Command Line Arguments

- Command line argument is a parameter supplied to the program when it is invoked.
- It is mostly used when you need to control your program from outside.
- Command line arguments are passed to the *main()* method.
- **Syntax:**

```
int main (int argc, char *argv[])
        or
int main (int argc, char **argv)
```

  - Command-line arguments are given after the name of the program in command-line shell of Operating Systems.
  - To pass command line arguments, we typically define main() with two arguments : first argument is the number of command line arguments and second is list of command-line arguments.
  - **argc** *(ARGument Count)* is int and stores number of command-line arguments passed by the user including the name of the program.
  - So if we pass a value to a program, value of argc would be 2 (one for argument and one for program name).
  - The value of argc should be non-negative.
  - **argv** *(ARGument Vector)* is array of character pointers listing all the arguments.
  - If argc is greater than zero, the array elements from argv[0] to argv[argc-1] will contain pointers to strings.
  - argv[0] is the name of the program , After that till argv[argc-1] every element is command -line arguments.

- **Example:**
  - *Input:*

```
#include <stdio.h>
int main (int argc, char *argv[])
{
        int i;
        if ( argc >= 2 )
        {
                printf ("The arguments supplied are:\n");
                for (i = 1; i < argc; i++)
                {
                        printf ("%s\t", argv[i]);
                }
        }
```

```
        else
        {
                printf ("argument list is empty.\n");
        }
        return 0;
}
```

- *Output:*

```
$ ./a.out Vartika 29

The arguments supplied are:
Vartika
29
```

- **Properties of Command Line Arguments:**
  - They are passed to main() function.
  - They are parameters/arguments supplied to the program when it is invoked.
  - They are used to control program from outside instead of hard coding those values inside the code.
  - argv[argc] is a NULL pointer.
  - argv[0] holds the name of the program.
  - argv[1] points to the first command line argument and argv[n] points last argument.
  - **Note:** We pass all the command line arguments separated by a space, but if argument itself has a space then we can pass such arguments by putting them inside double quotes " " or single quotes ' '.