

```
#include <iostream>

#define MAX 20

using namespace std;

struct Queue {
    int head, tail, data[MAX];
}Queue;

bool isFull() {
    return Queue.tail == MAX;
}

bool isEmpty() {
    return Queue.tail == 0;
}

void printQueue() {
    if (isEmpty()) {
        cout << "Antrian kosong"<<endl;
    }
    else {
        cout << "QUEUE : ";
        for (int i = Queue.head; i < Queue.tail; i++)
            cout << Queue.data[i] << " ";
        cout << endl;
    }
}

void enqueue() {
    if (isFull())
    {
```

```

        cout << "Antrian penuh!"<<endl;
    }
    else {
        int data;
        cout << "Masukkan Data : ";cin >> data;
        Queue.data[Queue.tail] = data;
        Queue.tail++;
        cout << "Data ditambahkan\n";
        printQueue();
    }
}

```

```

void oprasidata(int pill){

```

```

    int jum=0;

```

```

    int b=Queue.tail+1;

```

```

    float avg;

```

```

    if(isEmpty()==0){

```

```

        for(int i=Queue.head;i<=Queue.tail;i++){

```

```

            jum=jum+Queue.data[i];

```

```

        }

```

```

        avg=jum/b;

```

```

        switch(pill){

```

```

            case 1:

```

```

                cout<<"jumlah datanya ="<<jum;

```

```

                break;

```

```

            case 2:

```

```

                cout<<"Rata-rata datanya ="<<avg;

```

```

                break;

```

case 3:

```
cout<<"banyak datanya ="<<Queue.tail+1;
```

```
break;
```

```
default:
```

```
break;
```

```
}
```

```
}else{
```

```
cout<<"data kosong!\n";
```

```
}
```

```
}
```

```
void dequeue() {
```

```
    if (isEmpty())
```

```
    {
```

```
        cout << "Antrian masih kosong"<<endl;
```

```
    }
```

```
    else{
```

```
        cout << "Mengambil data \"\" << Queue.data[Queue.head] << "\"...\" << endl;
```

```
        for (int i = Queue.head; i < Queue.tail; i++)
```

```
            Queue.data[i] = Queue.data[i + 1];
```

```
            Queue.tail--;
```

```
            printQueue();
```

```
    }
```

```
}
```

```
void clear(){
```

```
    Queue.tail=Queue.head=-1;
```

```
    cout<<"Data dihapus";
```

```
}
```

```
int main() {
```

```

int choose;

do
{
    cout << "-----\n"
        << "  Menu Pilihan\n"
        << "-----\n"
        << " [1] Enqueue \n"
        << " [2] Dequeue\n"
        << " [3] Display\n"
        << " [4] Clear\n"
        << " [5] Banyak Data\n"
        << " [6] Jumlah Data\n"
        << " [7] Rata rata\n"
        << " [8] Keluar \n\n"
        << "-----\n"
        << "Masukkan pilihan : "; cin >> choose;

    switch (choose)
    {
    case 1:
        enqueue();
        break;

    case 2:
        dequeue();
        break;

    case 3:
        printQueue();
        break;

    case 4:
        clear();
        break;

    case 5:

```

```
        operasidata(3);
        break;
case 6:
        operasidata(1);
        break;
case 7:
        operasidata(2);
        break;
case 8:
        dequeue();
        break;
default:
        cout << "Pilihan tidak tersedia";
        break;
    }
} while (choose !=8);
return 0;
}
```