WEEK – 3 **DATE: 20-10-2021**

1. **Write a program to implement Radix sort (prerequisite is Counting sort)**

AIM: A program to implement Radix sort.

PROGRAM:

```
def count_sort(l,exp):
    n=len(l)
    output=[0]*(n)
    count=[0]*(10)
    for i in range(n):
        index=l[i]//exp
        count[index%10]+=1
    for i in range(1,10):
        count[i]+=count[i-1]
    i=n-1
    while i>=0:
        index=l[i]//exp
        output[count[index%10]-1]=l[i]
        count[index%10]-=1
        i-=1
    for i in range(n):
        l[i]=output[i]
def radix_sort(l):
    max_l=max(l)
    exp=1
    count=0
    while max_l>0:
        count+=1
        max_l=max_l//10
    for i in range(count):
        count_sort(l,exp)
        exp*=10
        print(l)
l=[]
```

```
n=int(input("Enter the no of elements required: "))

print("Enter the elements: ")

for i in range(n):

   l.append(int(input()))

radix_sort(l)

print("The sorted list is:",l)
```

OUTPUT:

```
Enter the no of elements required: 9
Enter the elements:
12
251
573
1834
456
679
235
768
25718
[251, 12, 573, 1834, 235, 456, 768, 25718, 679]
[12, 25718, 1834, 235, 251, 456, 768, 573, 679]
[12, 235, 251, 456, 573, 679, 25718, 768, 1834]
[12, 235, 251, 456, 573, 679, 768, 1834, 25718]
[12, 235, 251, 456, 573, 679, 768, 1834, 25718]
The sorted list is: [12, 235, 251, 456, 573, 679, 768, 1834, 25718]
>>>
```