CSY2006 Week 9

Lab Exercises:

1. Convert the following function to one that uses recursion.

```
void sign (int n)
{
   while (n > 0)
    cout << "No Parking\n";
     n--;
}
```

   Demonstrate the function with a driver program.

2. Write a function that accepts an integer argument and returns the sum of all the integers from 1 up to the number passed as an argument. For example, if 50 is passed as an argument, the function will return the sum of 1, 2, 3, 4 , ….. 50. Use recursion to calculate the sum. Demonstrate the function in a program.

3. Write a function that uses recursion to raise a number to a power. The function should accept two arguments: the number to be raised and the exponent. Assume that the exponent is a nonnegative integer. Demonstrate the function in a program.

4. Consider the following unsorted set:
   44 75 23 43 55 12 64 77 33
   Sort the above set in ascending order manually using Quick Sort Algorithm and illustrate the key steps involved. Indicate the pivot in each step.

5. Consider the following unsorted set:
   75 56 85 90 49
   Sort the above set in ascending order manually using Merge Sort Algorithm and illustrate the key steps involved.

6. Write a function that accepts that accepts an array of integers and a number indicating the number of elements as arguments. The function

should recursively calculate the sum of all the numbers in the array. Demonstrate the function in a driver program.

7. Write a recursive function that accepts a string as its argument and prints the string in a reverse order.

8. Write an iterative version (using loops instead of recursion) of the factorial function discussed in lecture (sample programs – Pr19-3). Test it with a driver program.