Group B - Assignment 5

a)Write a python program to store roll numbers of student in array who attended training program in random order. Write function for searching whether particular student attended training program or not,

using Linear search and Sentinel search. """

def accept\_array(A):

n = int(input("Enter the total no. of student : ")) for i in range(n):

x = int(input("Enter the roll no of student %d : "%(i+1))) A.append(x)

print("Student Info accepted successfully\n\n") return n

def display\_array(A,n):

if(n == 0) :

print("\nNo records in the database") else :

print("Students Array : ",end=' ') for i in range(n) :

print("%d "%A[i],end=' ') print("\n")

def Linear\_Search(A,n,X) :

for i in range(n) :

if(A[i] == X) :

return i # found so returning the position i.e index return -1 # Not found

# 0 1 2 3 4

def Sentinel\_Search(A,n,X) : # 20 51 30 40 35 last = A[n-1] # last=35

i = 0

A[n-1] = X # X->search key=51 ->A[n-1]=51

while(A[i] != X) : #20 51 30 40 51 last=35 i = i+1

A[n-1] = last #A[n-1]=35

# 20 51 30 40 35

if( (i < n-1) or (X == A[n-1]) ) :

return i #roll\_no found at location i else :

return -1 # roll\_no not found"

def Main() :

A = []

while True :

print ("\t1 : Accept & Display Students info ") print ("\t2 : Linear Search")

print ("\t3 : Sentinel Search") print ("\t4 : Exit")

ch = int(input("Enter your choice : ")) if (ch == 4):

print ("End of Program") quit()

elif (ch==1):

A = []

n = accept\_array(A) display\_array(A,n)

elif (ch==2):

X = int(input("Enter the roll\_no to be searched : ")) ﬂag = Linear\_Search(A,n,X)

if(ﬂag == -1) :

print("\tRoll no to be Searched not Found\n") else :

print("\tRoll no found at location %d"%(ﬂag + 1)) elif (ch==3):

X = int(input("Enter the roll\_no to be searched : ")) ﬂag = Sentinel\_Search(A,n,X)

if(ﬂag == -1) :

print("\tRoll no to be Searched not Found\n") else :

print("\tRoll no found at location %d"%(ﬂag + 1)) else :

print ("Wrong choice entered !! Try again")

Main() '''Output:

1 : Accept & Display Students info 2 : Linear Search

1. : Sentinel Search
2. : Exit

Enter your choice : 1

Enter the total no. of student : 5 Enter the roll no of student 1 : 20 Enter the roll no of student 2 : 51 Enter the roll no of student 3 : 30 Enter the roll no of student 4 : 40 Enter the roll no of student 5 : 35 Student Info accepted successfully

Students Array : 20 51 30 40 35

1 : Accept & Display Students info 2 : Linear Search

3 : Sentinel Search 4 : Exit

Enter your choice : 2

Enter the roll\_no to be searched : 30 Roll no found at location 3

1 : Accept & Display Students info 2 : Linear Search

3 : Sentinel Search 4 : Exit

Enter your choice : 3

Enter the roll\_no to be searched : 51 Roll no found at location 2

1 : Accept & Display Students info 2 : Linear Search

3 : Sentinel Search 4 : Exit

Enter your choice :4 '''