Program for MACRO

AIM:

To create a c program for explaning about the conditional MACRO,extern and global variable declaration

PROCEDURE:

1. Create two source file main.c & display.c
2. Create a header file main.h
3. In the header file create a macro "STAGE", also by using conditional compilation for "STAGE" value as 1 & 2 define a macro for "AREA". if STAGE = 1, the AREA should have the expression for area of square, if STAGE = 2, the AREA should have the expression of area of circle.
4. In main.c create a global variable for the radius(for circle) and side (square) by using another conditional compilation
5. in display.c print the output of area in this file based on the AREA macro. the global variables should accessed as extern variable

PROGRAM:

main.c

```c
/*
* Program to demonstrate a macro,global variable and extern
* Author   : MUTHUGANESH S
* Date     : 08/01/2026
* Filename : main.c
* retval   : void
*/

//standard input output header file inclusion
#include <stdio.h>

//header file inclusion
#include "main.h"

//global variable declaration using conditionl macro
#if STAGE == 1
    extern float SquareSide; //global variable for square side

#elif STAGE == 2
    extern float CircleRadius; //global variable for circle radius

#endif
void DisplayArea(void); //function prototype declaration

//main function
int main() {
    DisplayArea(); //function call to display area
    return 0;
}
```

main.h

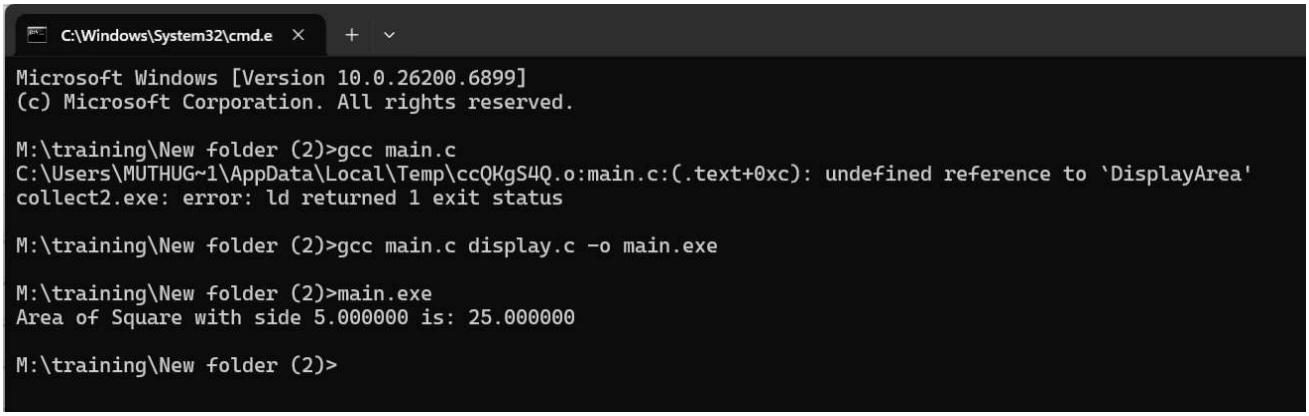
```c
/*
* This is header file for main.c
* Conditional Macro is defined here
* Author   : MUTHUGANESH S
* Date     : 08/01/2026
* Filename : main.h
*/

// STAGE Macro is defined as 1
#define STAGE 1

/*
* STAGE is 1 it gives AREA of square
* STAGE is 2 it gives AREA of circle
*/

#if STAGE == 1
    //Area of the square
    #define AREA(SquareSide) (SquareSide * SquareSide)

#elif STAGE == 2
    //Area of the circle
    #define AREA(CircleRadius) (3.14 * CircleRadius * CircleRadius)

#endif
void DisplayArea(void); //function prototype declaration
```

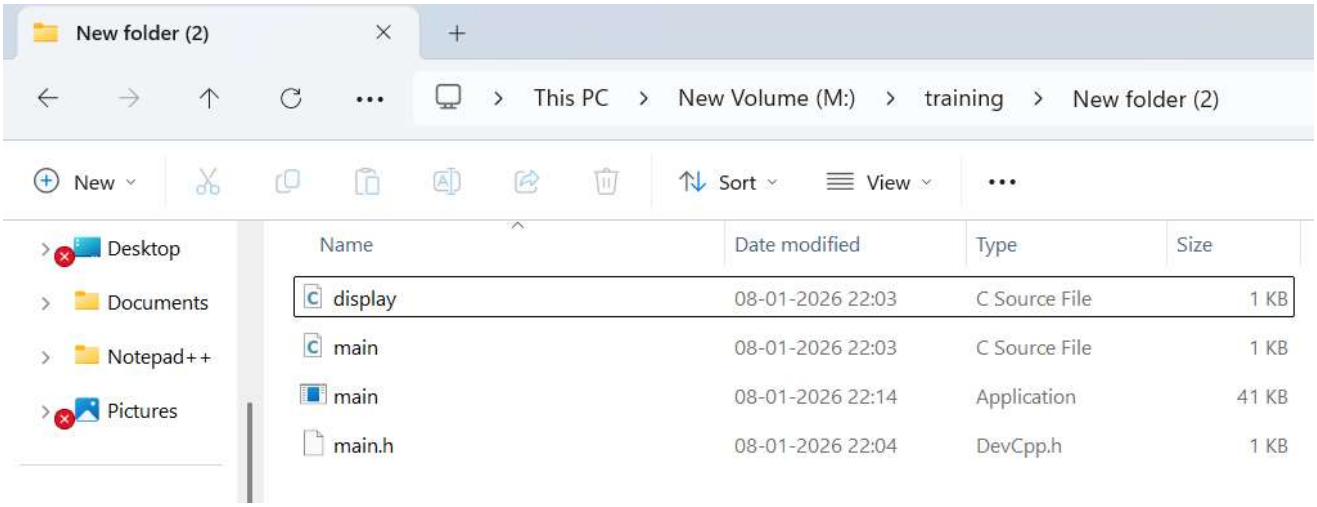
display.c

```c
/*
* Program to display the main function definition
* Author   : MUTHUGANESH S
* Date     : 08/01/2026
* Filename : display.c
* retval   : void
*/

//standard input output header file inclusion
#include <stdio.h>

//header file inclusion
#include "main.h"

//function definition to display area
```

```c
void DisplayArea(void) {

    //conditional compilation based on STAGE macro
    #if STAGE == 1

        //extern declaration of side variable
        float SquareSide=5.0;

        //calculate area of square
        float SquareArea = AREA(SquareSide);

        //display area of square
        printf("Area of Square with side %f is: %f\n", SquareSide, SquareArea);

    #elif STAGE == 2

        //extern declaration of radius variable
        float CircleRadius=7.0;

        //calculate area of circle
        float CircleArea = AREA(CircleRadius);

        //display area of circle
        printf("Area of Circle with radius %f is: %f\n", CircleRadius,
CircleArea);

    #endif
}
```

OUTPUT:




New folder (2)
This PC
New Volume (M:)
training
New folder (2)
New
Sort
View
Desktop
Documents
Notepad++
Pictures
Name
Date modified
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display
08-01-2026 22:03
C Source File
1 KB
main
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Application
41 KB
main.h
08-01-2026 22:04
DevCpp.h
1 KB