**ROLL NO:-45**

**NAME : Harshit Atul Chilvirwar**

**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF RADIX SORT**

#include "iostream.h"

#include "conio.h"

#include "stdlib.h"

class LIST

{

int \*A,size;

public:

LIST(int);

void SET\_LIST();

void VIEW\_LIST();

void RADIX\_SORT();

};

LIST::LIST(int par)

{

size=par;

A =new int[size+1];

}

void LIST::SET\_LIST()

{

for(int i=1;i<=size;i++)

A[i]=random(77);

}

void LIST::VIEW\_LIST()

{

cout<<"List elements are : ";

for(int i=1;i<=size;i++)

cout<<A[i]<<" ";

}

void LIST::RADIX\_SORT()

{

int \*\*QUE, \*F,\*R;

QUE = new int\* [10];

for(int i=1;i<=size;i++)

QUE[i]=new int[size];

F =new int[10];

R =new int[10];

int d=1;

for(i=1;i<=5;i++)

{

for(int l=0;l<=9;l++)

{

F[l]=0;

R[l]=0;

}

for(int j=1;j<=size;j++)

{

int k=(A[j]/d)%10;

if(F[k]==0)

F[k]=1;

R[k]=R[k]+1;

QUE[k][R[k]]=A[j];

}

j=1;

for(int qn=0;qn<=9;qn++)

{

if(F[qn] != 0)

for(int m=F[qn]; m<=R[qn];m++)

{

A[j]= QUE[qn][m];

j=j+1;

}

}

d=d\*10;

}

}

void main()

{

int n;

clrscr();

cout<<"\n Enter size of array : ";

cin>>n;

LIST obj(n);

obj.SET\_LIST();

cout<<endl<<"List before sorting : \n";

obj.VIEW\_LIST();

obj.RADIX\_SORT();

cout<<endl<<"List after sorting : \n";

obj.VIEW\_LIST();

getch();

}