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//*****************************************************************************************
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//
//              File:                                   waitList.cpp
//
//              Student:                                Sean Herrick
//
//              Assignment:                             Program #10
//
//              Course Name:                    Data Structures II
//
//              Course Number:                  COSC 3100-01
//
//              Due:                                    November 16th, 2022
//
//
//              This program is an example of a Heap's member functions
//
//              Other files required:
//                      1.      heap.h
//                      2.      customer.h
//
//*****************************************************************************************
**

#include <iostream>
#include <fstream>
#include <string>
#include <iomanip>
#include <algorithm>

using namespace std;

#include "heap.h"
#include "customer.h"


//*****************************************************************************************
**

void getData ( Heap <Customer>& waitList );
void printWaitList ( Heap <Customer>& waitList );

//*****************************************************************************************
**

int main ( )
{
        Heap <Customer> waitList;

        getData ( waitList );
        printWaitList ( waitList );

        return 0;
}

//*****************************************************************************************
**

void getData ( Heap <Customer>& waitList )
{
        Customer cust;
        ifstream inFile;
```

```
        inFile.open ( "overbooked.bin", ios :: binary );

        while ( inFile.read ( ( char * ) & cust, sizeof ( cust ) ) )
        {
                cust.priority =   ( ( ( cust.mileage / 1000 ) + cust.years ) - cust.arrivalNum );
                waitList.insert ( cust );
        }

        inFile.close ( );
}

//*************************************************************************************************
**

void printWaitList ( Heap <Customer>& waitList )
{
        Customer cust,
                tempCust;
        ofstream outFile;
        int numVals,
                capacity;

        outFile.open ( "waitList.txt" );
        numVals = waitList.getNumValues ( );
        capacity = waitList.getCapacity ( );

        if ( waitList.viewMax ( cust ) )
        {
                tempCust = cust;
        }

        outFile << string ( 78, '=' ) << endl;
        outFile << setw ( 43 ) << "Priority List" << endl;
        outFile << string ( 78, '=' ) << endl;
        outFile << setw ( 5 ) << "Priority:" << setw ( 15 )
                    << "Arrival Num:" << setw ( 8 ) << "Name:" << setw ( 25 )
                    << "Mileage:" << setw ( 13 ) << "Years:" << endl;

        while ( waitList.remove ( cust ) )
        {
                outFile << cust << endl;
        }

        outFile << endl << "There are " << numVals << " people on the priority list" << endl;
        outFile << "The person with the highest priority is:\n" << tempCust << endl;

        if ( waitList.isEmpty ( ) )
        {
                outFile << "There are no more people in the list" << endl;
        }

        if ( waitList.isFull ( ) )
        {
                outFile << "The list is full" << endl;
        }

        else
        {
                outFile << "The list is not full" << endl;
        }

        outFile << "The list can hold up to " << capacity << " people" << endl;
        outFile << string ( 78, '=' ) << endl;
}
```

```
//*****************************************************************************************
**

/*
================================================================================
                                                          Priority List
================================================================================
Priority:   Arrival Num:   Name:                 Milage:       Years:
93          3              Baclan   Nguyen       93000         3
90          2              Amanda   Trapp        89000         3
74          5              Warren   Rexroad      72000         7
61          6              Jorge    Gonzales     65000         2
57          1              Bryan    Devaux       53000         5
56          10             Dave     Lightfoot    63000         3
37          9              Steve    Chu          42000         4
30          7              Paula    Hung         34000         3
24          11             Joanne   Brown        33000         2
19          8              Lou      Mason        21000         6
14          4              Sarah    Gilley       17000         1

There are 11 people on the priority list
The person with the highest priority is:
93          3              Baclan   Nguyen       93000         3
There are no more people in the list
The list is not full
The list can hold up to 100 people
================================================================================
*/
```