**Practical:- 13**

**Problem Statement:-** Pizza parlor accepting maximum M orders. Orders are served in first come first served basis. Order once placed cannot be cancelled. Write C++ program to simulate the system using circular queue using array..

**Program:-**

#include<iostream>

#include<cstdlib>

using namespace std;

class pizza

{

 int front,rear,q[5];

 public:

 pizza()

 {

 front=-1;

 rear=-1;

 }

 int isfull()

 {

if((front==0&&rear==4)||front==rear+1)

 {

 return 1;

 }

else

{

 return 0;

 }

 }

 int isempty()

 {

 if(front==-1&&rear==-1)

 {

 return 1;

 }

 else

{

 return 0;

 }

 }

 void add()

 {

 if(isfull()==0)

 {

 cout<<"\n Enter the Pizza ID: ";

 if(front==-1&&rear==-1)

 {

 front=0;

 rear=0;

 cin>>q[rear];

 }

 else

 {

 rear=(rear+1)%5;

 cin>>q[rear];

 }

 char c;

 cout<<" Do you want to add another order ? ";

 cin>>c;

 if(c=='y'||c=='Y')

 add();

 }

 else

 {

 cout<<"\n Orders are full ";

 }

 }

 void serve()

 {

 if(isempty()==0)

 {

 if(front==rear)

 {

 cout<<"\n Order served is : "<<q[front];

 front=-1;

 rear=-1;

 }

 else

 {

 cout<<"\n Order served is : "<<q[front];

 front=(front+1)%5;

 }

 }

 else

 {

 cout<<"\n Orders are empty ";

 }

 }

 void display()

 {

 if(isempty()==0)

 {

 for(int i=front;i!=rear;i=(i+1)%5)

 {

 cout<<q[i]<<"<- ";

 }

 cout<<q[rear];

 }

 else

 {

 cout<<"\n Orders are empty";

 }

 }

 void check()

 {

 int ch;

cout<<"\n\n \* \* \* \* PIZZA PARLOUR \* \* \* \* \n\n";

 cout<<"\n 1. Add a Pizza \n 2. Display the Orders \n 3. Serve a pizza \n 4. Exit \n Enter your choice : ";

 cin>>ch;

switch(ch)

{

 case 1:

 add();

break;

 case 2:

display();

 break;

 case 3:

serve();

 break;

 case 4:

exit(0);

 default:

 cout<<"Invalid choice ";

check();

 }

char ch1;

cout<<"\n Do you want to continue? ";

 cin>>ch1;

 if(ch1=='y'||ch1=='Y')

check();

 }

};

int main()

{

 pizza p1;

 p1.check();

 return 0;

}

**Output:**

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 1

Enter the Pizza ID: 123

Do you want to add another order ? y

Enter the Pizza ID: 234

Do you want to add another order ? n

Do you want to continue? y

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 2

123<- 234

Do you want to continue? y

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 3

Order served is : 123

Do you want to continue? y

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 3

Order served is : 234

Do you want to continue? y

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 3

Orders are empty

Do you want to continue? y

\* \* \* \* PIZZA PARLOUR \* \* \* \*

1. Add a Pizza

2. Display the Orders

3. Serve a pizza

4. Exit

Enter your choice : 4