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INTRODUCTION TO DATABASE

CCCS-215

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Airline Database Management

Abstract:

An airline management system is considered with providing flight that are well scheduled and accurate. Where a passenger can book a flight and have specific tickets for each passenger in different airlines. Furthermore, database is essential to store data and manage flights accurately due to its criticality and mistakes could cost lives. Additionally, managing staff, passengers, and private information are also necessary.

Current Situation and Problems

Availability of flights

Previously, there was no organization with data. There was a loss of time, effort, and money until we get the reservation, but now with Airline Management System. Thanks to its organized mechanisms. It allowed us to book with ease and more quality.

Flight monitoring

Before the system, the process of landing and taking off the planes was difficult to organize and required a lot of effort and a high cost of money. But after organizing it, it became less expensive, easier to organize, and less mistakes.

Staff Management

There was difficulty in communicating and linking employees and management in different departments.

And it was causing delays in some cases and difficulties in rectifying them. But with the system even when mistakes occur. Remedy of it became simple, gaps are few and the organization became easier to provide a distinctive experience for the passengers.

System Requirements:

Product requirement:

- The Airline Management system shall be always available to all airlines. Downtime must not exceed 5 seconds in any one day and must be announced beforehand within 6 hours.

- The system must allow customers to book, modify, and cancel a flight before 3 days of the flight.

- The system must never have more than one aircraft on a route.

- The user must be able to add or update details of user's name, phone number, email, and address.

- The customer shall be able to view a list of available flights and price, booked flights.

Organizational requirement:

- Customers shall authenticate themselves using their Passport numbers and 9-lengthed password.

- Staff members shall authenticate themselves using their Salary ID and 12-lengthed password

External requirement:

- The system must follow Saudi National Cybersecurity Authority (Saudi NCA) regulation.

- Risk assessment must be held every 3 months to ensure the safety of data.

Entity:

1- FLIGHT:

Flight is the method or the way that we use to move a person or an object through a space using an airplane.

2-AIRPLANE:

Fixed-wing aircraft that is propelled forward by thrust from a jet engine, propeller, or rocket engine.

3-SCHEDULE:

A way to manage the data through a fixed time.

4-ROUTE:

Carefully studied way a flight takes to move from a place to another safely.

5-PASSENGER:

Any person that booked a flight.

6-BOOKING:

A method that allows a passenger to go through an airplane to a specific place.

7-TERMINAL:

A huge place with multiple services to arrange the passenger going to their flight.

8-AIRLINES:

An organization providing a regular public service of air transport on one or more routes.

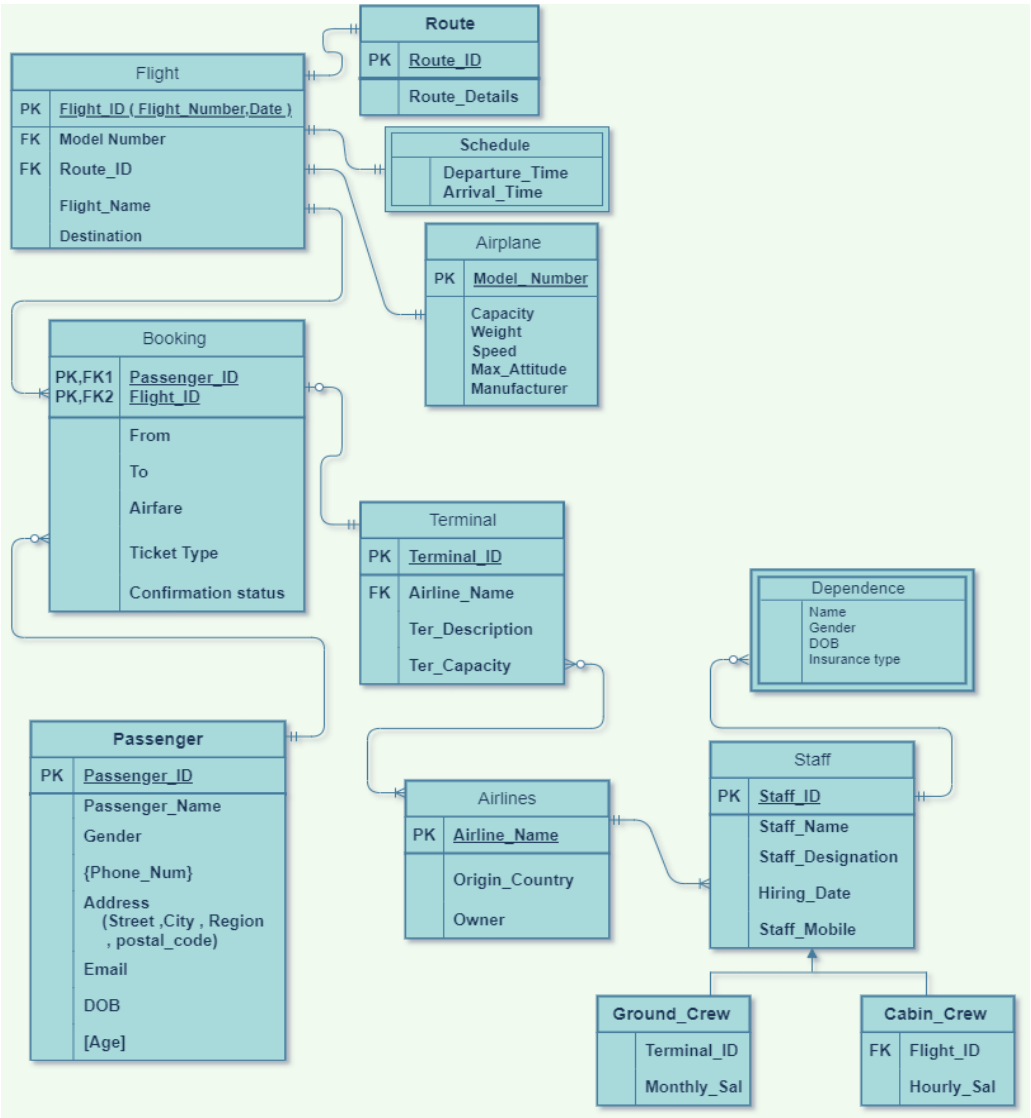
9-STAFF:

Any member of a ground crew or cabin crew and serve at airline companies.

10-DEPENDENCE:

Anything that is related to the staff relatives.

E-R DIAGRAM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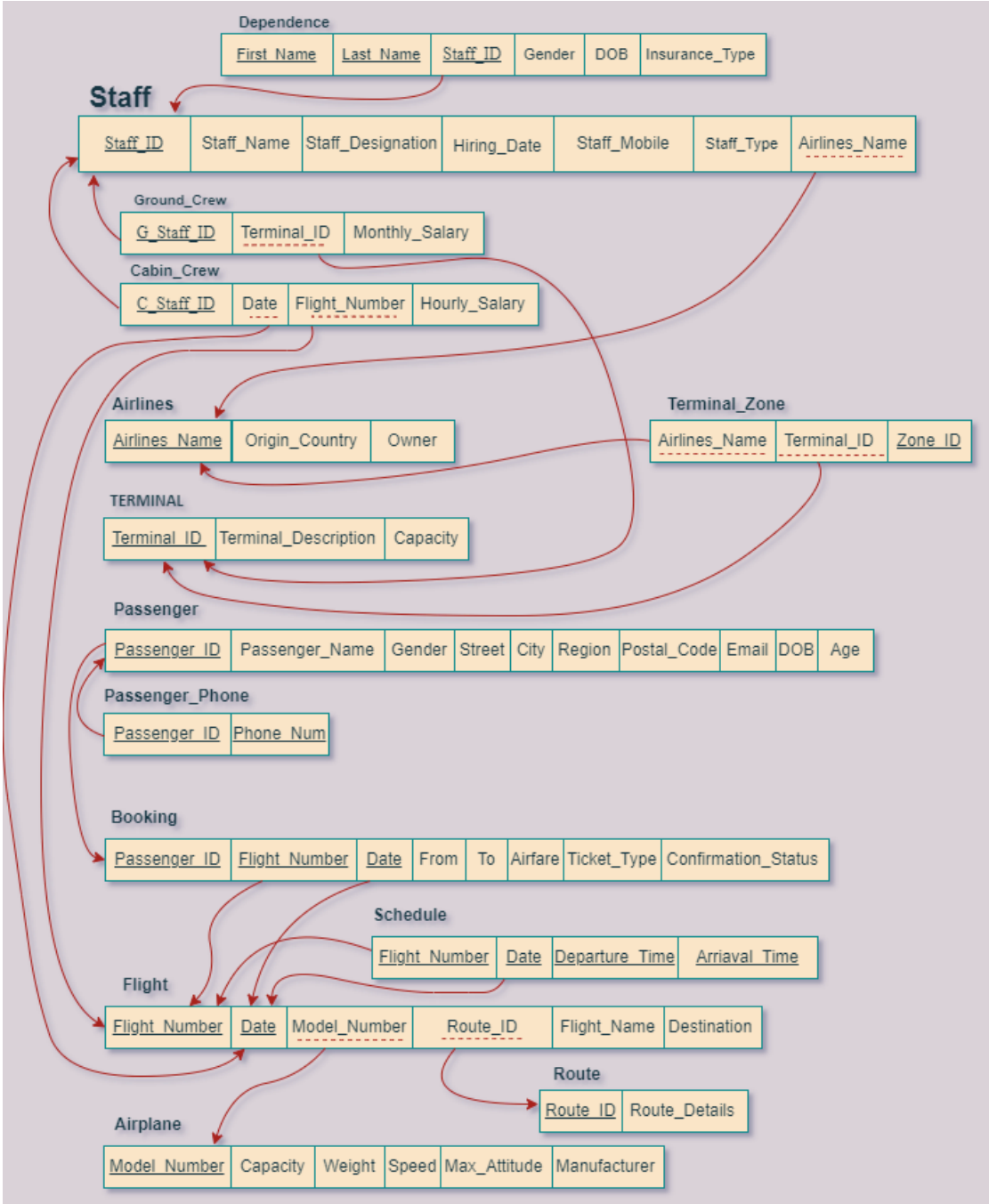
RELATIONAL MODEL WITH NORMALIZATION



The **1NF** (First normal form) Any multivalued attributes have been removed .

The **2NF** (Second normal form) all non-key attributes are fully functionally dependent on the entire key (partial dependency has been removed).

The **3NF** (Third normal form) Any transitive dependencies have been removed.