1. What is the difference between a list and a set?

**‘Set’** is a collection of unique data.

**‘List’** can have multiple copy of same data

1. What ways of achieving concurrency do you know? What are the limitations of those ways?

I am familiar with ‘**multithreading**’ to achieve concurrency. More specifically ‘Pthreads’ and ‘OpenMP’ in C language.

Depending on the application, synchronization may result in a complex interaction of threads which might cause problems.

* Deadlocks
* Memory access latencies and cache effects

1. What is the worst-case time complexity of a quick sort?

The worst case run time complexity of quick sort is O(N^2)

1. What is an eigenvalue and an eigenvector?

**Eigenvector**: when a vector is transformed using the matrix results in a scaling of the original vector then the given vector is eigenvector. The vector is scaled by some constant factor.

**Eigenvalue**: The scale factor is called the eigenvalue corresponding to the eigenvector.

Consider a matrix ‘A’ and vector ‘v’ and eigenvalue ‘’ then the relation between them is given by