CSE115L – Computing Concepts Lab

Printing text using user defined function:

```c
#include<stdio.h>
void Display();
int main()
{
     Display();
     return 0;
}
void Display()
{
     printf("Hello Wolrd!\n");
}
```

```c
#include<stdio.h>
void Display();
int main()
{
     Display();
     Display();
     return 0;
}
void Display()
{
     printf("Hello Wolrd!\n");
}
```

Passing argument and printing its value:

```c
#include<stdio.h>
void printValue(int n);
int main()
{
    printValue(100);
    printValue(25);
    return 0;
}

void printValue(int n)
{
    printf("The number is %d\n", n);
}
```

Calculating sum by passing arguments:

```c
#include<stdio.h>
void computeSum(int x, int y);
int main()
{
    int var1, var2;
    scanf("%d %d", &var1, &var2);
    computeSum(var1, var2);
    return 0;
}
void computeSum(int x, int y)
{
    int result = x + y;
    printf("%d + %d = %d\n", x, y, result);
}
```

Calculating sum by passing arguments and returning the result:

```
#include<stdio.h>
int  Sum(int x, int y);
int main()
{
    int var1, var2;
    scanf("%d %d", &var1, &var2);
    printf("%d + %d = %d\n", var1, var2, Sum(var1, var2));
    return 0;
}

int  Sum(int x, int y)
{
    int result = x + y;
    return result;
}
```

Problems:

1. Write two functions –
   void findArea(int radius) to find the area of a sphere and
   void findVolume(int radius) to find the volume of a sphere.

   Functions should print the Area and the Volume. Call the two functions from main. Take input inside main and pass those to the above functions.

   Sample Output:

   ```
   Enter the radius: 5
   Area of the sphere: 314
   Volume of the sphere: 523.33
   ```

2. Write the function **int computeAverage(int a, int b)** which takes 2 integers as input and return their average. Call the function from main, store the average returned by the function and print it.

   Sample Output:

   ```
   Enter a: 15
   Enter b: 35
   Average is: 25
   ```

3. Write the function **double getArea(int a, int b, int h)** which returns the area of a Trapezoid. **Area= ½ * (a + b) * h**. User will enter the value of two parallel sides (*a* and *b*) and the height of the Trapezoid (*h*). Call the **getArea** function from the main function.

   Sample Output:

   ```
   Enter a: 3
   Enter b: 4
   Enter h: 5
   Area of trapezoid: 17.5
   ```

4. Write a function (suggested prototype is void printStarPyramid (int lines)) that prints a pyramid of asterisks as shown below. The function takes the number of lines in the pyramid as input. For example, for the input 4, the output is the following.
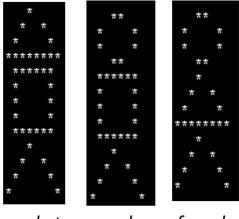
```
   *
  ***
 *****
*******
```

5. Write a function (suggested prototype is int fibonacci (int n)) that will return the n-th Fibonacci number. Assume that the first Fibonacci number is 0 and the second is 1. So, Fibonacci(6) should return 5.

6. Write a function (suggested prototype is int seriesSum1 (int a)) that returns the sum of the following expression-

$$a^2 - (a-1)^2 + (a-2)^2 - (a-3)^2 + (a-4)^2 - \ldots\ldots\ldots\ldots \pm 1$$

7. Write a program to draw a rocket ship (which is a triangle over a rectangle, over an inverted V), a male stick figure (a circle over a rectangle over an inverted V), and a female stick figure (a circle over a triangle over an inverted V). Your program should have at least the following functions:

    a.   void triangle (void)
    b.   void rectangle(void)
    c.   void invertedV(void)

It is recommended that your program have the following functions also:

    d.   void rocket(void)
    e.   void male(void)
    f.   void female(void)

rocket   male   female