LAB 4 : QUEUE.

1. Create a program that prompts the user to enter 2 persons' details. Each details contains: person name and person favorite ice cream flavor. For each record, append the record to the queue. Upon completion, the program must reveal the name and personality of the person based on the ice cream flavor that he/she choose.
   - Define the structure **Person**.
   - Define the **ADTqueue** class. (You can refer to note)
   - In **main**,
     - Create object **p** for **Person** struct.
     - create object **q** for **ADTqueue** class.
     - Get input from user
       - name (type char, size 50)
       - ice-cream flavor (type int)
         - 1=chocolate
         - 2=vanilla
         - 3=strawberry
         - 4=mixed flavor
     - After get person's record, add it into queue. (you may use loop)
     - After add all records to the queue, remove each record from the queue and display analyzed character from the flavor that they had been choose. (you may use loop)
       - If **1** had chosen, display "**Sensitive and often daydreaming about past and future**."
       - If **2** had chosen, display "**Friendly, easygoing and has many friends."**
       - If **3** had chosen, display "**Affectionate, giving, loving and very understanding."**
       - If **4** had chosen, display "**Negotiator and will do anything to avoid open conflict."**

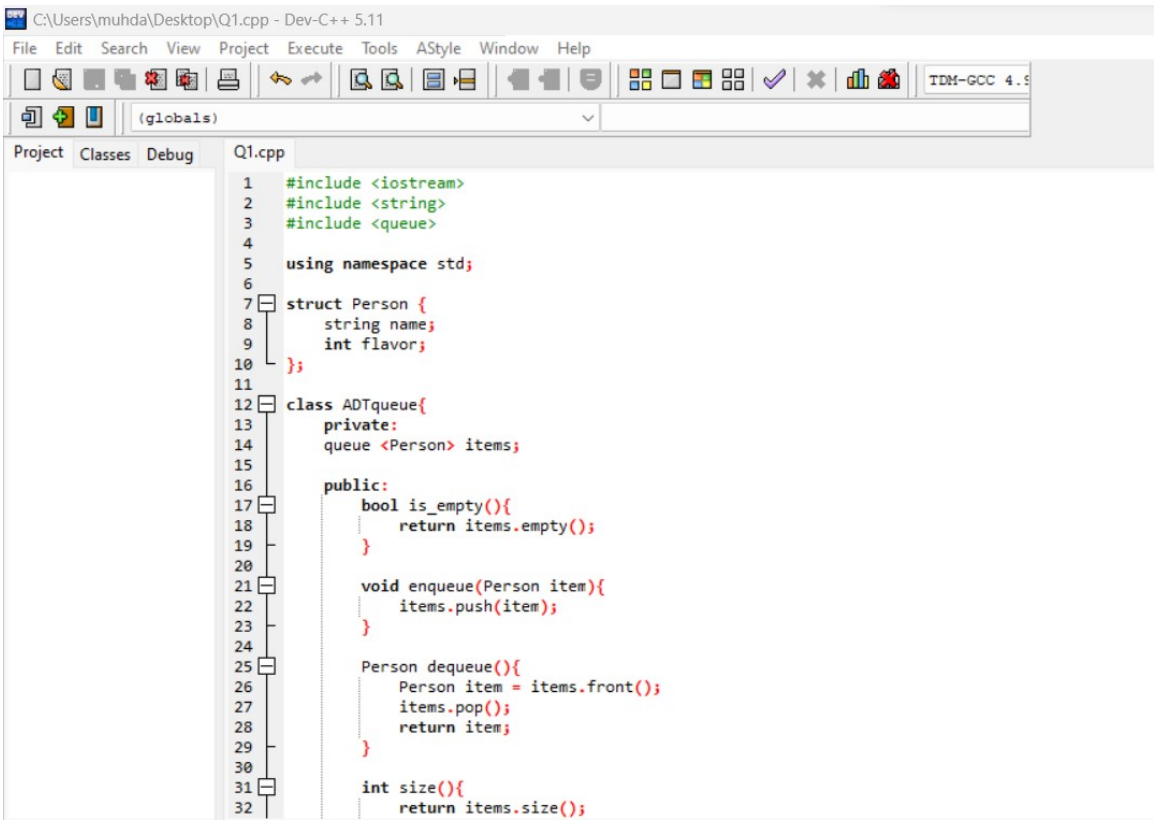
Sample Output:

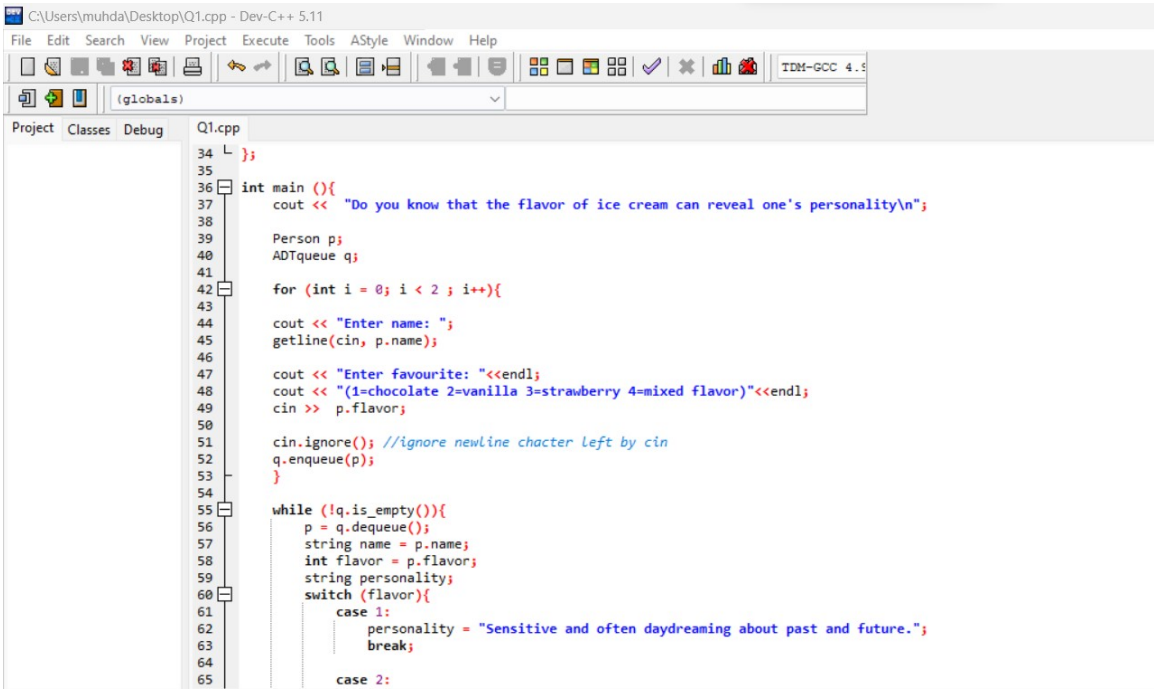
```
Do you know that the flavor of ice cream can reveal one's personality?

Enter name:Peter
Enter favorite flavor:
(1=chocolate  2=vanilla  3=strawberry  4=mixed flavor)
2

Enter name:Megan
Enter favorite flavor:
(1=chocolate  2=vanilla  3=strawberry  4=mixed flavor)
1

Peter       Friendly, easygoing and has many friends.
Megan       Sensitive and often daydreaming about past and future.
```


C:\Users\muhda\Desktop\Q1.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug
Q1.cpp
#include <iostream>
#include <string>
#include <queue>
using namespace std;
struct Person {
string name;
int flavor;
};
class ADTqueue{
private:
queue <Person> items;
public:
bool is_empty(){
return items.empty();
}
void enqueue(Person item){
items.push(item);
}
Person dequeue(){
Person item = items.front();
items.pop();
return item;
}
int size(){
return items.size();


C:\Users\muhda\Desktop\Q1.cpp - Dev-C++ 5.11
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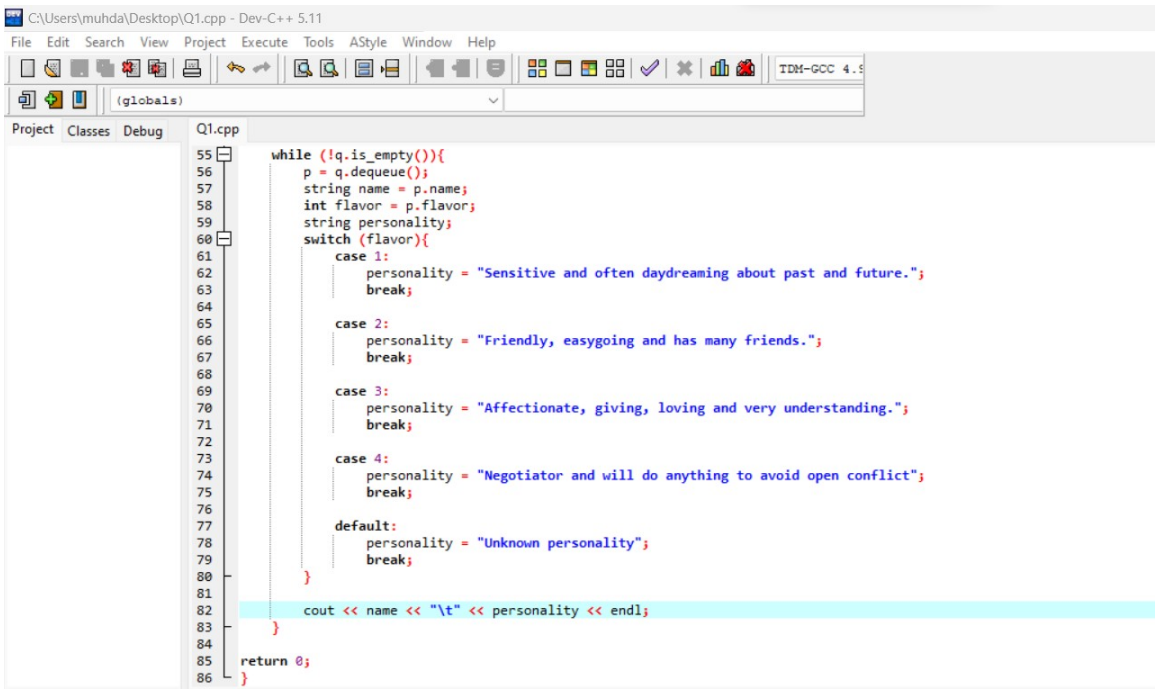
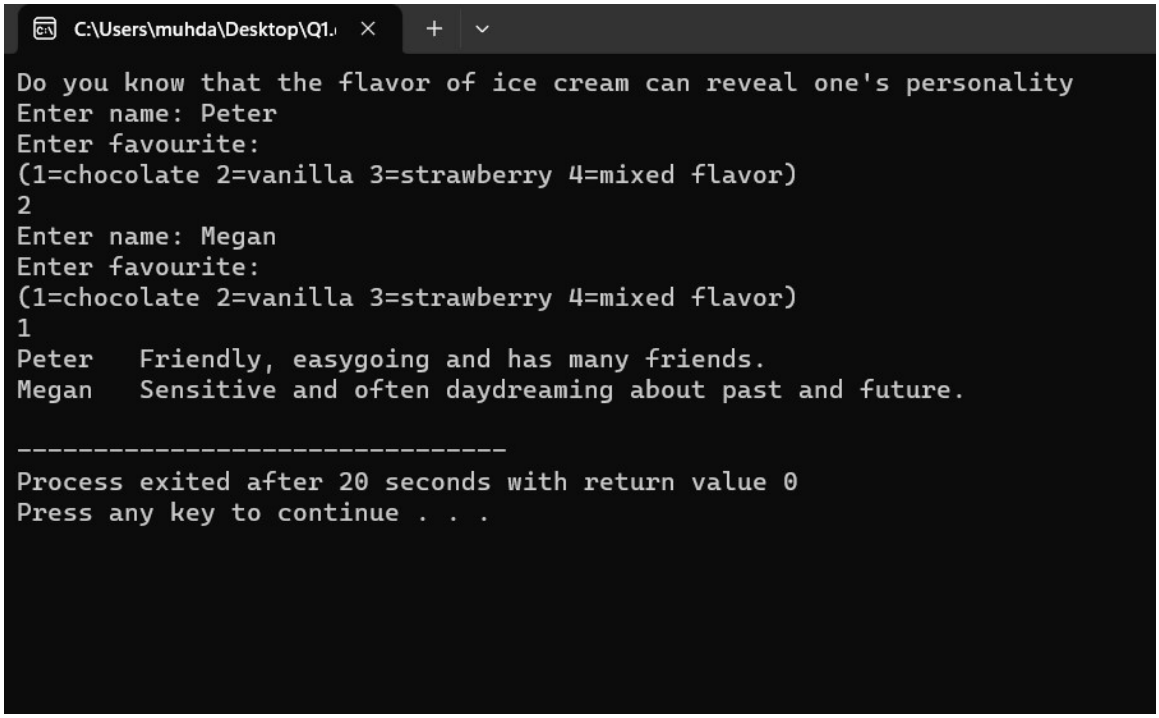
(globals)
Project Classes Debug
Q1.cpp
};
int main (){
cout << "Do you know that the flavor of ice cream can reveal one's personality\n";
Person p;
ADTqueue q;
for (int i = 0; i < 2 ; i++){
cout << "Enter name: ";
getline(cin, p.name);
cout << "Enter favourite: "<<endl;
cout << "(1=chocolate 2=vanilla 3=strawberry 4=mixed flavor)"<<endl;
cin >> p.flavor;
cin.ignore(); //ignore newline chacter left by cin
q.enqueue(p);
}
while (!q.is_empty()){
p = q.dequeue();
string name = p.name;
int flavor = p.flavor;
string personality;
switch (flavor){
case 1:
personality = "Sensitive and often daydreaming about past and future.";
break;
case 2:


C:\Users\muhda\Desktop\Q1.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug
Q1.cpp
while (!q.is_empty()){
p = q.dequeue();
string name = p.name;
int flavor = p.flavor;
string personality;
switch (flavor){
case 1:
personality = "Sensitive and often daydreaming about past and future.";
break;
case 2:
personality = "Friendly, easygoing and has many friends.";
break;
case 3:
personality = "Affectionate, giving, loving and very understanding.";
break;
case 4:
personality = "Negotiator and will do anything to avoid open conflict";
break;
default:
personality = "Unknown personality";
break;
}
cout << name << "\t" << personality << endl;
}
return 0;
}


C:\Users\muhda\Desktop\Q1.
Do you know that the flavor of ice cream can reveal one's personality
Enter name: Peter
Enter favourite:
(1=chocolate 2=vanilla 3=strawberry 4=mixed flavor)
2
Enter name: Megan
Enter favourite:
(1=chocolate 2=vanilla 3=strawberry 4=mixed flavor)
1
Peter Friendly, easygoing and has many friends.
Megan Sensitive and often daydreaming about past and future.

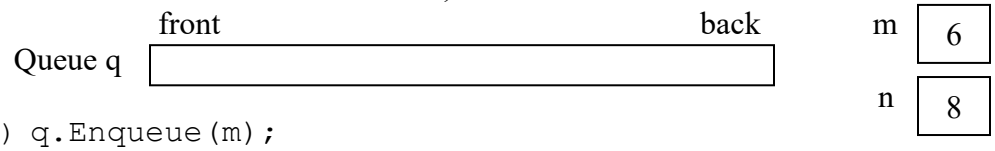
Process exited after 20 seconds with return value 0
Press any key to continue . . .

2. Suppose that q is a queue that holds 10 integers. Show the output after the execution of the following codes. Assume the following declaration for x, y and z.

```
Queue q;
x = 2;
y = 4;
z = 6;

q.append (8);
q.append(x-y);
q.append(z);
y += q.serve();
q.append(x+z);
z = q.serve () - 4;
q.append(z);
q.append (3);
x - = q.serve();
q.append(x);

cout<<"Elements in the queue are :";

while(!q.empty())
{
   cout<<q.serve()<<endl;
}
```

3. Suppose that *q* is a queue that holds 10 integers. Draw the queue frame for each of the following sequence of code. Show the value of *m* and *n* as the code sequence progress.

Queue q;
m = 6;
n = 8;




```
a) q.Enqueue(m);
b) q.Enqueue(n);
c) n += q.Dequeue();
d) q.Enqueue (n);
e) q.Enqueue(m+n);
f) if(q.Dequeue() >= m)
       m = q.Dequeue ();
g) q.Enqueue(m);
h) q.Enqueue(12);
i) if(q.Dequeue() < m)
      m = q.Dequeue();
```

Submission Question

Suppose that *que* is a queue that holds *10* integers. Draw the queue frame of each sequence of code and show the output. Assume the following declaration for *x* and *y*.

```
ADTqueue que;
int x = 3;
int y = 6;
que.append (8);
que.append(x-y);
que.append(y);
y %= que.serve();
que.append(x);
y = que.serve ( ) * 2;
que.append(y);
que.append (3);
x *= que.serve( );
que.append(x);
que.append(pow(y,2));
cout<<"Elements in the queue are :\n";
while(!que.empty( ))
{
   cout<<que.serve( )*5<<endl;
}
```