C++ Project

Travel Management system

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Analysis

Aims

I would like to create a program that allows a user to manage a trip abroad. They should be able to register for an account, enter their details and book their trip abroad. Then an admin can see what users have booked and users’ details.

Problem identification

The main problem is going to be the database and how they interconnect. This should allow me to save the users’ details, and bookings and allow the admin to query the database to get the details.

Furthermore, another problem is saving the usernames and passwords into a text file. I need to save their emails and passwords to a text file. I need to find a way to save the username and password on one line and compare it to user input.

Program Requirements

My Program requirements will outline the basic requirements:

|  |  |  |
| --- | --- | --- |
| **Function Requirements** | **Proposed Solution** | **Critical** |
| Save Registration details to a text file | Use fstream, concatenate email and password and save to file. | yes |
| Save Details to Customer Table | Use Line edits on QT to save details using a GUI. Then add to Customer Table. | yes |
| Compare inputted Values to a text file values | Get Value from GUI and compare the values to the concatenated values. | yes |
| Save flight Options to a table | Get Values from the combo box and save them to the database. | yes |
| Save Hotel Details to Hotel Booking table | Get Values from the combo box and save them to the database. | yes |
| Output Prices and Hotels | Use a message box to output the prices and hotels to the user. | Yes |
| Allow Admin to sign in | Compare values to a text file. | Yes |
| Allow admin to view bookings and customer details | Allow admin to query the database and get customer details & bookings. | yes |

Design and implementation

Database Composition

These are the definition of all tables I may need to use:

CREATE TABLE "booking" (

"numdays" INTEGER,

"bookingemail" TEXT,

"flightfare" REAL,

"hotelprice" REAL,

FOREIGN KEY("bookingemail") REFERENCES "customer"("email")

);

CREATE TABLE "customer" (

"email" TEXT,

"firstname" TEXT,

"surname" TEXT,

"phone" TEXT,

"address" TEXT,

"cust\_id" INTEGER NOT NULL DEFAULT 1,

PRIMARY KEY("cust\_id" AUTOINCREMENT)

);

CREATE TABLE "flight" (

"init\_location" TEXT,

"final\_location" TEXT,

"class" REAL,

"deptime" TEXT,

"return\_time" TEXT,

"cust\_id" INTEGER,

FOREIGN KEY("cust\_id") REFERENCES "customer"("cust\_id")

);

CREATE TABLE "holidaycountry" (

"id" INTEGER,

"country" TEXT,

"airport" TEXT,

PRIMARY KEY("id")

);

CREATE TABLE "holidayflight" (

"destcountry" TEXT,

"sourcecountry" TEXT,

"econfare" REAL,

"businessfare" REAL,

"firstfare" REAL,

"id" INTEGER,

PRIMARY KEY("id")

);

CREATE TABLE "holidayhotel" (

"hotelname" INTEGER,

"dailyprice" INTEGER,

"address" INTEGER,

"country" INTEGER,

FOREIGN KEY("country") REFERENCES "holidaycountry"("country")

);

CREATE TABLE "hotelbooking" (

"startdate" TEXT,

"enddate" TEXT,

"hotel" TEXT,

"numofdays" INTEGER,

"cust\_id" INTEGER

);

Flowcharts

Diagram

Description automatically generated

Book Hotel

Book Flight

Display

Register

Login

Testing

Testing the functions of my code:

Register:

|  |  |  |
| --- | --- | --- |
| Test | Expected | Actual |
| Enter all details | Go to add details page | Goes to add details page |
| leave section blank | Doesn’t allow you to go to the next page | Doesn’t allow to go to next page |

Login:

|  |  |  |
| --- | --- | --- |
| Test | Expected | Actual |
| Enter correct Details | Go to book flight page | Goes to book flight page |
| Enter incorrect details | Displays appropriate message | Displays appropriate message |

Flight:

|  |  |  |
| --- | --- | --- |
| Test | expected | actual |
| enter correct details | Goes to book hotel screen | Goes to book hotel screen |
| Leave one space blank | Display error screen | Goes to book hotel screen |
| initial and final destination the same | Displays appropriate message | Displays appropriate message |

Hotel:

|  |  |  |
| --- | --- | --- |
| TEST | expected | actual |
| enter all details | Displays successfully booked | Displays successfully booked |
| leave one space blank | Displays appropriate message | Displays successfully booked |

Admin Login:

|  |  |  |
| --- | --- | --- |
| Test | Expected | Actual |
| Enter correct Details | Go to book flight page | Goes to book flight page |
| Enter incorrect details | Displays appropriate message | Displays appropriate message |

Admin search

|  |  |  |
| --- | --- | --- |
| test | expected | actual |
| enter correct details to search | Show booking details of the customer | Show booking details of the customer |
| enter blank details | Show no details | Show no details |

Further Improvements:

Receipt – Total cost of all hotel and flight bookings

Allow users to view their booked holidays

Send confirmation booking of emails

Include pictures of hotels

Allow admin to edit details and booking details

Fix the small amounts of logical errors in the code