DS LAB PROGRAM 4

```
4.# include<stdio.h>
# define MAX 5
int cqueue_arr[MAX];
int front = -1;
int rear = -1;
void insert(int item)
{
	if((front == 0 && rear == MAX-1) || (front == rear+1))
	{
		printf("Queue Overflow \n");
		return;
	}
	if (front == -1)
	{
		front = 0;
		rear = 0;
	}
	else
	{
		if(rear == MAX-1)
			rear = 0;
		else
			rear = rear+1;
	}
	cqueue_arr[rear] = item ;
}
void del()
{
	if (front == -1)
	{
		printf("Queue Underflow\n");
		return ;
	}
	printf("Element deleted from queue is : %d\n",cqueue_arr[front]);
	if(front == rear)
	{
		front = -1;
		rear=-1;
	}
	else
	{
		if(front == MAX-1)
			front = 0;
```

```
                else
                        front = front+1;
        }
}
void display()
{
        int front_pos = front,rear_pos = rear;
        if(front == -1)
        {
                printf("Queue is empty\n");
                return;
        }
        printf("Queue elements :\n");
        if( front_pos <= rear_pos )
                while(front_pos <= rear_pos)
                {
                        printf("%d ",cqueue_arr[front_pos]);
                        front_pos++;
                }
        else
        {
                while(front_pos <= MAX-1)
                {
                        printf("%d ",cqueue_arr[front_pos]);
                        front_pos++;
                }
                front_pos = 0;
                while(front_pos <= rear_pos)
                {
                        printf("%d ",cqueue_arr[front_pos]);
                        front_pos++;
                }
        }
        printf("\n");
}
int main()
{
        int choice,item;
        do
        {
                printf("1.Insert\n");
                printf("2.Delete\n");
                printf("3.Display\n");
                printf("4.Quit\n");
```

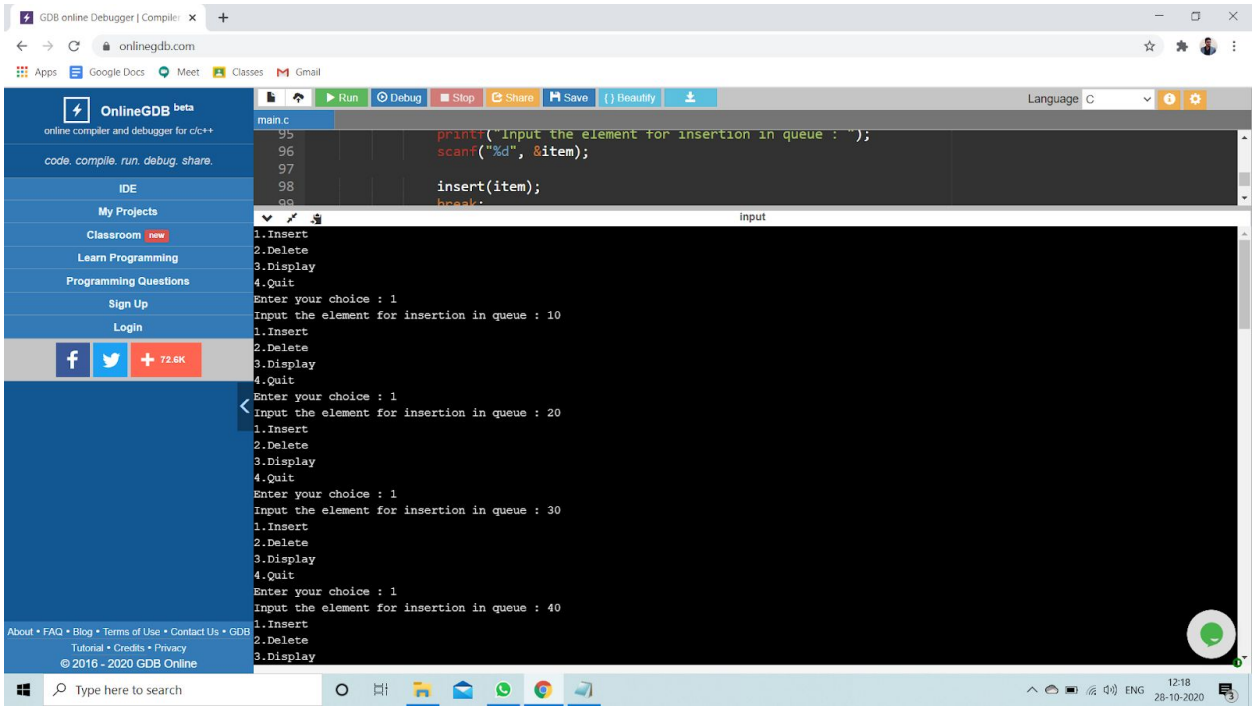
```
		printf("Enter your choice : ");
		scanf("%d",&choice);

		switch(choice)
		{
			case 1 :
				printf("Input the element for insertion in queue : ");
				scanf("%d", &item);

				insert(item);
				break;
			case 2 :
				del();
				break;
			case 3:
				display();
				break;
			case 4:
				break;
				default:
				printf("Wrong choice\n");
		}
	}while(choice!=4);

	return 0;
}
```

OUTPUT:-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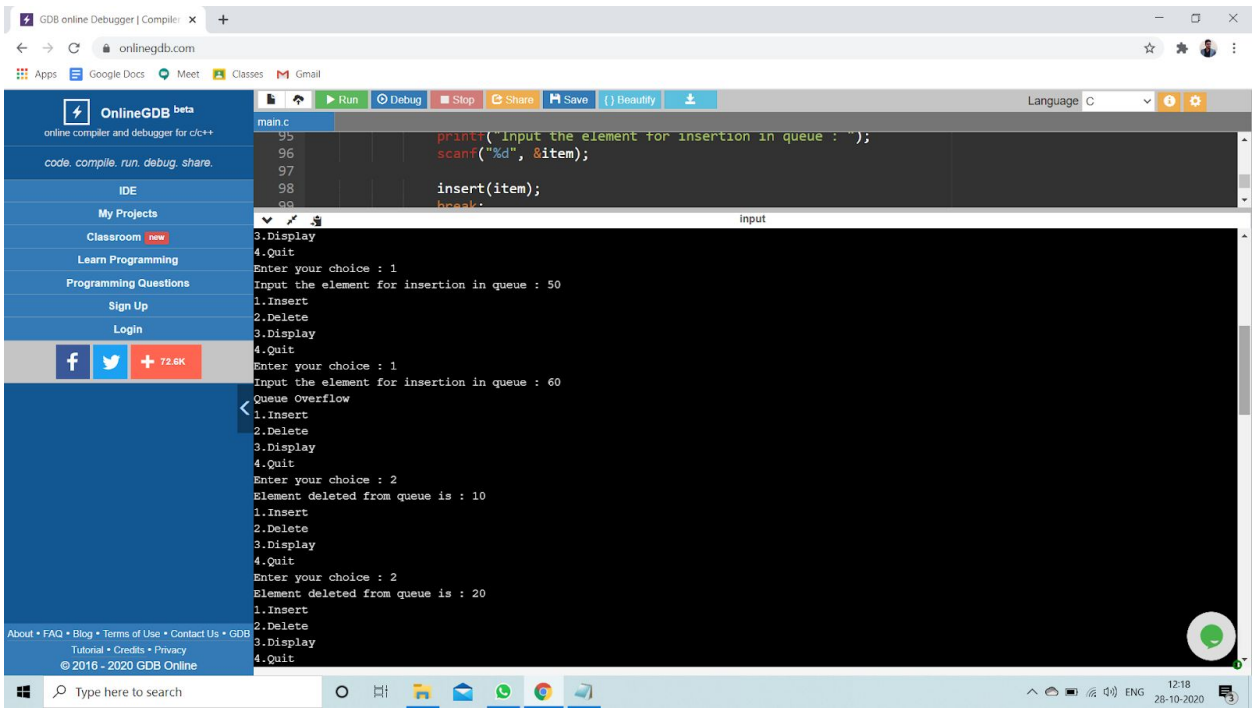
{ } Beautify
Language C
main.c
95 printf("Input the element for insertion in queue : ");
96 scanf("%d", &item);
97
98 insert(item);
99 break;
input
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 10
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 20
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 30
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 40
1.Insert
2.Delete
3.Display
Type here to search
ENG
12:18
28-10-2020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Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
95 printf("Input the element for insertion in queue : ");
96 scanf("%d", &item);
97
98 insert(item);
99 break;
input
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 50
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 60
Queue Overflow
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 2
Element deleted from queue is : 10
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 2
Element deleted from queue is : 20
1.Insert
2.Delete
3.Display
4.Quit
Type here to search
ENG
12:18
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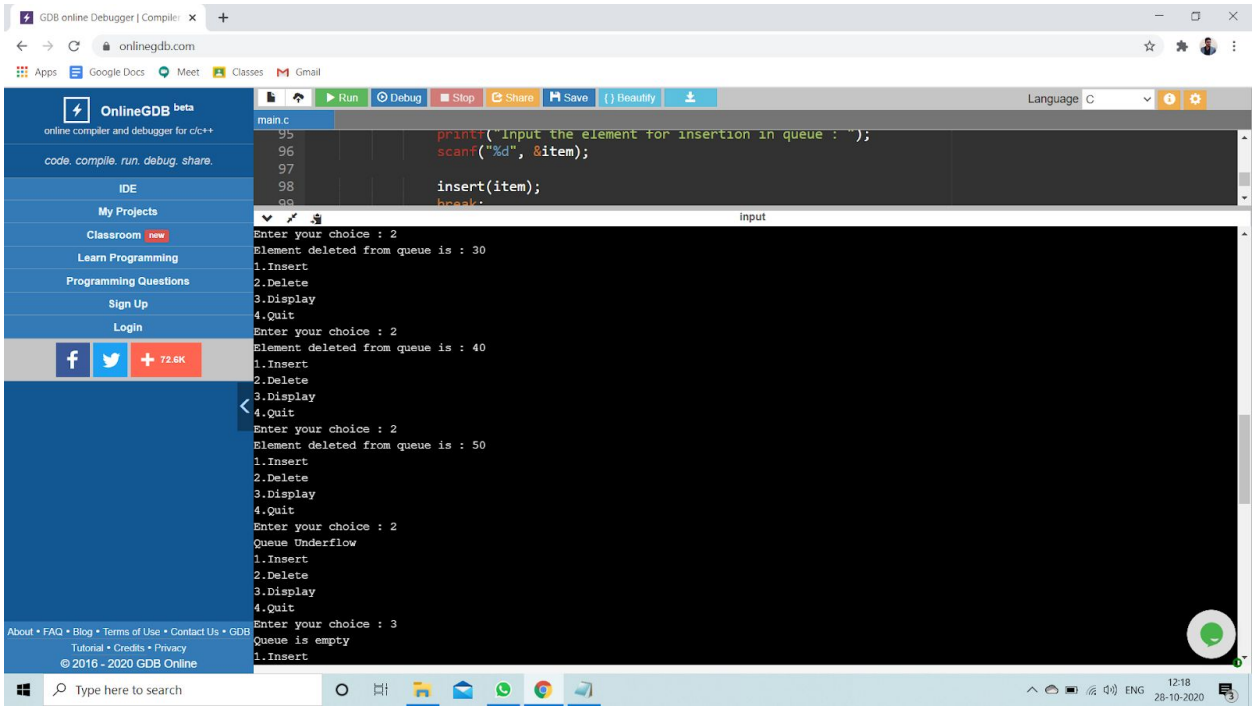
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Save
{ } Beautify
Language C
main.c
printf("Input the element for insertion in queue : ");
scanf("%d", &item);
insert(item);
input
Enter your choice : 2
Element deleted from queue is : 30
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 2
Element deleted from queue is : 40
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 2
Element deleted from queue is : 50
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 2
Queue Underflow
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 3
Queue is empty
1.Insert
Type here to search
ENG
12:18
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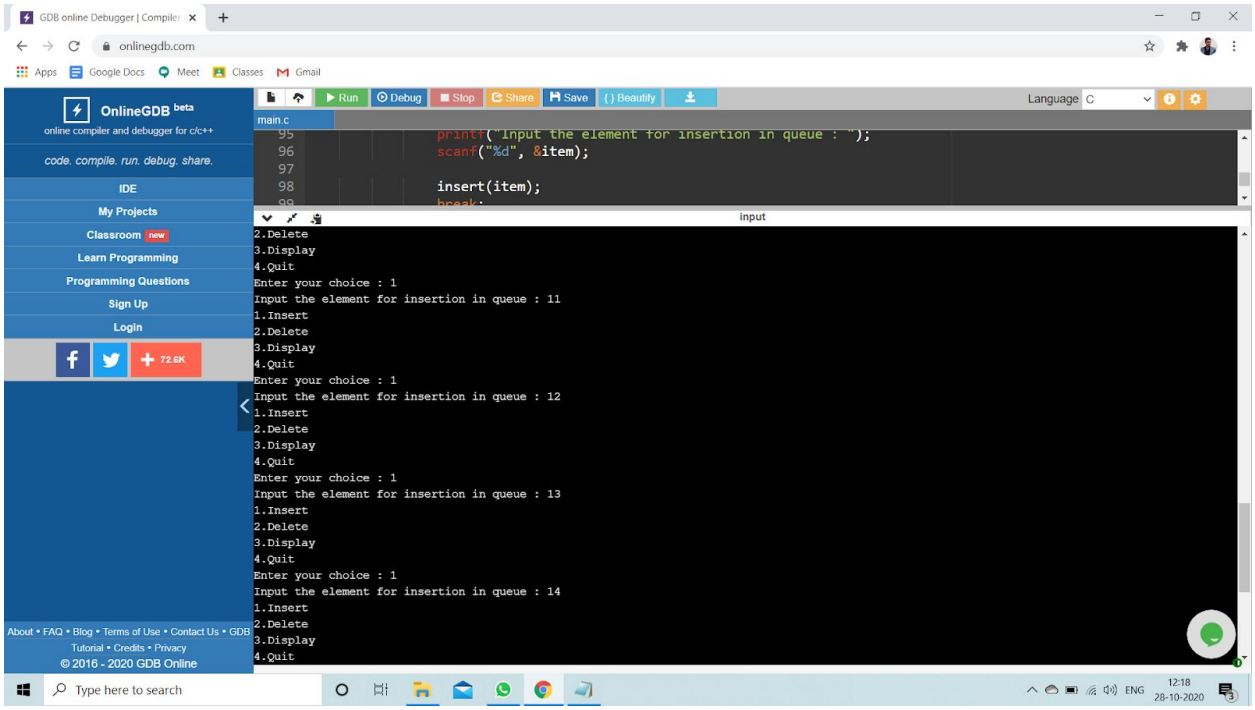
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Save
{ } Beautify
Language C
main.c
printf("Input the element for insertion in queue : ");
scanf("%d", &item);
insert(item);
input
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 11
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 12
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 13
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 14
1.Insert
2.Delete
3.Display
4.Quit
Type here to search
ENG
12:18
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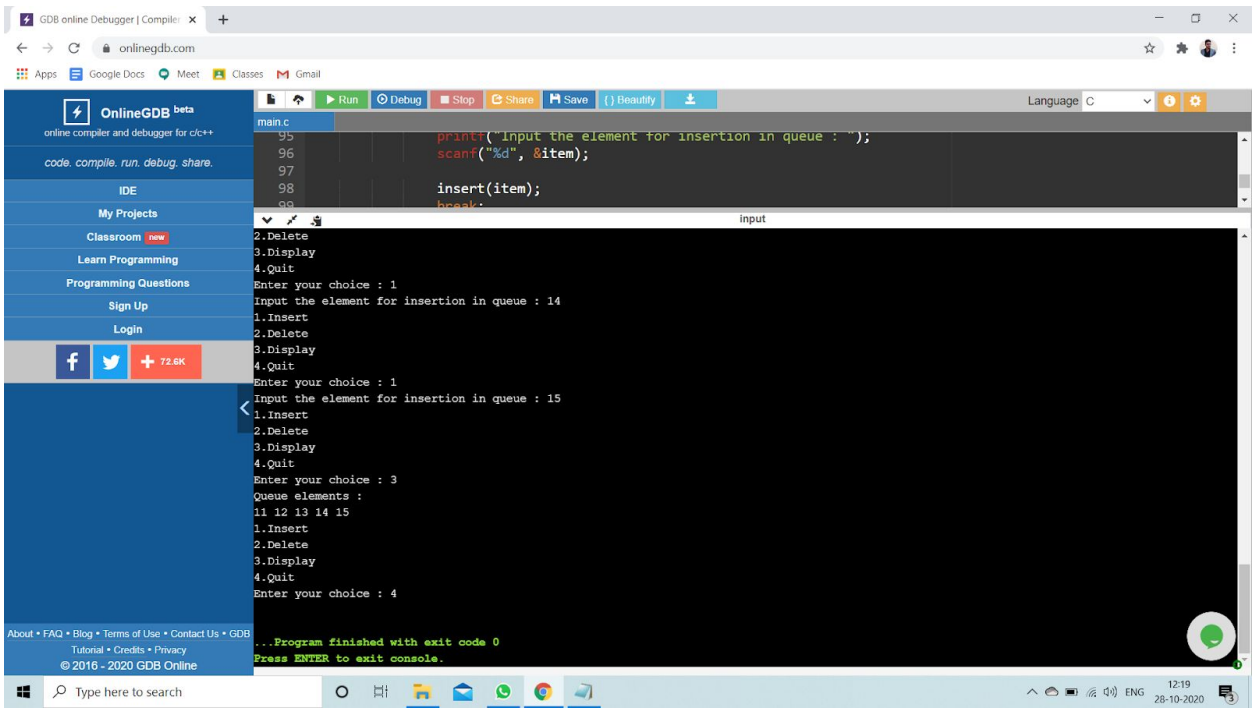
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Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
printf("Input the element for insertion in queue : ");
scanf("%d", &item);
insert(item);
input
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 14
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 1
Input the element for insertion in queue : 15
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 3
Queue elements :
11 12 13 14 15
1.Insert
2.Delete
3.Display
4.Quit
Enter your choice : 4
...Program finished with exit code 0
Press ENTER to exit console.
Type here to search
ENG
12:19
28-10-2020