**Question 1:**

1.) Find the time complexity for the following scenarios

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

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

print(hi);

printf("Hi");

Ans : -

Time complexity is nothing but the number of instructions executed in your program. Now, in your program you have two loops. Outer loop will iterate i=0 to i=N-1, which is total of N instructions that is O(N). Since you also have a inner loop which will again iterate from j=i+1to j=N-1 for each i.

Hence, time complexity will be O(N^2).

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

printf("Hello");

Ans:-

Number of times, we can double a number till it is less than n would be log(n).

O(n.log3(n))