```c
/*
  TITLE:ARRAY IMPLEMENTATION OF LINEAR QUEUE
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  SUBJECT: DS
  DATE: 26/8/19
  DISCRIPTION: In this Program a linaer queue is created to store, search the location of data in queue, delete and display the data through the instructions given by the user.
*/

#include<stdio.h>
#include<stdlib.h>
#define MAX 5

struct Queue
{
    int data[MAX];
    int Front,Rear;
};

void initialize (struct Queue *q)
{
    q->Rear=q->Front=-1;
}

int isEmpty(struct Queue *q)
{
    return (q->Front=q->Rear==-1);
}

int isFull(struct Queue *q)
{
    return (q->Rear==(MAX-1)?1:0);
}

int Insert(struct Queue *q,int d)
{
    if(isFull(q))
    return 0;
    q->data[++q->Rear]=d;
    if(q->Front==-1)
    q->Front=0;
    return 1;
}

void Display(struct Queue *q)
{
    int i;
    if(isEmpty(q))
    printf("\n\t Queue is Empty!");
    else
    {
        printf("\n Queue contents are:\n");
        printf("\n Queue Size : %d\n Front : %d\n Rear :%d\n",MAX,q->Front,q->Rear);
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        for(i=q->Front;i<=q->Rear;i++)
        {
            printf("%d\n",q->data[i]);
        }
    }
}

int Delete(struct Queue *q)
{
    int d;
    d=q->data[q->Front];
    if(q->Front==q->Rear)
    q->Front=q->Rear=-1;
    else
    q->Front++;
    return d;
}

int Search(struct Queue *q,int k)
{
    int i=0;
    for(i=q->Front;i<=q->Rear;i++)
    if(q->data[i]==k)
    return i;
    return -1;
}

int main()
{
    int ch,d;
    struct Queue q;
    initialize(&q);
    while(1)
    {
        printf("\n\t\t\tMENU\n1.INSERT\n2.DLELETE\n3.SEARCH\n4.DISPLAY\n0.EXIT\n");
    printf("ENTER YOUR CHOICE: ");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1:
            printf("ENTER DATA TO BE INSERTED: ");
            scanf("%d",&d);
            Insert(&q,d);
            printf("\n DATA INSERTION SUCCESFULLY!");
            break;

            case 2:
            if(isEmpty(&q))
            printf("\n QUEUE IS EMPTY!");
            else
            printf("\n DELETED ELEMENT IS: %d",Delete(&q));
            break;

            case 3:
            printf("\n ENTER THE ELEMENT FOR SEARCH: ");
            scanf("%d",&d);
```

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111                 d=Search(&q,d);
112                 if(d==-1)
113                 printf("\n QUEUE IS EMPTY!\n");
114                 else
115                 printf("THE ELEMENT SEARCHED IS: %d",d);
116                 break;
117 
118                 case 4:
119                 Display(&q);
120                 break;
121 
122                 case 0:
123                 exit(0);
124                 break;
125 
126 
127                 default:
128                 printf("ENTER A VALID CHOICE");
129             }
130         }
131     }
132 
133 
134 
```