

Problem Solving With C - UE24CS151B

Preprocessor Directives

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Preprocessor Directives



- Introduction
- Types of Pre-processor Directives
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- Other Directives

Preprocessor Directives



Introduction

- The lines of code in a C program which are executed by the 'C' pre-processor
- A text substitution tool and instructs the compiler to do required pre-processing before the actual compilation
- All pre-processor commands begin with a hash symbol (#)
- It must be the first nonblank character and for readability, pre-processor directive should begin in the first column conventionally

Preprocessor Directives



Types of Preprocessor Directives

- Types include:
 - Macros
 - File Inclusion
 - Conditional Compilation
 - Other directives
- Possible to see the effect of the pre-processor on source files directly by using the -E
 option of gcc

Preprocessor Directives

Macros



- A piece of code in a program which has been given a name
- During preprocessing, it substitutes the name with the piece of code
- #define directive is used to define a macro.
- Example: #define PI 3.14
- Coding Examples

Preprocessor Directives

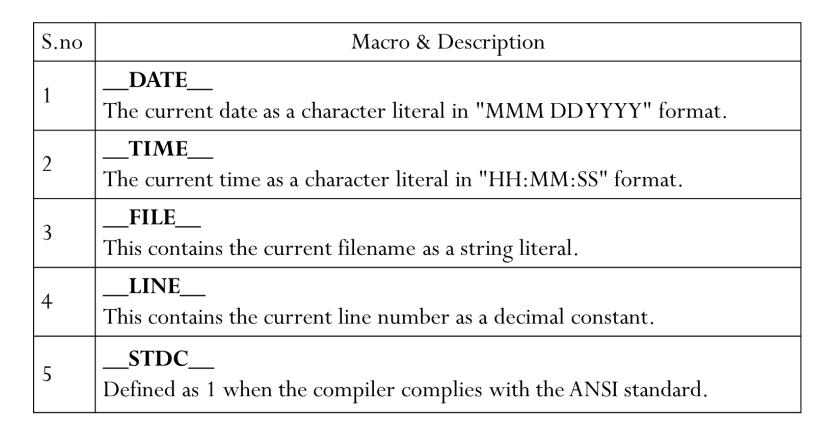
Points to know about Macros



- Macro does not judge anything
- No memory Allocation for Macros
- Can define string using macros
- Can define macro with expression
- Can define macro with parameter
- Macro can be used in another macro
- Constants defined using #define cannot be changed using the assignment operator
- Redefining the macro with #define is allowed. But not advisable

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Predefined Macros





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Macro vs Enum

- Macro doesn't have a type and enum constants have a type int.
- Macro is substituted at pre-processing stage and enum constants are not.
- Macro can be redefined using #define but enum constants cannot be redefined. However assignment operator on a macro results in error

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File Inclusion Directives



- Instructs the pre-processor to include a file in the program using #include directive
- Two types of files
 - Header File or Standard files: Included between < and >
 - Contains the definition of pre-defined functions like printf(), scanf() etc.
 - To work with these functions, header files must be included
 - User defined files: Included using " and "
 - When a program becomes very large, it is good practice to divide it into smaller files and include whenever needed.
 - Adding user defined header files in the program

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Conditional Compilation Directives

- A few blocks of code will be compiled in a particular program based on the result of some condition
- Conditions can be mentioned using #ifdef, #ifndef, #if, #else, #elif, #else, #endif
- Coding Examples

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Other Directives

- #undef Directive: Used to undefine an existing macro
 - Example: #undef LIMIT
 - After this statement every "#ifdef LIMIT" statement will evaluate to false
- #pragma startup and #pragma exit: Helps to specify the functions that are needed to run before program startup and just before program exit
- **#pragma warn:** This directive is used to hide the warning messages which are displayed during compilation using **-rvl**, **-par and -rch**



THANK YOU

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