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*\* C Program to Implement a Queue using an Array*

*\*/*

#include <stdio.h>

#define MAX 50

int queue\_array[MAX];

int rear = - 1;

int front = - 1;

main()

{

int choice;

while (1)

{

printf("1.Insert element to queue **\n**");

printf("2.Delete element from queue **\n**");

printf("3.Display all elements of queue **\n**");

printf("4.Quit **\n**");

printf("Enter your choice : ");

scanf("%d", &choice);

switch (choice)

{

case 1:

insert();

**break**;

case 2:

delete();

**break**;

case 3:

display();

**break**;

case 4:

exit(1);

default:

printf("Wrong choice **\n**");

} */\*End of switch\*/*

} */\*End of while\*/*

} */\*End of main()\*/*

insert()

{

int add\_item;

if (rear == MAX - 1)

printf("Queue Overflow **\n**");

else

{

if (front == - 1)

*/\*If queue is initially empty \*/*

front = 0;

printf("Inset the element in queue : ");

scanf("%d", &add\_item);

rear = rear + 1;

queue\_array[rear] = add\_item;

}

} */\*End of insert()\*/*

delete()

{

if (front == - 1 || front > rear)

{

printf("Queue Underflow **\n**");

return ;

}

else

{

printf("Element deleted from queue is : %d**\n**", queue\_array[front]);

front = front + 1;

}

} */\*End of delete() \*/*

display()

{

int i;

if (front == - 1)

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

else

{

printf("Queue is : **\n**");

for (i = front; i <= rear; i++)

printf("%d ", queue\_array[i]);

printf("**\n**");

}

} */\*End of display() \*/*

**Runtime Test Cases**

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 1

Inset the element in queue : 10

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 1

Inset the element in queue : 15

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 1

Inset the element in queue : 20

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 1

Inset the element in queue : 30

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 2

Element deleted from queue is : 10

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 3

Queue is :

15 20 30

1.Insert element to queue

2.Delete element from queue

3.Display all elements of queue

4.Quit

Enter your choice : 4