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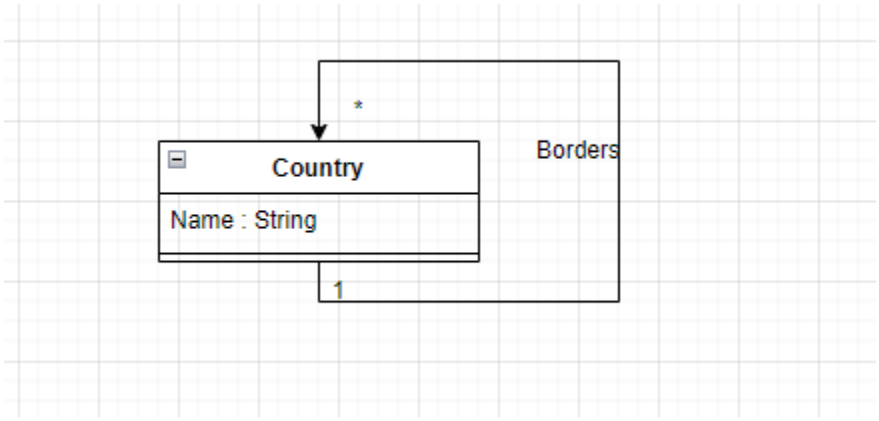
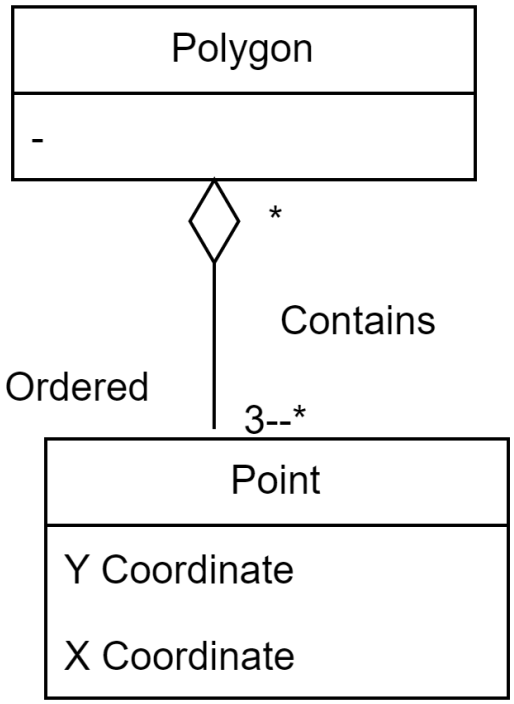
Lab04:

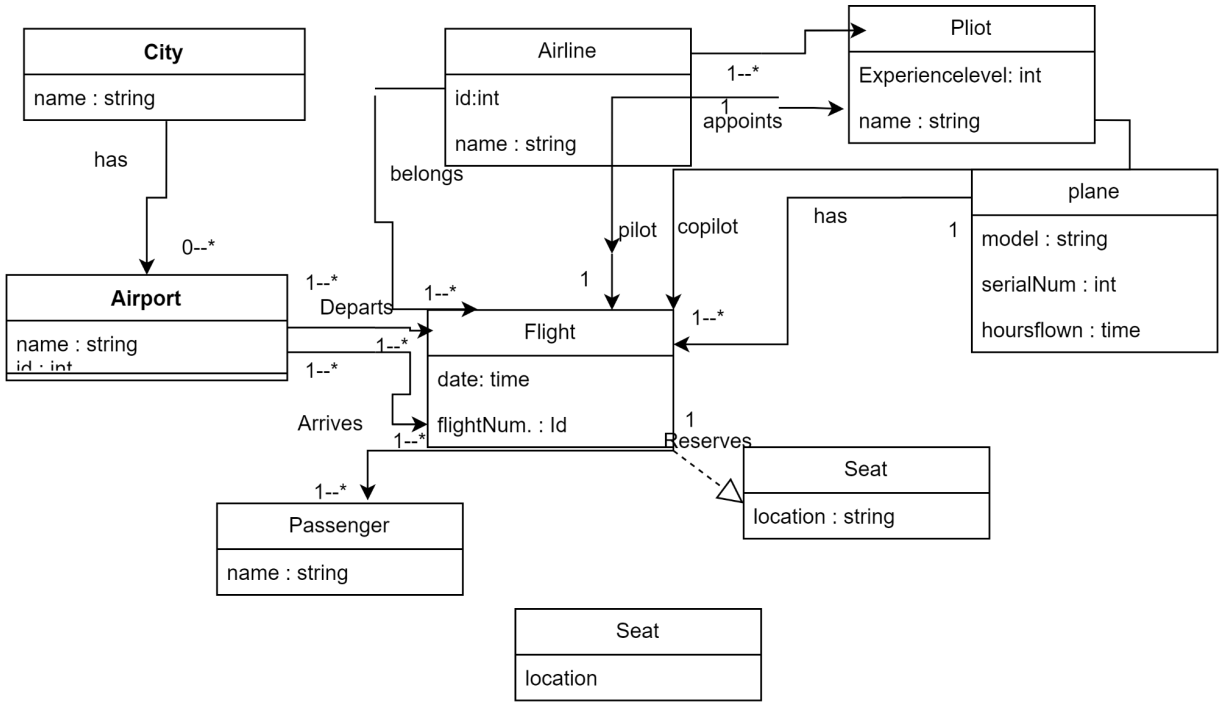
Q1) Prepare a class diagram for the following object diagram that shows a portion of Europe.



Q2) Prepare a class diagram for object diagram given in Figure -2. Explain your multiplicity decisions.
What is the smallest number of points required to construct a polygon? Does it make a difference
whether or not point may be shared between polygons? Your answer should address the fact that
points are ordered.



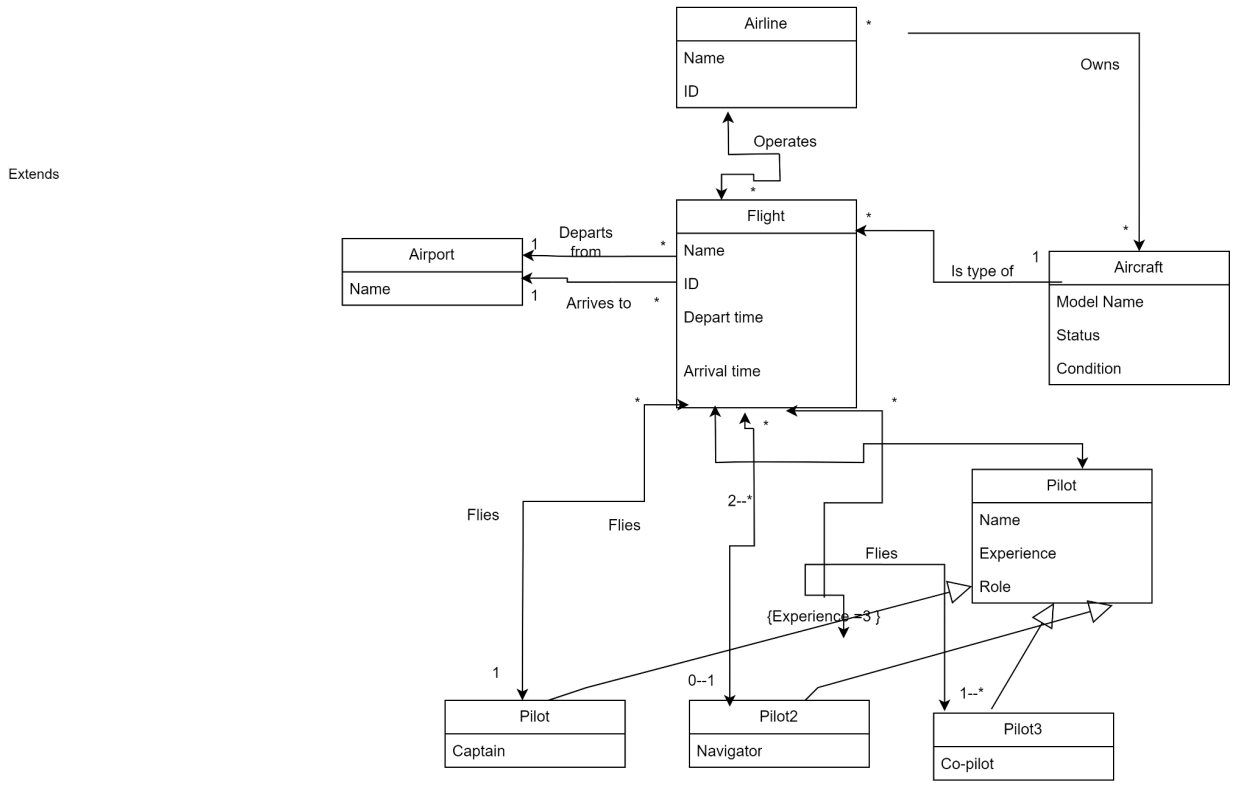
Q3) Figure 3 is a partially completed class diagram of an air transportation system. Add multiplicities
in the diagram. Also add association names to unlevelled associations.



→Assumptions made:

1. A passenger can fly multiple flights and a flight has multiple passengers.
2. A single airport exists for a single city.
3. A seat is located in a particular location and there are multiple seats in a model aircraft.
4. A flight has a certain model number and there can be different flights with same models.
5. There exists one plane for many flights
6. An airline contains many pilots
7. A pilot is employed by a single airline and airline can have multiple employees.

Q4) We want to model a system for management of flights and pilots. An airline operates flights. Each
airline has an ID. Each flight has an ID a departure airport and an arrival airport: an airport as a unique
identifier. Each flight has a pilot and a co-pilot, and it uses an aircraft of a certain type; a flight has also
a departure time and an arrival time. An airline owns a set of aircrafts of different types. An aircraft
can be in a working state or it can be under repair. In a particular moment an aircraft can be landed
or airborne. A company has a set of pilots: each pilot has an experience level: 1 is minimum, 3 is
maximum. A type of aeroplane may need a particular number of pilots, with a different role (e.g.:
captain, co-pilot, navigator): there must be at least one captain and one co-pilot, and a captain must
have a level 3.



Assumptions made:

1.An airline has multiple aircrafts and an aircraft can do many flights.

2.An airport has many flights , arrival and departure.