

ICS 103 – Computer Programming in C
Summer Semester 2008 (073)
Lab # 7 (Function with Input Parameters)

Objective:

Learn how to write user defined functions.

Scope:

The student should understand the following concepts by the end of this lab:

1. Functions returning one or more results
2. **void** functions with input parameters.

Discussion:

The following problem will be discussed in the class:

Complete the following program by writing the two functions **SurfaceArea** and **Volume** that take a side of a cube and return its surface area and volume respectively. Run the program and test it. [Given that Surface Area = $6a^2$, Volume = a^3]

```
int main(void) {
    double side;
    printf("Enter side of a cube > ");
    scanf("%lf",&side);
    printf("Surface area is %.2f\n", SurfaceArea(side));
    printf("Volume is %.2f",Volume(side));
    return(0);
}
```

Sample Output:

```
Enter side of a cube > 5.2
Surface area is 162.24
Volume is 140.61
```

Exercises #1:

1. Open a new file and write the following data into it:
3 8 20
2. Save the file into your working directory as *sides.dat*.
3. Write a program that reads those three integer numbers from *sides.dat* file as sides of three cubes. The program then calculates their surface area and volumes and prints the result in *cubes.dat* file.

Exercise # 2:

Complete the following program by writing a logical function **IsTriangle** that checks whether three given integer angles (in degrees) form a triangle or not (i.e. their sum is 180 or not). Run the program and test it.

```
int main(void){
    int a,b,c;
    printf("Enter 3 angles > ");
    scanf("%d%d%d",&a,&b,&c);
    if (IsTriangle(a,b,c))
        printf("Angles form a triangle");
    else
        printf("Angles don't form a triangle");
    return(0);
}
```

Sample Output:

```
Enter 3 angles > 75 60 45
Angles form a triangle.
```

Exercise #3:

Write a void function having three parameters, a, b, and c that will display all integers divisible by c between a and b. Then complete the following program.

```
int main(void){
    int a,b,c;
    printf("Enter 3 integers > ");
    scanf("%d%d%d",&a,&b,&c);
    Divisible(a, b, c);
    return(0);
}
```

Sample Output:

```
Enter 3 integers > 75 100 7
77 84 91 98 are divisible by 7.
```