Module Code: COS1511

Assessment:  Assignment 4

Student Number: 69234175

Name: Jaymeen Patel

```
#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);
```

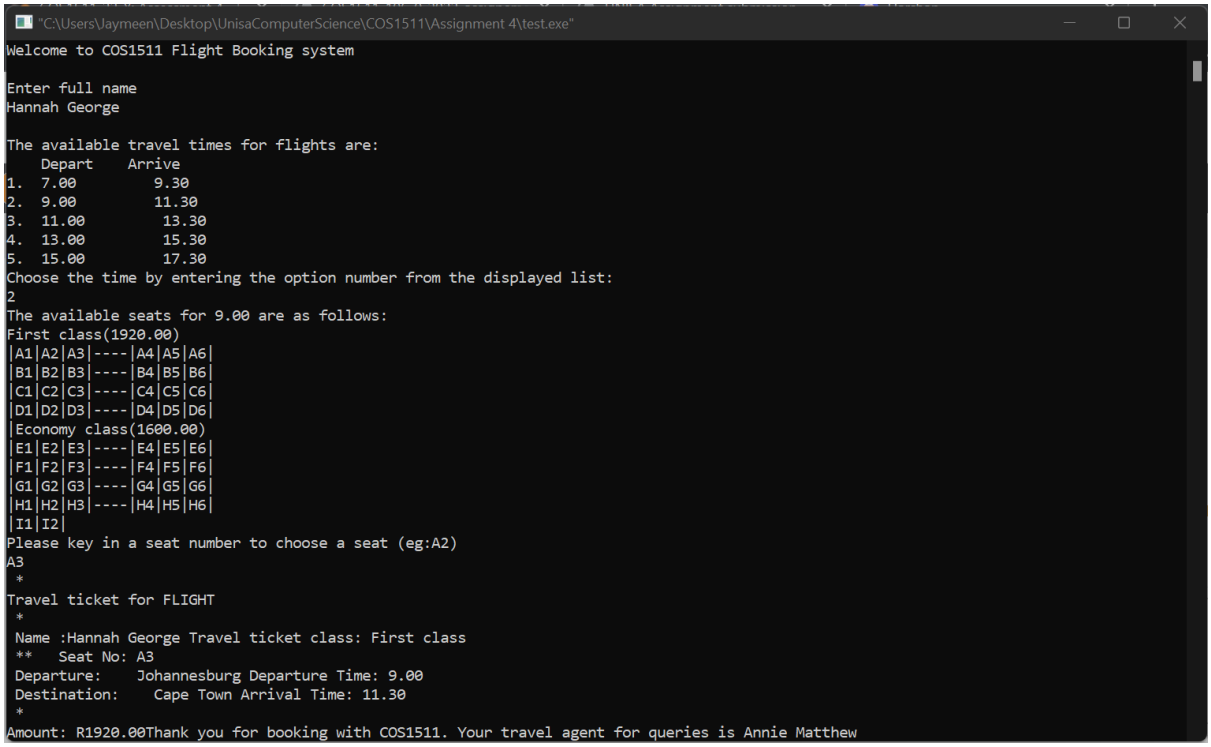
```
cout << sNo;
col++;
notbooked = validateSeat(b,sNo,tchoice);

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;
```

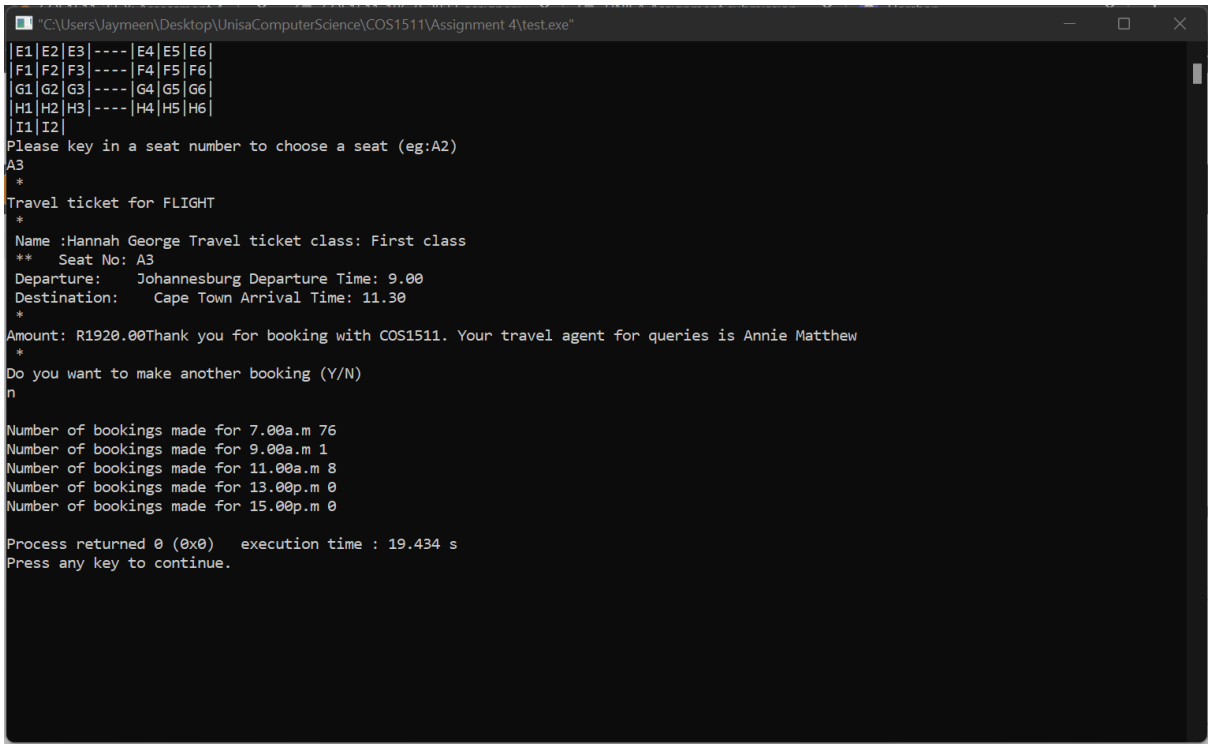
```
        }
    }

        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;
}
```


"C:\Users\Jaymeen\Desktop\UnisaComputerScience\COS1511\Assignment 4\test.exe"
Welcome to COS1511 Flight Booking system
Enter full name
Hannah George
The available travel times for flights are:
Depart Arrive
1. 7.00 9.30
2. 9.00 11.30
3. 11.00 13.30
4. 13.00 15.30
5. 15.00 17.30
Choose the time by entering the option number from the displayed list:
2
The available seats for 9.00 are as follows:
First class(1920.00)
|A1|A2|A3|----|A4|A5|A6|
|B1|B2|B3|----|B4|B5|B6|
|C1|C2|C3|----|C4|C5|C6|
|D1|D2|D3|----|D4|D5|D6|
|Economy class(1600.00)
|E1|E2|E3|----|E4|E5|E6|
|F1|F2|F3|----|F4|F5|F6|
|G1|G2|G3|----|G4|G5|G6|
|H1|H2|H3|----|H4|H5|H6|
|I1|I2|
Please key in a seat number to choose a seat (eg:A2)
A3
*
Travel ticket for FLIGHT
*
Name :Hannah George Travel ticket class: First class
** Seat No: A3
Departure: Johannesburg Departure Time: 9.00
Destination: Cape Town Arrival Time: 11.30
*
Amount: R1920.00Thank you for booking with COS1511. Your travel agent for queries is Annie Matthew


"C:\Users\Jaymeen\Desktop\UnisaComputerScience\COS1511\Assignment 4\test.exe"
|E1|E2|E3|----|E4|E5|E6|
|F1|F2|F3|----|F4|F5|F6|
|G1|G2|G3|----|G4|G5|G6|
|H1|H2|H3|----|H4|H5|H6|
|I1|I2|
Please key in a seat number to choose a seat (eg:A2)
A3
*
Travel ticket for FLIGHT
*
Name :Hannah George Travel ticket class: First class
** Seat No: A3
Departure: Johannesburg Departure Time: 9.00
Destination: Cape Town Arrival Time: 11.30
*
Amount: R1920.00Thank you for booking with COS1511. Your travel agent for queries is Annie Matthew
*
Do you want to make another booking (Y/N)
n
Number of bookings made for 7.00a.m 76
Number of bookings made for 9.00a.m 1
Number of bookings made for 11.00a.m 8
Number of bookings made for 13.00p.m 0
Number of bookings made for 15.00p.m 0
Process returned 0 (0x0) execution time : 19.434 s
Press any key to continue.