2.b

Give a brief (one sentence) description of each of your entities and relationships, and any constraints that exist. For example, X is a weak entity with attributes (a, b, c), and has a many-one relationship with Y

Person: denotes the meta definition of a person with attributes (id [PK], name, age, phone_number)

Baggage: is an entity with attributes (type, quantity, weight, is_fragile), has a many-to-one relationship with *Ticket*

Passenger: is a subclass of *Person*, with attributes (dietary_preference), has a one-many relationship with *Ticket*

Ticket: is a strong entity with atributes (ticket_number [PK], seat_number, class, price, travel_website), having one-to-many relationship with *Baggage*

Pilot: is a subclass of *Person*, with attributes (position, salary), has a "fly" one-to-many relationship with *airplane*

Cabin Crew: is a subclass of *Person*, with attributes (position, salary), has a "work" many-to-one relationship with *airline*

Ground Staff: is a subclass of *Person*, with attributes (department, salary), has a "work" many-to-one relationship with *airport*

airport: is a strong entity with attributes (iata_code [PK, FK], name [PK], city), has "has" one-to-many relationship with *Ground Staff* and many-to-one with *country*

country: is a strong entity with attributes (code [PK], name, continent), has one-to-many relationship with *airline*

airline: is a strong entity with attributes (name, alias [PK]), has one-to-many relationship with *scheduled_flight*, and one-to-many with *airplane*

airplane: is a strong entity with attributes (serial_number [PK], manufacturer, model), has many-to-one relationship with *pilot*

flight_route: is a strong entity with attributes (id [PK], stop, duration), has one-to-many relationship with *scheduled_flight* and one-to-one with *airport* through relationship `source` and `dest`

scheduled_flight: is a strong entity with attributes:

(flight_number [PK], departure_date, arrival_date
scheduled_departure_time,scheduled_arrival_time,
actual_departure_time,actual_arrival_time)

has one-to-many relationship with *flight_route* and one-to-many with *airport* through relationship `source`

Constraints:

- All person id are unique.
- An airline must own at least one airplane and have at least one cabin crew member.
- An airplane must be flown by at least one pilot.
- An airport must have at least one ground staff.
- A scheduled flight must have at least one ticket purchased for it.
- A country can have zero or more airports, but an airport must be in exactly one country.
- An airline belongs to exactly one country.
- A route contains exactly one source airport and one destination airport.
- A scheduled flight contains exactly one route and is associated with exactly one airline.
- A ticket is bought for exactly one scheduled flight and by exactly one passenger.