ER Diagram — Flight Reservation System

Entities, attributes, and relationships:

WEEKLY_FLIGHTS (entity)
- WeeklyFlightID (key)
- FlightNumber
- DayOfWeek
- DepartureTime
- WeekDayFactor

ROUTE (entity)
- RouteID (key)
- BasePrice
- DepartureAirport
- ArrivalAirport

YEAR (entity)
- Year (key)
- ProfitFactor

AIRPORT (entity)
- AirportID (key)
- Name

FLIGHT (entity)
- FlightID
- WeekNumber

RESERVATION (entity)
- ReservationID (key)
- ReservationNumber
- CreatedDateTime
- Status [Pending|Canceled|Booked]

BOOKING (entity)
- BookingID
- TotalPrice
- BookingDateTime

TICKET (entity)
- TicketNumber
- SeatPrice

PAYMENT (entity)
- PaymentID
- CardHolderName
- CardNumber
- PaymentDateTime

PASSENGER (entity)
- PassengerID
- FullName
- PassportNumber

CONTACT_DETAILS (entity)
- ContactID
- Email
- Phone

PASSENGER_RESERVATION (entity)
- IsBookingContact (Boolean)
  (One passenger per booking must be contact)

Relationships:
- ROUTE — has (M) — (N) WEEKLY_FLIGHTS
- ROUTE — follows (M) — (1) AIRPORT
- ROUTE — has (1) — (1) YEAR
- WEEKLY_FLIGHTS (N) — for (1) YEAR
- WEEKLY_FLIGHTS (1) — has (1) — (M) FLIGHT
- FLIGHT (M) — for (N) — (1) RESERVATION
- RESERVATION (1) — follows (1) — BOOKING (1)
- BOOKING (1) — has (N) — TICKET
- BOOKING (1) — contains (1) — PAYMENT
- PASSENGER (1) — has (1) — BOOKING
- PASSENGER (M) — has (N) — PASSENGER_RESERVATION
- PASSENGER (1) — have (1) — CONTACT_DETAILS

Constraints $ Assumptions -

1. 40 seats per flight fixed.
2. Over-reservation are allowed but at booking/payment time must check seat availability.
3. Reservation may include multiple passenger.
4. All passenger must be added before booking.
5. A booking contact must be specified before payment.
6. Ticket is generated per passenger & is unguessable.
7. Payment can be from a non-passenger.