**Constants and Macros Assignment**

1. Write a function macro to find the smallest number in an array of integers.

A computer screen shot of a program code

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1. What are the differences between macros and constant. Can you replace a constant with a macro and vice versa? Give examples for your statements

A) **Macros:**

* Macros are preprocessor directives, expanded by the preprocessor before compilation.
* They are typically used to define simple constants or functions.
* Macros are not type-safe and can cause issues if not used carefully, such as operator precedence problems.

**Constants:**

* Constants are fixed values defined by the const keyword and are type-safe.
* Constants are evaluated during runtime, and their value cannot be changed once assigned.

**Can you replace a constant with a macro and vice versa?**

* You can replace constants with macros for simple values. However, replacing complex constants (like float values or array sizes) with macros may lead to unintended behavior.
* Replacing macros with constants may be possible, but macros can handle complex expressions, whereas constants are limited to fixed values.

**Example:**

// Constant Example

const int x = 10; // Type-safe, can be used in any expression.

// Macro Example

#define X 10 // This is just a substitution; no type check.

3. Refer macro below

#define MYPROD(x) (x \*x)

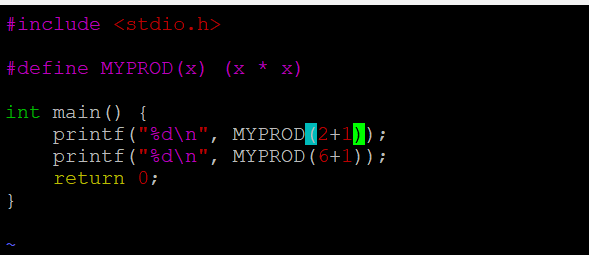
WAP to invoke the above macro with inputs as below and display the result.

a. MYPROD(2+1)

b. MYPROD(6+1)

Do you get the expected answers as 9 and 49 in case a. and case b.?

If not modify the code to produce the expected results. in above case



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4. Write macro definitions with arguments for calculation of area of a triangle and circle.

a. Use macros for both constants as well as formula evaluations.

b. Store these macro definitions in a header file and invoke the macros from the main function.

5. Define a macro name MYPRINT as below.

#define MYPRINT(x) printf(x)

Use the above macro conditionally only if a macro CUST\_PRINT is defined , otherwise not to be used.

For eg refer the code and comments below.

int main()

{

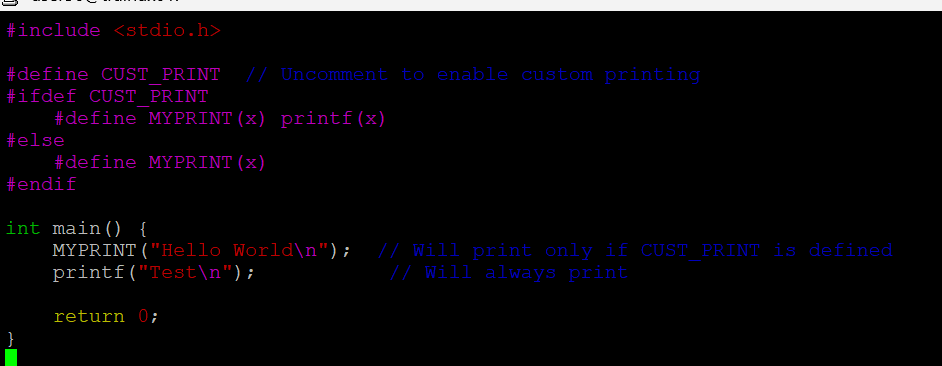
MYPRINT("Hello World"); // will be displayed only when CUST\_PRINT is defined

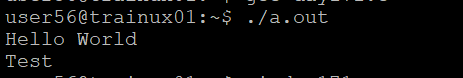
printf("Test"); // will be displayed always irrepective of CUST\_PRINT

return 0;

}

Add the code to demonstrate the above behaviour.





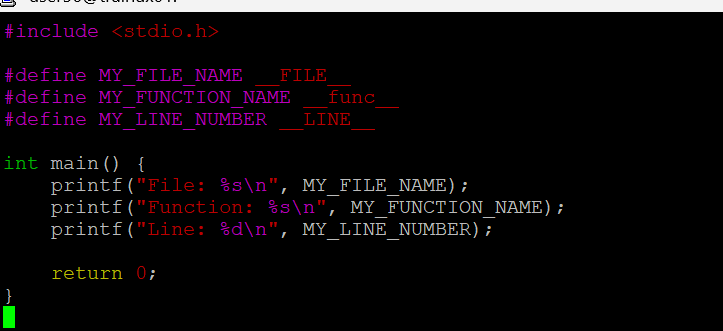
6. Identify and use the macros to display

a. file name

b. function name

c. line of code

Show the usage with a code example



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