//Program to Implement Circular Queue - Visakh Bobby - S3R2 - 34

#include<stdio.h>

#include<stdlib.h>

int F=-1,R=-1; //Front and Rear end of Circular Queue is initialized to value -1.

int N;

int CQ[100];

void CQInsert(int item)

{

//Insertion from the Rear End

  if((F==0 && R==N-1)|| F==R+1 )

  {

    printf("Circular Queue Overflow , no element can be inserted\n");

    return;

  }

  if( F==-1 )// if queue is empty & element is inserted for the first time

{

F=R=0;

}

  else if(R==N-1) // Rear is at the end

    R=0;

  else

    R=R+1;

   CQ[R] = item;

    printf("Element %d is inserted to Circular Queue\n",item);

  //if first element is being entered , initialize F=0 from F=-1 as CQ is not empty anymore

}

void CQDel()

{

  //Deletion From The Front End.

  if(F==-1)

  {

    printf("Circular Queue Underflow , No Element Is Present \n");

    return;

  }

  printf("Element %d is deleted from Circular Queue\n",CQ[F]);

  if(F==R) //both the F & R at the same position , only one element is there in the array

    F=R=-1;

  else if(F==N-1)

    F=0; //reset to first space.

  else

    F=F+1;

}

void CQPrint()

{

if(F==-1)

  {

printf("Circular Queue Underflow , No element present inside Queue\n");

  return;

  }

  printf("The Ciucular Queue Elements:\n");

  if(R>F)

  {

    for(int i=F;i<=R;i++)

    printf("%d\t",CQ[i]);

  }

  else

  {

    for(int i=F;i<=N-1;i++)

      printf("%d\t",CQ[i]);

    for(int i=0;i<=R;i++)

      printf("%d\t",CQ[i]);

  }

  printf("\n");

}

void main()

{

int Item;//element to be inserted

int ch=1;

printf("Enter the Maximum Number Of Elements\n");

scanf("%d",&N);

while(ch>=1 && ch<=3)

{

printf("Enter your choice:\n");

printf("1. Circular Queue Insert\n");

printf("2. Circular Queue Delete\n");

printf("3. Circular Queue Display\n");

printf("4. Exit\n");

scanf("%d" , &ch);

   switch(ch)

   {

     case 1 : printf("Enter the item to be inserted\n");

     scanf("%d" , &Item);

         CQInsert(Item);

         break;

     case 2 : CQDel();

     break;

     case 3 : CQPrint();

     break;

     case 4 : exit(0);

     default : printf("Invalid choice\n");

   }

}

} //end of void main

**Output of Code:**



