



C PROGRAMING

by Ketan.Kore@ Sunbeam Infotech



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!

