Assignment 1 –Data Structures and Algorithms

**Question 1**

1. **Find the time complexity for the following scenarios**

**a.) for(i=1;i<=n;i++)**

**for(j=i;i<=n;j++)**

**printf("Hi");**

**Answer:**

**for(i=1;i<=n;i++) 🡪n times**

**for(j=i;i<=n;j++) 🡪n times**

**printf("Hi"); ---------------**

**n^2 times**

**The time complexity is Big O(n^2)**

**b.) for(i=1;i<=n;i\*=3)**

**for(j=1;i<=n;j++)**

**printf("Hello");**

**Answer:**

**for(i=1;i<=n;i\*=3)**

**for(j=1;i<=n;j++)**

**printf("Hello");**

**If we assume n=81**

**i=1,3,9,27,81**

**5=>81**

**3^5=>81**

**5=>log(81)**

**Time complexity =Big O(log(n))**