Assignment No 12

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Queues are frequently used in computer programming, and a typical example is the creation of a job queue by an operating system.

If the operating system does not use priorities, then the jobs are processed in the order they enter the system.

Write C++ program for simulating job queue. Write functions to add job and delete job from queue.

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#include <iostream>

#define MAX 10

using namespace std;

struct queue

{

int data[MAX];

int front, rear;

};

class Queue

{

struct queue q;

public:

Queue() { q.front = q.rear = -1; }

int isempty();

int isfull();

void enqueue(int);

int delqueue();

void display();

};

int Queue::isempty()

{

return (q.front == q.rear) ? 1 : 0;

}

int Queue::isfull()

{

return (q.rear == MAX - 1) ? 1 : 0;

}

void Queue::enqueue(int x)

{

q.data[++q.rear] = x;

}

int Queue::delqueue()

{

return q.data[++q.front];

}

void Queue::display()

{

int i;

cout << "\n";

for (i = q.front + 1; i <= q.rear; i++)

cout << q.data[i] << " ";

}

int main()

{

Queue obj;

int ch, x;

do

{

cout << "\n 1.Insert Job\n 2.Delete Job\n 3.Display\n 4.Exit\n Enter your choice : ";

cin >> ch;

switch (ch)

{

case 1:

if (!obj.isfull())

{

cout << "\n Enter data : \n";

cout<<"\nEnter the number of jobs you want to enter : "<<endl;

int n;

cin>>n;

cout<<"\nEnter the Jobs : "<<endl;

for(int i=0;i<n;i++)

{

cin >> x;

obj.enqueue(x);

}cout << endl;

}

else

cout << "Queue is overflow!!!\n\n";

break;

case 2:

if (!obj.isempty())

cout << "\n Deleted Element = " << obj.delqueue() << endl;

else

{

cout << "\n Queue is underflow!!!\n\n";

}

cout << "\nRemaining Jobs : \n";

obj.display();

break;

case 3:

if (!obj.isempty())

{

cout << "\n Queue contains : \n";

obj.display();

}

else

cout << "\n Queue is empty!!!\n\n";

break;

case 4:

cout << "\n Exiting Program.....";

}

} while (ch != 4);

return 0;

}

Output :

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 1

Enter data :

Enter the number of jobs you want to enter :

5

Enter the Jobs :

7

6

4

9

5

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 2

Deleted Element = 7

Remaining Jobs :

6 4 9 5

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 3

Queue contains :

6 4 9 5

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 4

Exiting Program.....