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```
#include <stdio.h>
#include <stdlib.h>

#define MAX 10

typedef struct Queue
{
    int a[MAX];
    int front;
    int rear;
} queue;

void init(queue *q)
{
    q->front = 0;
    q->rear = -1;
}

int isEmpty(queue *q)
{
    return (q->rear == -1);
}

int isFull(queue *q)
{
    return (q->rear == MAX - 1);
}

void enqueue(queue *q, int ele)
```

```

{
    if (isFull(q))
        printf("Queue is Full\n");
    else
    {
        q->rear++;
        q->a[q->rear] = ele;
    }
}

void dequeue(queue *q)
{
    if (isEmpty(q))
        printf("Queue is Empty\n");
    else
    {
        for (int i = q->front; i < q->rear; ++i)
        {
            q->a[i] = q->a[i + 1];
        }
        q->rear--;
    }
}

void display(queue *q)
{
    for (int i = q->front; i <= q->rear; ++i)
        printf("%d\t", q->a[i]);
    printf("\n");
}

```

```
int main()
{
    queue q;
    int choice,ele;
    init(&q);
    do
    {
        printf("1:Display 2:Enqueue 3:Dequeue\n");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
                display(&q);
                break;
            case 2:
                printf("Enter a Element\n");
                scanf("%d", &ele);
                enqueue(&q, ele);
                break;
            case 3:
                dequeue(&q);
                break;
        }
    } while (choice < 4);

    return 0;
}
```

```
PS C:\Users\adith\Documents\C Programs> cd "c:\Us
1:Display 2:Enqueue 3:Dequeue
2
Enter a Element
34
1:Display 2:Enqueue 3:Dequeue
2
Enter a Element
654
1:Display 2:Enqueue 3:Dequeue
2
Enter a Element
244
1:Display 2:Enqueue 3:Dequeue
1
34      654      244
1:Display 2:Enqueue 3:Dequeue
3
1:Display 2:Enqueue 3:Dequeue
1
654      244
1:Display 2:Enqueue 3:Dequeue
█
```

Program 2:

```
#include <stdio.h>
#include <string.h>

#define MAX 5

typedef struct node
{
    char name[50];
    int case_no;
    int date;
    int time;
} node;

typedef struct queue
{
    node c[MAX];
    int front, rear;
} queue;

void init(queue *lq)
{
    lq->front = 0;
    lq->rear = -1;
    return;
}

int isfull(queue *lq)
{

```

```

    if (lq->rear == MAX - 1)
    {
        return 1;
    }
    return 0;
}

void add(queue *lq, char *na, int casen, int dat, int t)
{
    strcpy(lq->c[++lq->rear].name, na);
    lq->c[lq->rear].case_no = casen;
    lq->c[lq->rear].date = dat;
    lq->c[lq->rear].time = t;
}

void remove(queue *lq)
{
    if (lq->front > lq->rear)
    {
        printf("Empty Appointments\n");
        return;
    }
    printf("Cancelled Case %d\n", lq->c[lq->front++].case_no);
    return;
}

void display(queue *lq)
{
    if (lq->front == -1)
    {

```

```

        printf("Empty Appointments\n");
        return;
    }
    if (lq->front > lq->rear)
    {
        printf("Empty Appointments\n");
        return;
    }
    for (int i = lq->front; i <= lq->rear; i++)
    {
        printf("Name : %s\n", lq->c[i].name);
        printf("Case : %d\n", lq->c[i].case_no);
        printf("Date and Time : %d %d", lq->c[i].date, lq->c[i].time);
        printf("\n");
        printf("\n");
    }
    return;
}

int main()
{
    queue q;
    int n, case_no, date, time;
    char name[50];
    init(&q);
    do
    {
        printf("1.Book 2.Display 3.Cancel Appointment");
        scanf("%d", &n);
    }

```

```

switch (n)
{
    printf("\n");
case 1:
    if (isfull(&q))
    {
        printf("No slot available\n");
        break;
    };
    printf("Enter name: ");
    scanf("%s", name);
    printf("Enter case number: ");
    scanf("%d", &case_no);
    printf("Enter date and time: ");
    scanf("%d %d", &date, &time);
    add(&q, name, case_no, date, time);
    break;
case 2:
    display(&q);
    break;
case 3:
    remove(&q);
    break;
}
printf("\n");
} while (n< 4);
}

```



```
PS C:\Users\adith\Documents\C Programs> cd "c:\Users\adith\Doc
```

```
1.Book 2.Display 3.Cancel Appointment1
```

```
Enter name: Adithya
```

```
Enter case number: 345
```

```
Enter date and time: 34 555
```

```
1.Book 2.Display 3.Cancel Appointment1
```

```
Enter name: hehe
```

```
Enter case number: 6969
```

```
Enter date and time: 33 66
```

```
1.Book 2.Display 3.Cancel Appointment2
```

```
Name : Adithya
```

```
Case : 345
```

```
Date and Time : 34 555
```

```
Name : hehe
```

```
Case : 6969
```

```
Date and Time : 33 66
```

```
1.Book 2.Display 3.Cancel Appointment3
```

```
Cancelled Case 345
```

```
1.Book 2.Display 3.Cancel Appointment2
```

```
Name : hehe
```

```
Case : 6969
```

```
Date and Time : 33 66
```

```
1.Book 2.Display 3.Cancel Appointment
```