

ASSIGNMENT

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Course name : C programming For Logical Thinking

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1. Scenario:

A software development company needs to train its interns on the basic of C programming, including the structure of program and preprocessor directives.

Parameters:

- * Explain the significance of preprocessor directives.
- * Identify constants, variables, and data types in a given example program.

Questions:

1. Write a simple C program to display "Hello, World!" and explain its structure.
2. Identify and explain the role of preprocessor directives in the program.
3. List and define the constants, variables, and data types used in the program.

Answer:

1. C program to Display "Hello, world!"

```
#include <stdio.h>
int main()
{
```

```
    printf("Hello,World!");  
    return 0;
```

}

Explanation of the structure of a C program

A C - program generally has the following parts :

1. Preprocessor Directives :

```
#include <stdio.h>
```

These are instructions given to the compiler before actual compilation starts. They begin with #.

2. Main Function :

```
int main(){  
    ...  
}
```

Execution of every C program start from main().
int means the function returns an integer value.

3. Statements inside main()

```
    printf("Hello,World!");
```

This line prints text on the screen. Each statement end with a semicolon(;) :

4. Return Statement

```
return 0;
```

Return control back to the operating system. 0 indicates successful execution.

2. Preprocessor Directives - Role and significance.

→ What is preprocessor Directive?

A command that is processed before compilation.
It prepares the program by including files, defining constants,
etc.

Example from the program:

```
#include <stdio.h>
```

Role of #include <stdio.h>

- * Includes the standard input output header file.
- * Allows the use of printf() and scanf() functions.
- * Without this line, printf() would cause an error.

Significance:

- * Makes libraries available.
- * Improves code reusability.
- * Simplifies program writing.

3. Constants:

A constant is a value that doesn't change during program execution.

Example in the program:

"Hello world!"

This is a string constant. Its value remains fixed.

Variables:

A variable stores data that can change during execution. No user-defined variables are used in the above program.

Data Type:

Data types define what type of data is stored.

Datatype	Used In	Meaning
1. int	int main()	Integer return type
2. char (Implicitly)	"Hello,world!"	characters in string.