AIRLINE MANAGEMENT SYSTEM

Database Systems

End Semester Project

BSCS-11-C

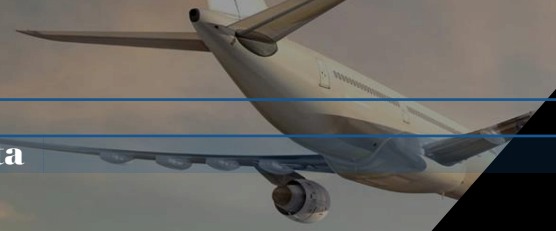
Group Members:

Mahad Mohtashim – 379889

Mehar AliAhmed – 366651

Muhammad Hamza Aamir - 382725

Introduction to the Idea:

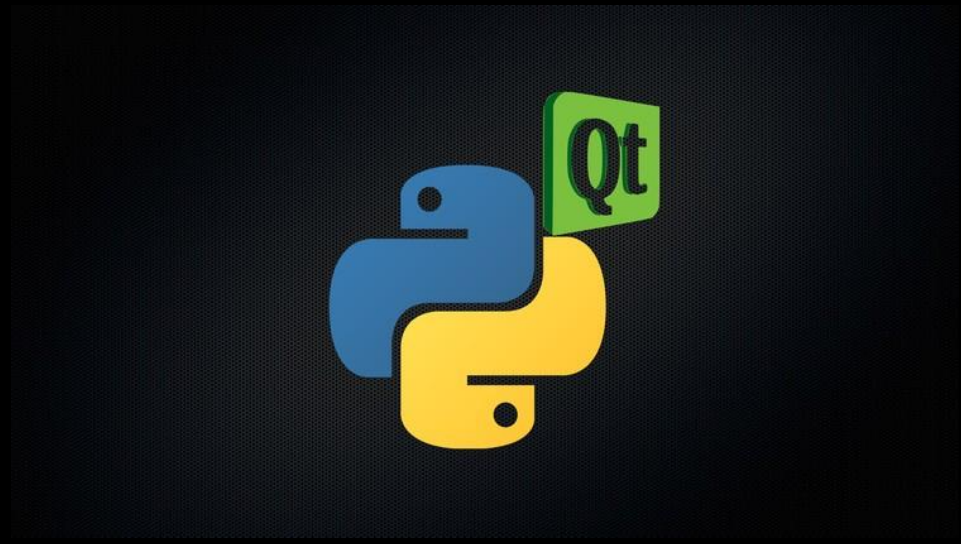


Flight Tracking		
Passenger Biodata		
Air traffic Information		
Luggage Tracking		
Airports		
Airplane Details		
Country		
Pilots Information	Luggage Team	
Crew Members Information	Road Transport	Planes Tracking and map
Ground Staff Details	Health Support	Research Teams
Billing Details	Administrative	Ticketing Apps
Central Modules	Back End Working and Support System	

- Air travel is the most popular transport system around the globe, yet the complexities attached with it amplify with an increasing demand.
- Recent studies show that every second about 270 flights take off and make landing.
- Hence an updated system is the need of today therefore we have worked on an improvised and a robust flight database model.
- It allows to effectively implement the functionalities coupled with it.
- Database system operations can be easily employed to handle the huge amount of data ranging from passenger details to flight details in the field of flight handling.
- The idea is to manage all the data related to airline companies in an efficient way to make management easy.

Tools used for implementation

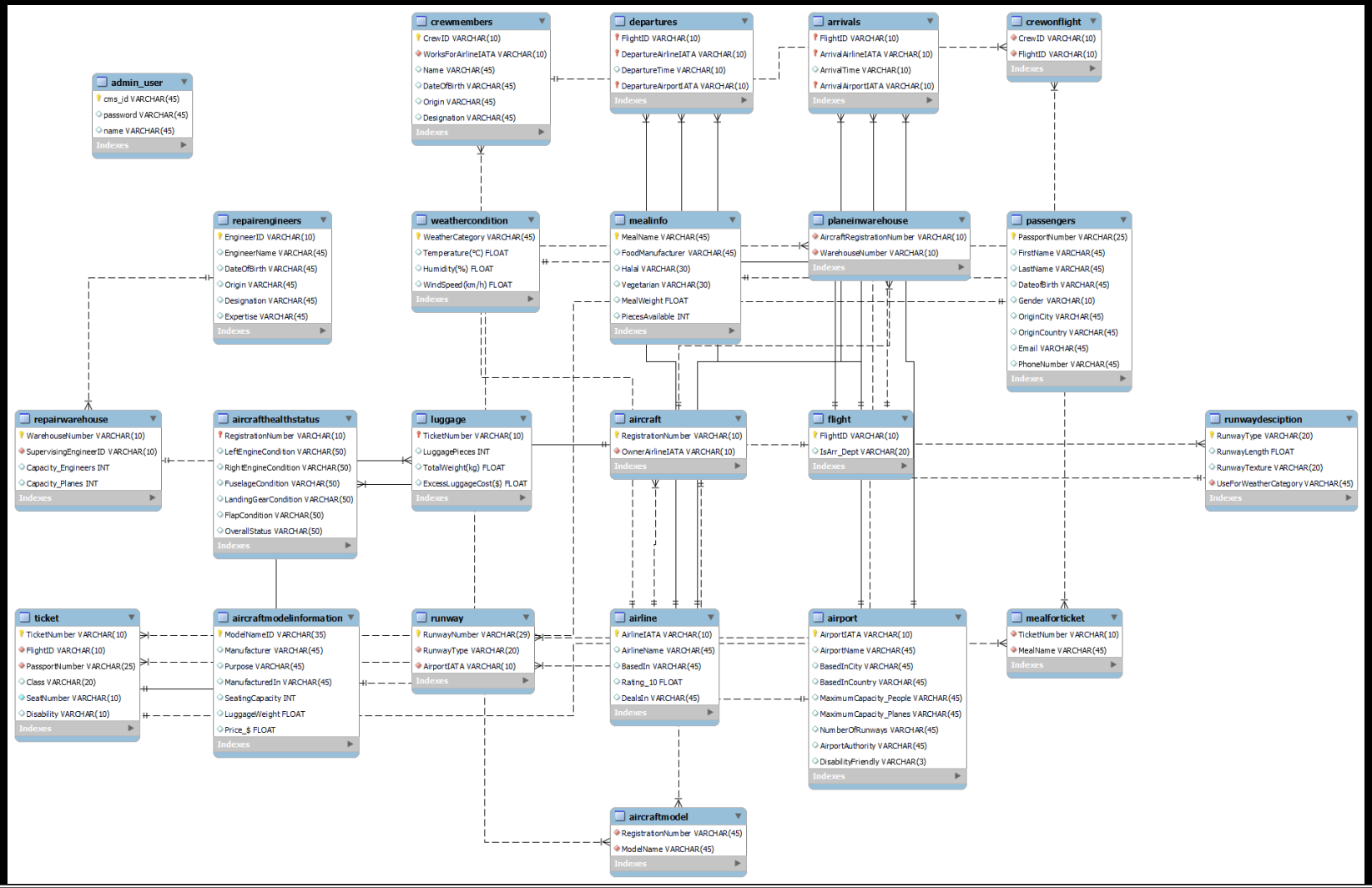
- Our project is a desktop-based application which implements the MVC architecture in the following way:
  - Model: We have used MySQL RDBMS to create the data layer of the project. Variety of data related to the aviation management system has been stored in more than 20 relations each defining a unique aspect.
  - View: PyQt5 library is used to create a User Interactive GUI Application which links all the dataset to the application layer through various functions that come along with it.
  - Controller: Python along with it's libraries such as MySQL. Connecter has been used to connect the data layer with the application layer to implement logic which processes the data.



Functionalities of the Product:

- Functionalities included in the project are the mentioned below however not limited to:
  - Allows the admin user only to manage updation, deletion, and insertion into the database. This way we implement authorization and authentication for the security of project.
  - Main areas of the database i.e., passenger details, flight details, aircraft details and airport details form the main pillars of the project and are linked to each other through the execution of different queries working to ensure strong connectivity between each of these entities.
  - While we cover maximum fields of this database systems, yet there is still a plethora of different activities that can be implemented as the structural design is easy to understand.
  - In addition, we have linked the QtWidgets functionalities with each query that is being executed in the RDBMS.
  - Explained more in the ERD in the next slide.

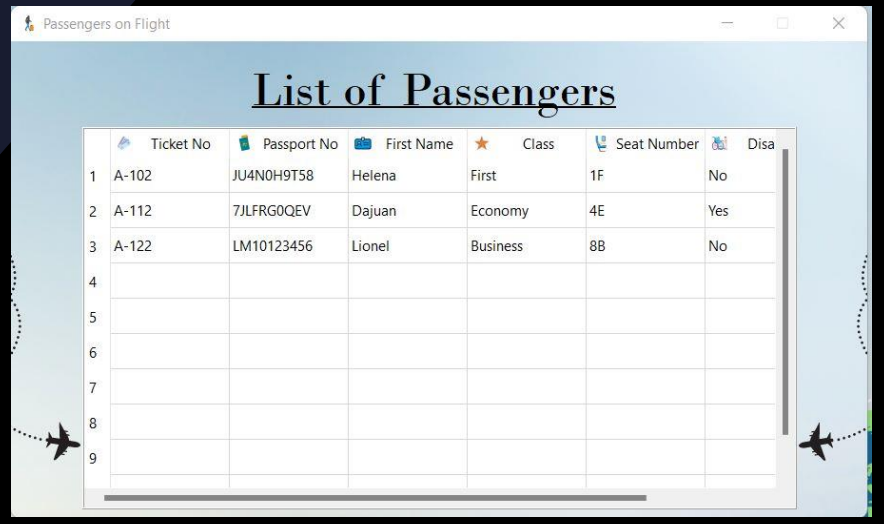
ERD of the Database:

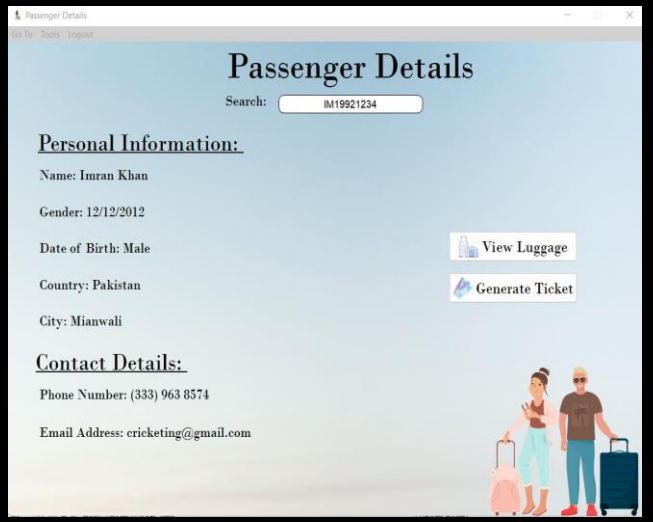


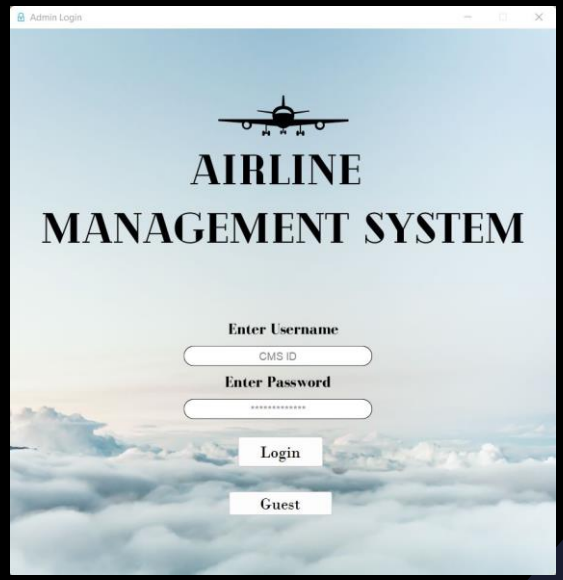
Overview of the GUI

- Login Window
  - Authorizes the admin of the user and moves to the next Main Menu window, if not it asks for correct details. However, a unique feature is the fact that Guest can also Login but only view the non private data
- Main Menu
  - Gives option to choose what details the admin wants to see.
- Passenger Details
  - View passenger's personal information and generate a PDF file of the ticket. Also, it allows to view Passenger Luggage Details
  - Moreover, admin has the authority to update, insert and delete new passenger details
- Flight Details:
  - Table view of the passenger, meal and crew member information are displayed on this window for a specific flight ID.
- Aircraft Details
  - Sub aircraft entities like model details, health status and repair warehouse information is displayed through the functionality of pressing a function.
- Menu bar:
  - Navigates the user to other windows, logout and access tools defined in the specified window
- Airport Details
  - The airport authority who have bought the software have their details and patent shown on this window.

Snippets of the GUI:







Views, Triggers and Stored Procedures

- Views:
  - Views have been used in the project to carry out the data showing part of the project. The database consists of views related to showing passenger details, aircraft details and flight details which are stored in the views.
- Triggers:
  - Three different triggers have been defined which are linked with one table that records the history of modifications in the database such that the timestamp and the modification status are inserted into that table.
- Stored Procedures:
  - Stored procedures have been created for every query that is running in the backend of the application to connect with the database.

DEMONSTRATION

Thank You !

Have a safe journey!