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1B21CS254

Q: Circular queue

Code:-

```
#include <stdio.h>
int queue[20],front=-1,rear=-1,size=4,x;
void insert(){
   if((rear==(size-1)&&(front==0))||(front==rear+1)){
      printf("queue is full\n");
      return;
   }
   else{
      if(front==-1 && rear==-1){
         front++;
         rear++;
         printf("enter the value to insert\n");
         scanf("%d",&x);
         queue[rear]=x;
         return;
      }
      else{
         rear=(rear+1)%size;
         printf("enter the value to insert\n");
         scanf("%d",&x);
```

```
            queue[rear]=x;
            return;
        }
    }
}
void delete(){
    if((front==-1 && rear==-1)||(front==rear)){
        printf("empty queue\n");
        return;
    }
    else{
        x=queue[front];
        front=(front+1)%size;
        printf("deleted: %d\n",x);
        return;
    }
}
void display(){
    if((front==-1 && rear==-1)||(front==rear)){
        printf("empty queue\n");
        return;
    }
    else{
        printf("printing queue elements\n");
        if(front<rear){
            for(int i=front;i<=rear;i++){
                printf("%d\n",queue[i]);
            }
```

```
        }
        else{
            for(int i=0;i<=rear;i++){
                printf("%d\n",queue[i]);
            }
            for(int i=front;i<size;i++){
                printf("%d\n",queue[i]);
            }
        }
    }
}
int main(){
    printf("circular queue implementation\n");
    printf("1.insert\n2.delete\n3.display\n4.exit\n");
    int choice;
    do{
        printf("enter choice\n");
        scanf("%d",&choice);
        switch(choice){
            case(1):
                insert();
                break;
            case(2):
                delete();
                break;
            case(3):
                display();
                break;
```

```
        case(4):
            printf("exited");
            exit(0);
        default:
            printf("enter correct choice\n");
            break;
      }
   }while(choice!=4);
   return 0;
}
```

Output:-

```
linear queue implementation
1.insert
2.delete
3.display
4.exit
enter choice
1
enter the value to insert
20
enter choice
1
enter the value to insert
25
enter choice
1
enter the value to insert
23
enter choice
2
deleted: 20
enter choice
3
printing queue elements
25
23
enter choice
4
exited
Process returned 0 (0x0)   execution time : 16.059 s
Press any key to continue.
```