`

`%x or %X`	Hexadecimal representation of
	
	Unsigned Integer
		`short`
		
		`unsigned short`
		
		`int`
		
		`unsigned int`
		
		`long`

`%n`	Prints nothing	
`%%`	Prints % character	