



Database Management System (IT214)

Group:5

Group Representative:

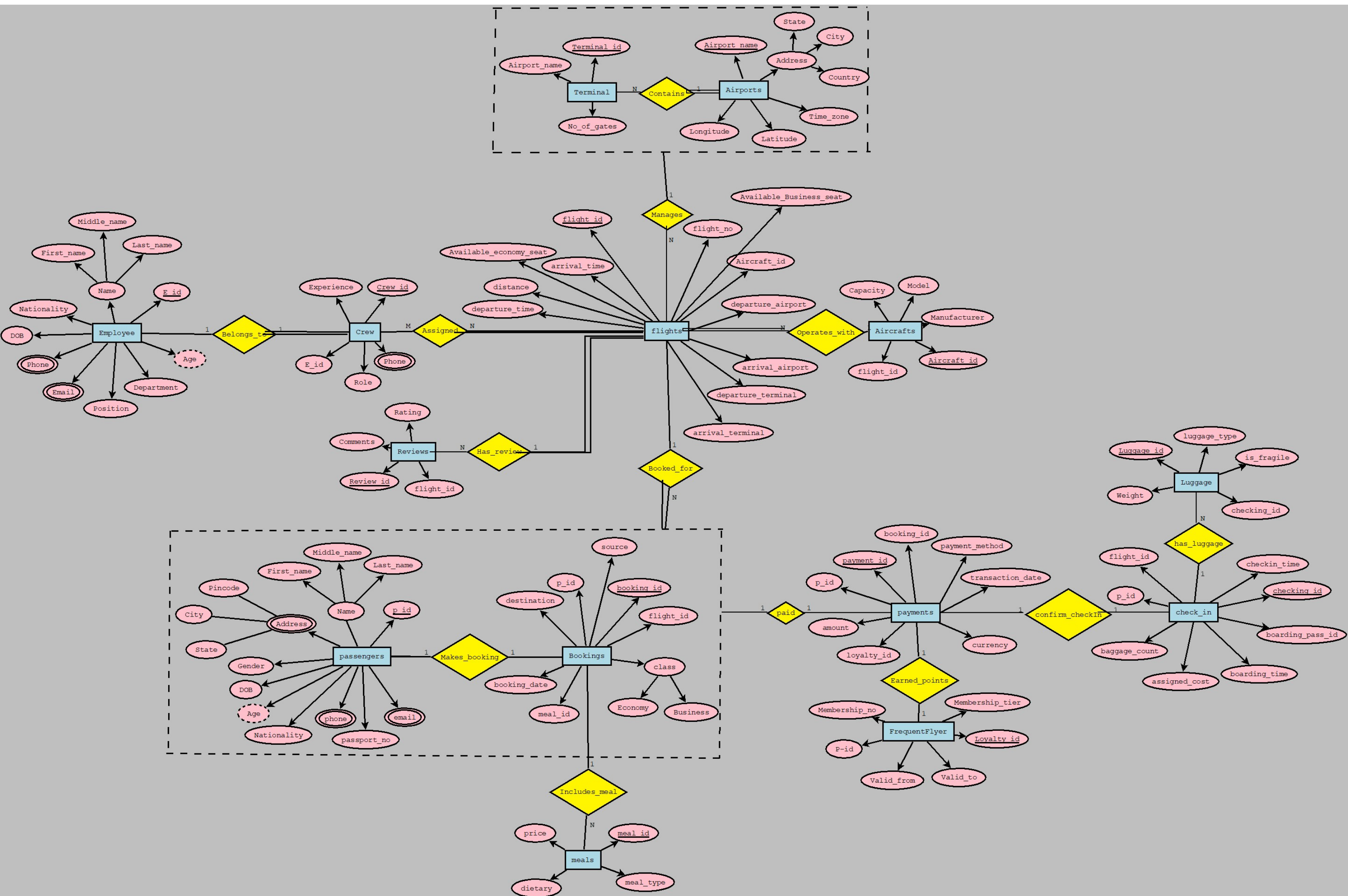
1) Bavarva Megh Dineshbhai (202301402)

Contact number: 8849855886

Group Members:

1) Patel Naman Vipulbhai (202301423)

2) Patel Het Jitendrakumar (202301421)



Airline Management System - Entities, Attributes, and Relationships

Entities, Attributes, and Their Work

Airports

- Attributes:
 - airport_code (Primary Key)
 - name
 - address
 - time_zone
 - latitude
 - longitude

Work: Represents airports as the main locations for flight departures and arrivals.

Terminals

- Attributes:
 - terminal_id (Primary Key)
 - airport_code (Foreign Key from Airports)
 - no_of_gates

Work: Represents specific areas within airports where passengers board or alight flights, linked to airports by airport_code.

Crew

- Attributes:
 - crew_id (Primary Key)
 - first_name
 - last_name
 - role
 - email

- phone
- rank

Work: Represents flight personnel such as pilots, co-pilots, and flight attendants.

Aircrafts

- Attributes:
 - aircraft_id (Primary Key)
 - model
 - capacity
 - aircraft_type

Work: Represents the fleet of airplanes used for flights, storing details like model and seating capacity.

Flights

- Attributes:
 - flight_id (Primary Key)
 - departure_airport (Foreign Key from Airports)
 - arrival_airport (Foreign Key from Airports)
 - departure_terminal (Foreign Key from Terminals)
 - arrival_terminal (Foreign Key from Terminals)
 - departure_time
 - arrival_time

Work: Represents individual flight journeys and their schedules, connecting airports and terminals for departures and arrivals.

Bookings

- Attributes:
 - booking_id (Primary Key)
 - flight_no (Foreign Key from Flights)
 - aircraft_id (Foreign Key from Aircrafts)
 - total_time
 - departure_time
 - arrival_time

Work: Represents reservations made by passengers for specific flights, capturing travel timings and aircraft details.

Passengers

- Attributes:
 - p_id (Primary Key)
 - first_name
 - last_name
 - email
 - phone
 - passport_no
 - nationality
 - dob
 - gender
 - address
 - booking_id (Foreign Key from Bookings)
 - ticket_price
 - ticket_class
 - travel_date

Work: Represents travelers, storing their personal and booking information like contact details, ticket class, and travel dates.

Frequent Flyer

- Attributes:
 - loyalty_id (Primary Key)
 - p_id (Foreign Key from Passengers)
 - membership_no
 - membership_tier
 - valid_from
 - valid_to

Work: Tracks passengers enrolled in loyalty programs, storing their membership details and benefits.

Check-In

- Attributes:

- checkin_id (Primary Key)
- booking_id (Foreign Key from Bookings)
- checkin_time
- baggage_count
- assigned_seat
- boarding_time
- boarding_pass_id

Work: Handles passenger check-in processes, including seat assignments, baggage registration, and boarding pass details.

Luggage

- Attributes:
 - luggage_id (Primary Key)
 - checkin_id (Foreign Key from Check-In)
 - weight
 - is_fragile
 - luggage_type

Work: Manages information about passengers' baggage, including weight, type, and special handling requirements.

Payments

- Attributes:
 - payment_id (Primary Key)
 - amount
 - currency
 - payment_method
 - transaction_date

Work: Tracks financial transactions for bookings, storing details like payment amount and method.

Reviews

- Attributes:
 - review_id (Primary Key)
 - rating

- comments

Work: Captures passenger feedback about flights, services, or overall travel experiences.

Meals

- Attributes:
 - meal_id (Primary Key)
 - meal_type
 - dietary
 - price

Work: Represents meal options available to passengers, including dietary preferences and pricing.

Crew Assignments

- Attributes:
 - assignment_id (Primary Key)
 - crew_id (Foreign Key from Crew)
 - flight_id (Foreign Key from Flights)
 - assignment_role

Work: Manages flight crew assignments, linking crew members to specific flights and roles.

Entity Relationships

1. Passenger – Booking ("Makes_Booking")
 - Type: 1:1
 - Participation: Total on both sides—each passenger has one booking, and each booking is uniquely owned.
2. Booking – Payment ("Has_Payment")
 - Type: 1:1
 - Participation: Total on both sides—every booking must be paid for, and each payment is linked to one booking.
3. Payment – Check_In ("Allows_CheckIn")
 - Type: 1:1
 - Participation: Payment is partial (some payments do not lead to check-in), and Check-In is total.
4. Check_In – Luggage ("Has_Luggage")
 - Type: 1:1
 - Participation: Total on both sides—every check-in record must include luggage details.
5. Booking – Flight ("For_Flight")
 - Type: M:1
 - Participation: Booking is total; Flight is partial.
6. Flight – Review ("Has_Review")
 - Type: 1:N
 - Participation: Review is total; Flight is partial.
7. Flight – Aircraft ("Operated_With")
 - Type: M:1
 - Participation: Flight is total; Aircraft is partial.
8. Flight – Crew Assignment – Crew ("Assigned_To")
 - Type: M:N

- Participation: Flight is total; Crew is partial.

9. Airport – Terminal ("Has")

- Type: 1:N
- Participation: Total on both sides.

10. Terminal – Flight ("Handles")

- Type: 1:N
- Participation: Flight is total; Terminal is partial.

11. Crew – Employee ("Belongs_To")

- Type: 1:N
- Participation: Crew is total; Employee is partial.

12. Booking – Meal ("Includes_Meal")

- Type: M:N
- Participation: Both sides are partial.

13. Payment – Loyalty ("Earns_Points")

- Type: 1:1
- Participation: Both sides are partial.

Flow Explanation

- Passenger books a flight, creating a booking tied to a specific flight and aircraft.
- Payment details are recorded for the booking.
- The passenger checks in, with details of their seat assignment and baggage recorded.
- Luggage is handled during check-in, and any special requirements (like fragile items) are noted.
- For frequent flyers, membership benefits are applied as part of their journey.
- Meal preferences, if selected, are logged and associated with the passenger's booking.

THANK YOU