

## CMPE 108 - Experiment 2 Part 2

### Sequential Programming

#### OBJECTIVES:

- Understand how to edit, compile and execute C computer codes.
- Understand C programming: sequential code structure.

#### NOTES:

- You should prepare the preliminary work before coming to the laboratory session and bring soft copies of the preliminary work with you.
- Before writing a computer code, you should do the following steps:
  - 1) understand and analyze the problem,
  - 2) develop an algorithm and/or flowchart,
  - 3) convert the algorithm and/or the flowchart into a C code.

#### PRELIMINARY WORK:

Assume that in the following program fragments, variables are int type. Write separate C programs to evaluate the given program fragments and show the outputs produced by each of the program fragments by writing the results in the corresponding boxes.

##### Part a-)

```
i= 9;  
j = i % 2 && 3 + 5 ;  
printf(" i=%d j=%d \n", i, j);
```

##### Part b-)

```
m=7; n= 4  
j = m * m % m / (m + n) * 4;  
printf(" m=%d n=%d j=%d\n", m, n, j);
```

**Part c-)**

```
m = 3 * (n = 3);  
m *= n+1;  
j += m * n;  
printf(" m=%d n=%d j=%d\n", m, n, j);
```



**Part d-)**

```
x = 6; j = 9;  
m=7; n=4;  
j = (m += 3 + (n /= 2) + x);  
printf(" m=%d n=%d j=%d x=%d\n",m,n,j,x);
```



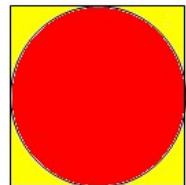
**TASKS during the LAB hours:**

1. Write a C program that takes minutes as an input and display the total numbers of hours and minutes on the screen. The program should prompt the user to enter the minutes, and then calculate total numbers of hours and print the total number of hours and minutes. A session with the program should have the following appearance:

```
Input minutes: 146
```

```
2 hours and 26 minutes
```

2. Write a program that reads the radius of the circle inscribed inside the square and based on that it will print the values of red and yellow areas, shown in the figure below. Print the values with 2 digits after decimal point. Define the value of  $\pi$  (3.1416).



A sample run of your program gives the following:

```
Enter the value of the radius: 1.578
The yellow area is: 2.14
The red area is: 7.82
```

You may use following formula to calculate area values.

```
Area of square = edge * edge
Area of circle =  $\pi * r^2$ 
```

3. Write a C program that asks the user to enter two number, performs swap operation then prints to screen. A session with the program should have the following appearance:

```
Enter a and b: 5 13
a=5 b=13
After swap operation
a=13 b=5
```