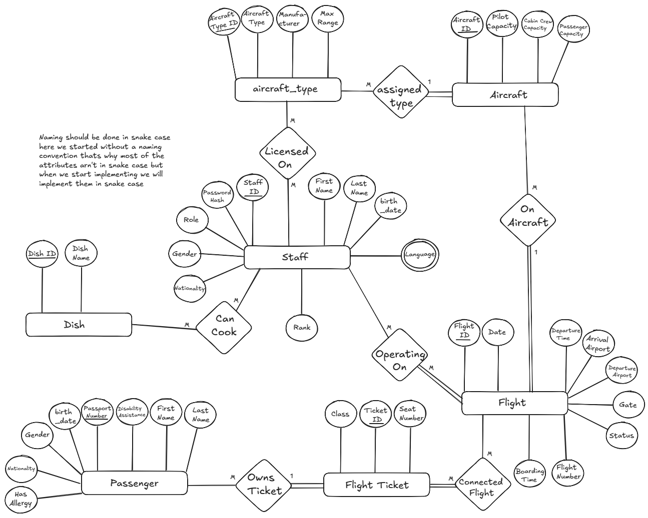
Naming should be done in snake case here we started without a naming convention thats why most of the attributes arn't in snake case but when we start implementing we will implement them in snake case



ER SCHEMA

aircraft_type(aircraft_type_id, aircraft_type, manufacturer, max_range)
assigned_type(aircraft_type_id, aircraft_id)
aircraft(aircraft_id, pilot_capacity, cabin_crew_capacity, passenger_capacity)
staff(staff_id, first_name, last_name, birth_date, {language}, password_hash, role, rank, gender, nationality)
licensed_on(staff_id, aircraft_type_id)
can_cook(staff_id, dish_id)
dish(dish_id, dish_name)
operating_on(staff_id, flight_id)
flight(flight_id, date, departure_time, departure_airport, arrival_time, arrival_airport, gate, status, flight_number, boarding_time)
on_aircraft(flight_id, aircraft_id)
connected_flight(flight_id, ticket_id)
flight_ticket(ticket_id, seat_number, class)
owns_ticket(ticket_id, passport_number)
passenger(passport_number, first_name, last_name, birth_date, gender, nationality, has_allergy, disability_assistance)

Cardinality

Relation	Type	Reason
assigned_type	M(aircraft_type):1(aircraft)	An aircraft type may be assigned to more than 1 aircraft An aircraft can only have 1 aircraft type
licensed_on	M(aircraft_type):M(staff)	An aircraft type may have many staff who are licensed on it Many staff can be licensed on the same aircraft type
can_cook	M(dish):M(staff)	A dish can have multiple staff who can cook it A staff could cook more than 1 dish
operating_on	M(flight):M(staff)	A flight can have multiple staff assigned to it A staff can be assigned to multiple flights at different times!
on_aircraft	1(flight):M(aircraft)	A flight may only have 1 aircraft assigned to it An aircraft may have multiple flights assigned to it at different times!
connected_flight	M(flight_ticket):M(flight)	A flight ticket can be associated with multiple flights allowing transit / shared flights A flight can have multiple flight tickets
owns_ticket	M(passenger):1(flight_ticket)	A passenger may own multiple flight tickets A flight ticket can be owned by only 1 passenger

Participation

P= partial participation / T = total participation

Relation	Type	Reason
assigned_type	P(aircraft_type):T(aircraft)	Not every aircraft type has to have an aircraft Every aircraft has to have a type
licensed_on	P(aircraft_type):P(staff)	Not every aircraft type has staff who are licensed on it Not every staff have a license on an aircraft type
can_cook	P(dish):P(staff)	Not every dish can be cooked by a staff Not every staff is able to cook
operating_on	T(flight):P(staff)	Every flight has to have staff assigned to it Not every staff is assigned to a flight
on_aircraft	T(flight):1(aircraft)	Every flight must have an aircraft assigned to it Not every aircraft is assigned to a flight
connected_flight	T(flight_ticket):P(flight)	Every flight ticket must be connected to a flight Not every flight has flight tickets
owns_ticket	P(passenger):T(flight_ticket)	Not every passenger has a flight ticket Every flight ticket is owned by a passenger

Relational Schema

aircraft_type(aircraft_type_id, aircraft_type, manufacturer, max_range)
aircraft(aircraft_id, aircraft_type_id(fk), pilot_capacity, cabin_crew_capacity, passenger_capacity)
staff(staff_id, first_name, last_name, birth_date, password_hash, role, rank, gender, nationality)
speaks(staff_id, language)
licensed_on(staff_id, aircraft_type_id)
can_cook(staff_id, dish_id)
dish(dish_id, dish_name)
operating_on(staff_id, flight_id)
flight(flight_id, aircraft_id(fk), date, departure_time, departure_airport, arrival_time, arrival_airport, gate, status, flight_number, boarding_time)
connected_flight(flight_id, ticket_id)
flight_ticket(ticket_id, passport_number(fk), seat_number, class)
passenger(passport_number, first_name, last_name, birth_date, gender, nationality, has_allergy, disability_assistance)

SNAPSHOT

aircraft_type

aircraft_type _id	aircraft_type	manufacturer	max_range (km)
1	B-757-200ER	Boeing	8,300
2	B-757-300	Boeing	6,300
3	A-380-800	Airbus	14,800
4	IL-76M	Ilyushin	4,800
5	DC-10-30	McDonnell Douglas	12,200

aircraft

aircraft_id	airplane_type _id(fk)	pilot _capacity	cabin_crew _capacity	passenger _capacity
1	1	2	6	200
2	1	2	6	239
3	2	2	8	280
4	4	7	3	140
5	5	3	11	380

staff

staff_id	first_name	last_name	birth _date	password _hash	role	rank	gender	nationality
1	James	Bond	01/12/1949	ahoha2shy	Pilot	Junior	Male	Turkish
2	John	Doe	21/05/1979	asgasgvag	Cabin Crew	Senior	Female	Turkish
3	Jackie	Chan	02/01/1999	1trewsgaag	Pilot	Senior	Male	Turkish
4	Johannes	Keplar	14/7/2005	gawgasgsa	Cabin Crew	Trainee	Male	Turkish
5	Isaac	Newton	14/7/2006	asqt231as	Cabin Crew	Junior	Male	Turkish

speaks

staff_id	language
1	English
1	Turkish
2	English
2	Japanese

licensed_on

staff_id	aircraft_type _id
1	1
1	2
2	1
2	2

can_cook

staff_id	dish_id
1	1
1	2
2	1
2	2

operating_on

staff_id	flight_id
1	1
1	2
2	1
2	2

flight

flight_id	aircraft_id (fk)	date	departure _time	departure _airport	arrival _time	arrival _airport	gate	status	flight _number	boarding _time
1	1	25/10/2026	03:30	IST	05:30	LHR	12A	inroute	03:30	200
2	1	25/10/2026	15:45	LHR	17:45	IST	5B	239	15:45	239
3	2	25/10/2026	03:30	LHR	05:30	IST	5B	280	8	280
4	4	26/10/2026	12:30	SAW	2:30	LHR	7C	140	3	140
5	5	26/10/2026	11:00	SAW	1:00	LHR	9A	380	11	380

connected_flight

flight_id	ticket_id
1	1
2	1
1	2
2	2

flight_ticket

ticket_id	passport_number (fk)	seat_number	class
1	154656461564	12A	Economy+
2	154656461564	24B	Economy
3	846168664654	32A	Economy
4	846168664654	01C	Business

passenger

passport _number	first_name	last_name	birth _date	gender	has _allergen	disability _assistance	nationality
1	James	Bond	01/12/1949	Male	yes nuts	yes wheelchair	Turkish
2	John	Doe	21/05/1979	Female	no	yes deaf	Turkish
3	Jackie	Chan	02/01/1999	Male	yes milk	yes blind	Turkish
4	Johannes	Keplar	14/7/2005	Male	no	no	Turkish
5	Isaac	Newton	14/7/2006	Male	no	no	Turkish