* ***Question 1***

**What is the time, space complexity of following code:**

int a = 0, b = 0;

for (i = 0; i < N; i++) {

a = a + 1;

}

for (j = 0; j < M; j++) {

b = b + j;

}

**Answer: Time Complexity-**

**For the first loop, there will be 0 to N-1 iterations. So, in total N terms.**

**For the second loop, there will be 0 to M-1 iterations. So, in total M terms.**

**So total time allocated for the algorithm is N+M. so Time Complexity is O(N+M)**

**Space Complexity-**

**We have 4 variables, a, b, N, M. All have fixed spaces on iterations. Thus O(1).**

* ***Question 2***

**What does it mean when we say that an algorithm X is asymptotically more efficient than Y?**

**Answer: a) X will be a better choice for all inputs**

**As X will take less time than Y for all values of n greater than n0. Where n0>0**