

COM2002 INTERMEDIATE PROGRAMMING
2024 – 2025 SPRING

Laboratory Week: 03 – 07 March 2025

Topic : The Preprocessor

Program : Preprocessor (preprocessor.c)

Definition : The program includes different macros such as simple, parameterized, predefined.

- Use predefined macros to print file information. “File information is given below” message is simple macro definition.
- Use parameterized macros
 - To add two numbers.
 - To subtract two numbers that are constant values.
 - To print “Hello John Doe. Welcome to COM2002 Intermediate Programming Lab!”, define “message_for(name, surname)” by using # operator.
- Use Conditional Compilation to assign bigger number as first number before using subtraction macro.

Expected output:

```
File information is given below.
File    : preprocessor.c
Date    : Feb 7 2025
Time    : 17:15:34
Line    : 24
ANSI    : 1
Hello John Doe. Welcome to COM2002 Intermediate Programming Lab!
Enter first number:5
Enter second number:6
The summation of 5 and 6 is 11
The subtraction of 8 and 9 is calculated.
9 - 8 = 1
```

Question: Show that the following program will look like after preprocessing.

```
#define N = 10
#define INC(x) x+1
#define SUB (x,y) x-y
#define SQR(x) ((x)*(x))
#define CUBE(x) (SQR(x)*(x))
#define M1(x,y) x##y
#define M2(x,y) #x #y

int main(void)
{
    int a[N], i, j, k, m;

#ifdef N
    i = j;
#else
    j = i;
#endif

    i = 10 * INC(j);

    i = SUB(j, k);
    i = SQR(SQR(j));
    i = CUBE(j);
    i = M1(j, k);
    puts(M2(i, j));

#undef SQR
    i = SQR(j);
#define SQR
    i = SQR(j);

    return 0;
}
```