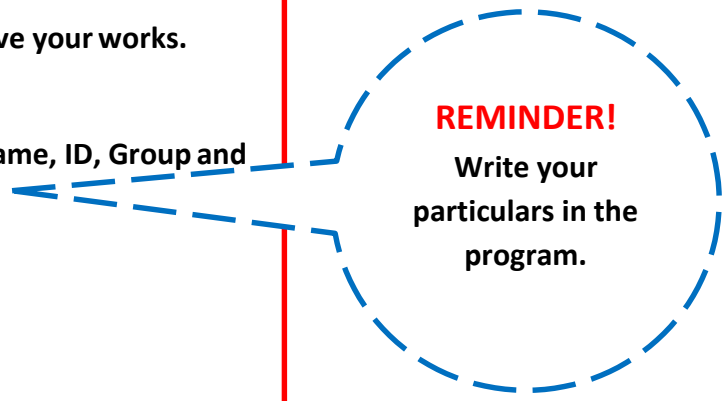
NOTE:

- Create a folder on Desktop to save your works.

- Use comment // to write your name, ID, Group and Lab Question in each program.

- Save your file as .c



LAB OBJECTIVES

At the end of this lab activity, the students should be able to:

- Solve two-dimensional array problem
- Use pointers expressions and pointer arithmetic.

ARRAY

QUESTION 1

This program will calculate the average of quiz marks for students.

- In main():
  - Declare an empty array called test for 4 students with 3 quizzes each.
  - Call function get_marks(…) and pass the test array as argument.
  - Use while loops:
    - Calculate the total marks and average for each students.
    - Call function display(…) and pass the necessary arguments.
- In function get_marks(…):
  - Use for loops to ask each user to enter their marks.
  - The marks are stored into the array.
- In function display(…):
  - Print the average of each students.
    (There are no loops here, just a print statement.)

Sample Output

```
Student 1 :
Enter quiz 1 marks : 6.5
Enter quiz 2 marks : 8
Enter quiz 3 marks : 10

Student 2 :
Enter quiz 1 marks : 7.5
Enter quiz 2 marks : 7
Enter quiz 3 marks : 8

Student 3 :
Enter quiz 1 marks : 4
Enter quiz 2 marks : 8
Enter quiz 3 marks : 10

Student 4 :
Enter quiz 1 marks : 6
Enter quiz 2 marks : 7
Enter quiz 3 marks : 6.5

Student 1 average ==> 8.17
Student 2 average ==> 7.50
Student 3 average ==> 7.33
Student 4 average ==> 6.50
```

POINTER

QUESTION 2

Trace the following code segments and write the outputs generated by them.

(a)

```
void f(int* p, int m)
{
    m = m + 25;
    *p = *p + ++m;
    return;
}
void main()
{
    int i=5, j=10;
    f(&i, j);
    printf("%d", i+j);
}
```

(b)

```
int x=337;

void Q(int z)
{
    z += x;
    print(z);
}
void P(int *y)
{
    int x = *y + 8;
    Q(x);
    *y = x - 3 * x;
    print(x);
}
void print(int val)
{
     printf("\n%d", val);
}
void main()
{
    x = 5;
    P(&x);
    print(x);
}
```

(c)

```
int numbers[]={10,8,34,100,3,12,14,7};
int *a, *b;

a = &numbers[3];
b = numbers;

printf("\n %d", *a + *b);
printf("\n %d", *a-- - ++*b);
printf("\n %d", *(a+2) + *b+15);
```

(d)

```
int arr[] = {1,2,3};
main()
{
    int *ptr;
    ptr = arr;
    ptr = ptr+3;
    printf("%d",*ptr);
}
```

(e)

```
int fun(int *a,int *b)
{
    *a = *a+*b;
    *b = *a-*b;
    *a = *a-*b;
}
main()
{
    int x = 10,y = 20;
    fun(&x,&y);
    printf("x= %d y = %d\n", x, y);
}
```