**WEEK 4: Sorting, Tuples, Dictionaries, Passing Functions, List Comprehension.**

**Lecture 1 : Mergesort.**

O(n2) Sorting Algorithms : Selection Sort, insertion Sort

n < 5000

# A and B list should be sorted  
  
def mergesort(A,B):  
 C = []  
  
 m,n = len(A),len(B)  
  
 i,j = 0,0  
  
 while i+j < m+n:  
 if i == m:  
 C.append(B[j])  
 j += 1  
 elif j == n:  
 C.append(A[i])  
 i += 1  
 elif A[i] <= B[j]:  
 C.append(A[i])  
 i += 1  
 elif A[i] > B[j]:  
 C.append(B[j])  
 j += 1  
 return C  
  
print(mergesort([1,5,7,9],[6,8,10]))

Merge sort works for 100,000

LECTURE 2: MERGESORT ANALYSIS

LECTURE 3: QUICK SORT

Program of NPTEL didn’t work, copied from gfg and kind of hard.

Practise it twice.

LECTURE 4: QUICK SORT ANALYSIS :

Worst case : Pivot is max or min. = O(n2)

Average Case = O(n.logn)

LECTURE 5 : TUPLES & DICTIONARIES :

LECTURE 6 : FUNCTION DEFINTIONS :

LECTURE 7 : LIST COMPREHENSION :