Basic C/C++ Programming under GNU Linux and Microsoft Windows – Part 1

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The Characteristic Hello World Program

```
//////////////////////
// A hello world program using GNU C/C++ under Linux/Windows
// At the GNU Linux command prompt
//-----------------------------------------------
// g++ first.cpp    ( will produce a.out )
// ./a.out
// g++ -o test.exe  first.cpp  (will produce test.exe )
// ./test.exe
//  in the Visual C++ command prompt
//-----------------------------------------------
//  cl first.cpp   ( will produce first.exe )
//  first     ( the loader will look for first.exe and execute )
//  cl  -o test.exe first.cpp  ( will produce test.exe due to -o flag )
//  test.exe
#include <stdio.h>
int main( int argc , char **argv ){
        printf("Hello world \n" );
}
```

The Command Line arguments

```
////////////////////////////////////////
// second.cpp
// The following program spits out the command line argument
// At the   GNU Linux terminal
// ============================
// g++ -o cmdline.exe  second.cpp
// ./cmdline.exe     one two three     ( should print the arguments)
// At the Visual C++ command prompt
//============================
// cl -o cmdline.exe second.cpp
//  cmdline.exe one two three ( should print the arguments)
#include <stdio.h>
int main( int argc , char **argv ) {
  if ( argc == 1 ) {
    printf("No command Line Argument\n");
    // argc will be at least 1 in the case of C/C++ Programs
    // argv[0] will contain the executable name
    return 0;
  }
  //--------------- Print the Executable name
  printf("%s\n", argv[0] );
  //------------ Spit the rest of the arguments
  for( int j=1; j< argc ; ++j )
    puts(argv[j]);
}
```

Compute Average of the numbers

```
//////////////////////////////////////////
// third.cpp
// The following program to print average of numbers
// g++ -o average.exe  third.cpp
// ./average.exe 1 3 4 5  7    ( should print the average)
// cl  /Fecmdline.exe second.cpp
//  average.exe 1 3 4 5  7    ( should print the average)
#include <stdio.h>
#include <stdlib.h>
int main( int argc , char **argv ) {
  if ( argc == 1 ) {
    printf("No command Line Argument\n");
    return 0;
  }
  double sum = 0.0;
  for( int j=1; j< argc ; ++j )
      sum  = sum + atof(argv[j] );  //sum += atof(argv[j]);
  double average = sum/(argc-1);
  printf("The Average is %g\n" , average );
}
```

How to Copy a File (using I/O redirection)

```
// fourth.cpp
//
#include <stdio.h>
//---------------------- How to Copy a Text File ?!!!
int main( int argc , char **argv )
{
                int c = 0;
        while ((c=getchar()) != EOF )
                putchar(c);
}

//////////////////////
// fifth.cpp
// Copy a File by converting it to an upper case..
#include <stdio.h>
#include <ctype.h>
int main( int argc , char **argv ){
        int c ;
                while ((c= getchar())!= EOF )
                putchar(toupper(c));
}
```

Questions

- The Source code is available @ https://github.com/praseedpai/BasicCppCourse/tree/main/Part1
- The Slide is also available as PDF from the Above URL
- Any?