Module Code: COS1511

Assessment: Assignment 4

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#include <iostream>

#include <string>

using namespace std;

const double flightTimes[5][2] = {{7.00 ,9.30},{9.00 ,11.30},{11.00,13.30},{13.00,15.30},{15.00,17.30}};

const float tPrice = 1600.00;

const int NUM = 10;

struct booking

{

string sName, sClass, sNumber;

float arTime, deTime;

};

void menu(int &choice)

{

cout << "The available travel times for flights are: " << endl;

cout << " Depart" << " Arrive" << endl;

for (int i = 0; i < 5; i++)

{

cout << i + 1 << "." << " " << flightTimes[i][0] << " " << flightTimes[i][1] << endl;

}

cout << "Choose the time by entering the option number from the displayed list:" << endl;

cin >> choice;

while ((choice < 1) || (choice > 5))

{

cout << "Incorrect option! Please choose from 1-5." << endl;

cin >> choice;

}

}

bool validateSeat(booking b[], string sNo, int tChoice)

{

bool notbooked = true;

float dTime;

dTime = flightTimes[tChoice - 1 ][0];

int i = 0;

while (i < NUM)

{

if(b[i].sNumber == sNo && b[i].deTime == dTime)

{

notbooked = false;

}

i++;

}

if (notbooked == false)

{

return false;

}

else return true;

}

float calculateTprice(booking b)

{

float price = 0.0;

if ((b.sNumber.substr(0,1)) > "D")

price = tPrice;

else price = tPrice + (tPrice \* 0.2);

return price;

}

void displayTicket (booking b)

{

cout << " " << "\*" << endl;

if ((b.sNumber.substr(0,1)) > "D")

b.sClass = "Economy class" ;

else b.sClass = "First class";

cout << "Travel ticket for FLIGHT " << endl;

cout << " " << "\*" << endl;

cout << " " << "Name :" << b.sName;

cout << " " << "Travel ticket class: " << b.sClass << endl;

cout << " " << "\*\* Seat No: " << b.sNumber << endl;

cout << " " << "Departure: " << " Johannesburg";

cout << " " << "Departure Time: " << b.deTime << endl;

cout << " " << "Destination: " << " Cape Town";

cout << " " << "Arrival Time: " << b.arTime << endl;

cout << " " << "\*" << endl;

cout << "Amount: R" << calculateTprice(b);

cout << "Thank you for booking with COS1511. Your travel agent for queries is Annie Matthew" << endl;

cout << " " << "\*" << endl;

}

void seatArrangement()

{

char row = 'A';

int col = 1;

string sNo;

int iSeat = 0;

int i;

cout << "First class(" << tPrice + (tPrice\*0.2) << ")" << endl;

for (int i = 1; i < 51; i++)

{

sNo = "";

if (i == 25)

{

cout << "Economy class(" << tPrice << ")" << endl;

cout << "|";

}

sNo += row;

sNo += to\_string(col);

if (i == 1)

{

cout << "|";

}

cout << sNo;

col++;

if (i % 3 == 0)

{

if (iSeat == 0)

{

cout << "|" << "----";

iSeat = 1;

}

else

{

cout << "|" << endl;

row = row + 1;

col = 1;

iSeat = 0;

}

}

cout << "|";

}

}

void seatArrangement2(booking b[], int tchoice )

{

char row = 'A';

int col = 1;

string sNo;

int iSeat = 0;

int i;

bool notbooked;

cout << "First class(" << tPrice + (tPrice\*0.2) << ")" << endl;

for (int i = 1; i < 51; i++)

{

sNo = "";

if (i == 25)

{

cout << "Economy class(" << tPrice << ")" << endl;

cout << "|";

}

sNo += row;

sNo += to\_string(col);

cout << sNo;

col++;

notbooked = validateSeat(b,sNo,tchoice);

if(notbooked == false)

{

cout << "\*\*";

col++;

}

else cout << row << col++;

if (i % 3 == 0)

{

if (iSeat == 0)

{

cout << "|" << "----";

iSeat = 1;

}

else

{

cout << "|" << endl;

row = row + 1;

col = 1;

iSeat = 0;

}

}

cout << "|";

}

}

int main()

{

string name, seatNo;

int tChoice;

char ans;

int i = 0;

int t1,t2,t3,t4,t5 = 0;

int time;

booking b1[NUM];

do

{

cout << "Welcome to COS1511 Flight Booking system" << endl << endl;

cout << "Enter full name" << endl;

getline(cin, name);

cout << endl;

cout.setf(ios::fixed);

cout.precision(2);

menu(tChoice);

cout << "The available seats for "<< flightTimes[tChoice - 1][0] << " are as follows: " << endl;

switch (tChoice)

{

case 1 : time = t1;

break;

case 2 : time = t2;

break;

case 3 : time = t3;

break;

case 4 : time = t4;

break;

case 5 : time = t5;

break;

}

if (time == 0)

{

seatArrangement();

cout << endl;

cout << "Please key in a seat number to choose a seat (eg:A2)" << endl;

}

else

{

seatArrangement2(b1, tChoice);

cout << "Please note seats already taken are indicated with a \*" << endl;

cout << "Please key in a seat number to choose a seat (eg:A2)" << endl;

}

do

{

cin >> seatNo;

if (!validateSeat(b1, seatNo,tChoice))

cout << "Sorry seat is taken." << endl;

}

while (!validateSeat(b1, seatNo,tChoice));

b1[i].sName = name;

if (seatNo.substr(0,1) > "D")

b1[i].sClass = "Economy class";

else

b1[i].sClass = "First class";

b1[i].deTime = flightTimes[tChoice - 1][0];

b1[i].arTime = flightTimes[tChoice -1][1];

b1[i].sNumber = seatNo;

displayTicket(b1[i]);

i++;

cout << "Do you want to make another booking (Y/N) " << endl;

cin >> ans;

cin.get();

if (tChoice == 1)

t1++;

else if (tChoice == 2)

t2++;

else if (tChoice == 3)

t3++;

else if (tChoice == 4)

t4++;

else if (tChoice == 5)

t5++;

}

while (toupper(ans) == 'Y');

cout << endl;

cout << "Number of bookings made for " << flightTimes[0][0] << "a.m" << " " << t1 << endl;

cout << "Number of bookings made for " << flightTimes[1][0] << "a.m" << " " << t2 << endl;

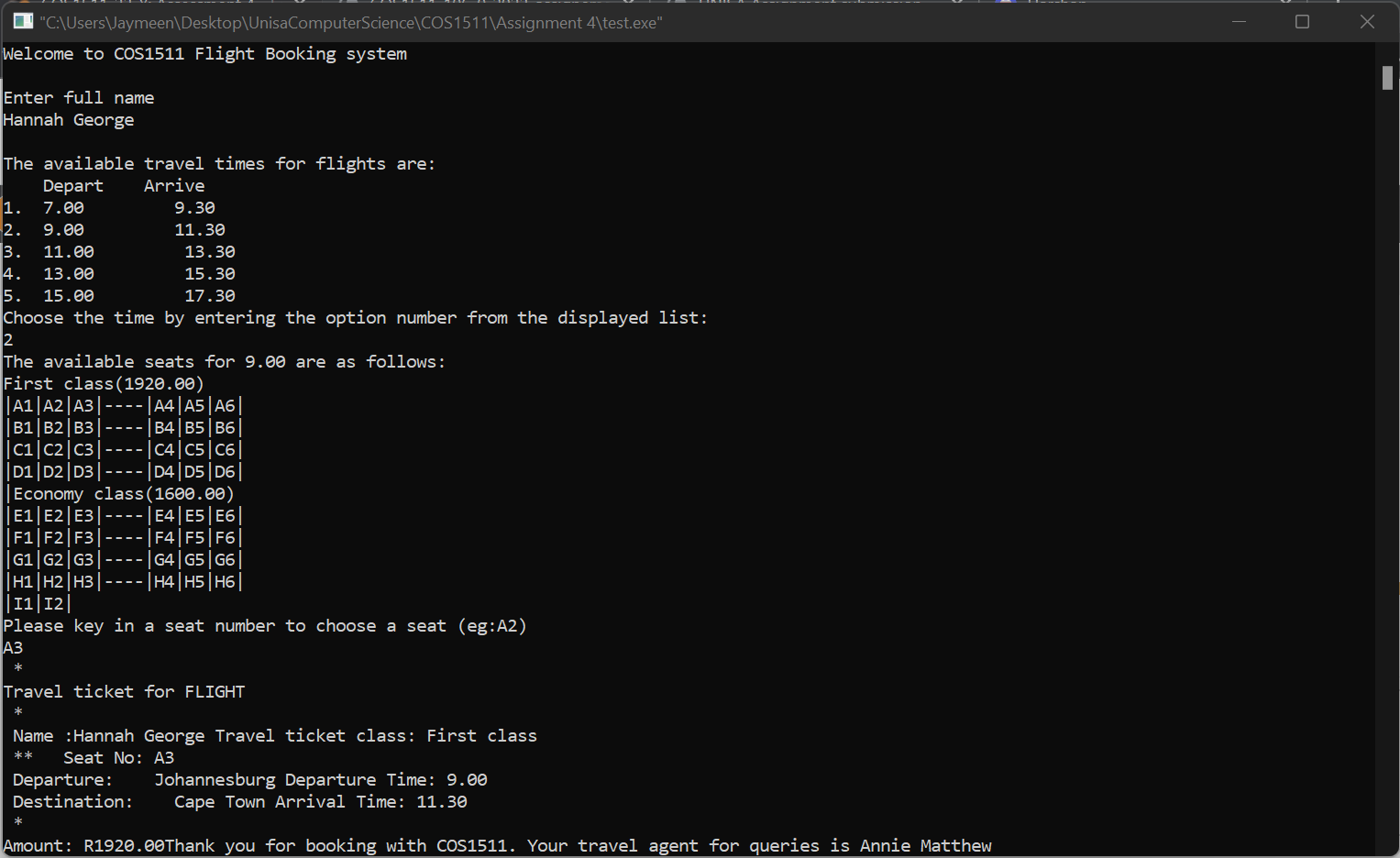
cout << "Number of bookings made for " << flightTimes[2][0] << "a.m" << " " << t3 << endl;

cout << "Number of bookings made for " << flightTimes[3][0] << "p.m" << " " << t4 << endl;

cout << "Number of bookings made for " << flightTimes[4][0] << "p.m" << " " << t5 << endl;

return 0;

}



A screenshot of a computer screen

Description automatically generated