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Roll no. - 37

A)Write a python program to implement Linear search.

```
def linear_Search(list1, n, key):

    # Searching list1 sequentially
            for i in range(0, n):
        if (list1[i] == key):
            return i
    return -1

list1 = [1 ,3, 5, 4, 7, 9]
key = 7

n = len(list1)
res = linear_Search(list1, n, key)
if(res == -1):
    print("Element not found")
else:
    print("Element found at index: ", res)
```

Output:

```
Element found at index:  4
```

B)Write a python program to implement Bubble sort

```
# Creating a bubble sort function
def bubble_sort(list1):
    # Outer loop for traverse the entire list
    for i in range(0,len(list1)-1):
        for j in range(len(list1)-1):
            if(list1[j]>list1[j+1]):
                temp = list1[j]
                list1[j] = list1[j+1]
                list1[j+1] = temp
    return list1

list1 = [5, 3, 8, 6, 7, 2]
print("The unsorted list is: ", list1)
# Calling the bubble sort function
print("The sorted list is: ", bubble_sort(list1))
```

Output:

```
The unsorted list is: [5, 3, 8, 6, 7, 2]
The sorted list is: [2, 3, 5, 6, 7, 8]
```

C)Write a python program to implement Hashing

```
# Function to display hashtable
def display_hash(hashTable):

	for i in range(len(hashTable)):
		print(i, end = " ")

		for j in hashTable[i]:
			print("-->", end = " ")
			print(j, end = " ")

		print()

# Creating Hashtable as
# a nested list.
HashTable = [[] for _ in range(10)]

# Hashing Function to return
# key for every value.
def Hashing(keyvalue):
	return keyvalue % len(HashTable)

# Insert Function to add
# values to the hash table
def insert(Hashtable, keyvalue, value):

	hash_key = Hashing(keyvalue)
	Hashtable[hash_key].append(value)

# Driver Code
insert(HashTable, 10, 'Allahabad')
insert(HashTable, 25, 'Mumbai')
insert(HashTable, 20, 'Mathura')
insert(HashTable, 9, 'Delhi')
insert(HashTable, 21, 'Punjab')
insert(HashTable, 21, 'Noida')

display_hash (HashTable)
```

Output:

```
0 --> Allahabad --> Mathura
1 --> Punjab --> Noida
2
3
4
5 --> Mumbai
6
7
8
9 --> Delhi
```