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Roll No: 06

```
#include<stdio.h>
#define SIZE 3
//queue structure
struct queue
{
int values[SIZE];
int front;
int rear;
};
void enqueue(int);
int dequeue();
int isEmpty();
int isFull();
void display();
//glob
struct queue q;
int main()
{
q.front = -1;
q.rear = -1;
int user_choice, data;
```

```
char user_active = 'Y';

while (user_active == 'Y' || user_active == 'y')

{

printf("\n--------Queue Program------\n");

printf("\n1. Enqueue");

printf("\n2. Dequeue");

printf("\n3. Display");

printf("\n4. Exit");

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

scanf("%d", &user_choice);

switch(user_choice)

{

case 1:

printf("\nEnter Data: ");

scanf("%d", &data);

enqueue(data);

break;

case 2:

if (!isEmpty())

{

data = dequeue();

printf("\n* %d was removed!\n", data);

}

else
```

```
{
printf("\nQueue is Empty!\n");
}
break;
case 3:
display();
printf("\n");
break;
case 4:
printf("\n\tProgram was terminated!\n\n");
return 1;
default:
printf("\n\tInvalid Choice\n");
}
printf("\nDo You want to continue? ");
fflush(stdin);
scanf(" %c", &user_active);
}
return 0;
}
int isEmpty()
{
if (q.front == -1 || q.front > q.rear)
{
```

```
return 1;
}
return 0;
}
int isFull()
{
if (q.rear == SIZE - 1)
{
return 1;
}
return 0;
}
void enqueue(int data)
{
if (isFull())
{
printf("\nQueue is Full!\n");
return;
}
if (isEmpty())
{
q.front += 1;
}
q.rear += 1;
```

```
q.values[q.rear] = data;
printf("\n* %d was inserted!\n", data);
}
int dequeue()
{
if (!isEmpty())
{
int data = q.values[q.front];
q.front += 1;
return data;
}
}
void display()
{
if (isEmpty())
{
printf("\nQueue is Empty\n");
return;
}
printf("\n");
int begin = q.front;
while (begin <= q.rear)
{
printf("%d ", q.values[begin]);
```

```
begin += 1;

}

}
```

```
--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 1

Enter Data: 65

* 65 was inserted!

Do You want to continue? y

--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 1
```

```
Enter Data: 443

* 443 was inserted!

Do You want to continue? y

--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 1

Enter Data: 96

* 96 was inserted!

Do You want to continue? y
```

```
--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 3

65 443 96

Do You want to continue? y

--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 2

* 65 was removed!
```

```
--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 3

443 96

Do You want to continue? y

--------Queue Program------

1. Enqueue
2. Dequeue
3. Display
4. Exit

Enter your choice: 4

    Program was terminated!
```