#include <stdio.h>

# define max 6

**int** queue[max];  // array declaration

**int** front=-1;

**int** rear=-1;

// function to insert an element in a circular queue

**void** enqueue(**int** element)

{

**if**(front==-1 && rear==-1)   // condition to check queue is empty

{

front=0;

rear=0;

queue[rear]=element;

}

**else** **if**((rear+1)%max==front)  // condition to check queue is full

{

printf("Queue is overflow..");

}

**else**

{

rear=(rear+1)%max;       // rear is incremented

queue[rear]=element; // assigning a value to the queue at the rear position.

}

}

// function to delete the element from the queue

**int** dequeue()

{

**if**((front==-1) && (rear==-1))  // condition to check queue is empty

{

 printf("\nQueue is underflow..");

}

**else** **if**(front==rear)

{

printf("\nThe dequeued element is %d", queue[front]);

front=-1;

 rear=-1;

}

**else**

{

printf("\nThe dequeued element is %d", queue[front]);

front=(front+1)%max;

}

}

// function to display the elements of a queue

**void** display()

{

**int** i=front;

**if**(front==-1 && rear==-1)

{

        printf("\n Queue is empty..");

    }

**else**

  {

 printf("\nElements in a Queue are :");

**while**(i<=rear)

{

 printf("%d,", queue[i]);

 i=(i+1)%max;

}

}

}

**int** main()

{

**int** choice=1,x;   // variables declaration

**while**(choice<4 && choice!=0)   // while loop

{

printf("\n Press 1: Insert an element");

 printf("\nPress 2: Delete an element");

printf("\nPress 3: Display the element");

printf("\nEnter your choice");

scanf("%d", &choice);

**switch**(choice)

{

**case** 1:

printf("Enter the element which is to be inserted");

scanf("%d", &x);

enqueue(x);

**break**;

**case** 2:

dequeue();

**break**;

**case** 3:

display();

    }

}

**return** 0;

}

**Output:**

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

1

Enter the element which is to be inserted

10

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

1

Enter the element which is to be inserted

20

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

1

Enter the element which is to be inserted

30

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

1

Enter the element which is to be inserted

40

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

3

The elements in queue are: 10,20,30,40

Press 1: Insert an element

Press 2: Insert an element

Press 3: Display the element

Enter your Choice

2

The dequeued element is 10