



# C PROGRAMING

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# Toolchain & IDE

- Toolchain is set of tools to convert high level language program to machine level code.
  - Preprocessor
  - Compiler
  - Assembler
  - Linker
  - Debugger
  - Utilities
- Popular compiler (toolchains)
  - GCC
  - Visual Studio
- IDE – Integrated development environment
  - Visual Studio
  - Eclipse
  - VS Code (+ gcc)
  - Turbo C
  - Anjuta, KDevelop, Codeblocks, Dev C++, etc.



# Compilation & Execution of C program

- Preprocessor:-

- A preprocessor accepts the inputs in source language and produces output source program that is acceptable to the compiler.
- Main task of preprocessor is to remove the comments and handle all the statements starting with #

- Linker:-

- Single programmer can write small program and store it in single source code file , However Large size softwares consist of several thousands and several millions of code , To take care of this approach software developers generally follow the modular approach.
- In modular approach software consist of mutiple source file , In this case we use the software called as linker to combine all object programs and to convert into final executable.
- Linker is a software that takes multiple object files and fits them together to assemble into final executable



# Hello World

- Source Code

```
// Hello World program
#include <stdio.h>
int main() {
    printf("Hello World\n");
    return 0;
}
```

- Commands

- cmd> gcc hello.c
- cmd> ./a.exe



# Hello World

- printf() – library function
- stdio.h – header file
- main() – entry point function
  - void main() { ... }
  - int main() { ... }
  - int main(void) { ... }
  - int main(int argc, char \*argv[]) { ... }
  - int main(int argc, char \*argv[], char \*envp[]) { ... }
- return 0 – exit status



- GIT installation





Thank you!

