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Class – 1 (A4)
Topic – (LCA) PF Assignment 1

Assignment - 1: C Preprocessor.

Q1] **What is C preprocessor?**

- A C Preprocessor is simply a **text that instructs the compiler to perform necessary pre-processing prior to compilation**.
- It is a **system software**. Note: Preprocessing is **not a part of Compiler**.
- There are certain preprocessing directives/commands such as #include, #define, etc..
- Types of preprocessor directives are –
  - **a) Macro Substitution**
  - **b) File Inclusion**
  - **c) Compiler Control**

Q2] **How does it work?**

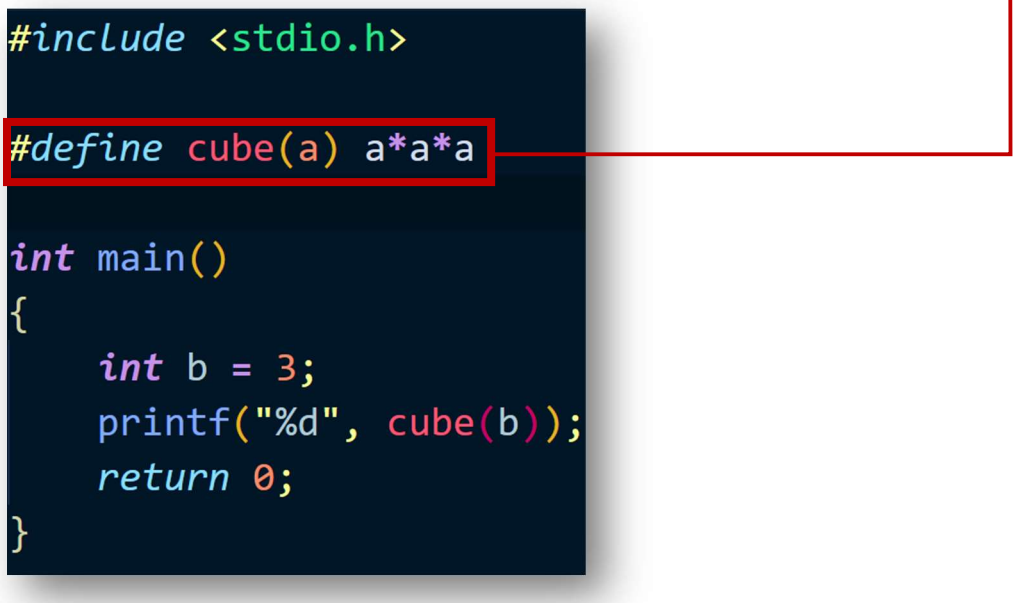
(Example - 1)

- Let's take an example,
  We have written a simple C program here with a preprocessor command #include that is used for "***File Inclusion***".

- #include preprocessor command will **include header file from this path - c:\\mingw\\include\\stdio.h.** Now this **preprocessor directive/command will include all the pre-defined functions** present in the file "stdio.h" (*.h is a header file extension name). **We will save time by not having to code those extra functions.**

(Example - 2)

- Lets take an example,
- We have written a simple C program here with a preprocessor command #define i.e. used for "***Macro Substitution***".



```c
#include <stdio.h>

#define cube(a) a*a*a

int main()
{
    int b = 3;
    printf("%d", cube(b));
    return 0;
}
```

- The preprocessor directive in the preceding example is used to find the cube of an integer.
- When called, **it replaces a with b and displays the cube**.

Q3] **Example (View Preprocess) –**

We will use this command to view preprocessor output–
Man page of gcc states that **-E is used for Preprocess only**.

Results –

With the use of above command we can see here that int a was replaced by int b in the main function.

```
{
   int b = 3;
   printf("%d", b*b*b);
   return 0;
}
```

Detailed Output – output.txt