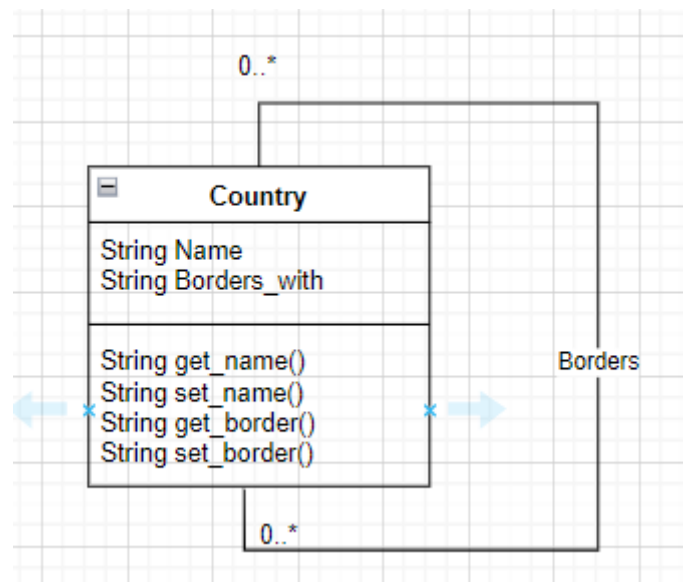# IT314

Software Engineering

Lab4

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

Spain: Country	Borders	France: Country	Borders	Belgium: Country
Name = Spain		Name = France		Name = Belgium

Figure-1

Answer:

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.
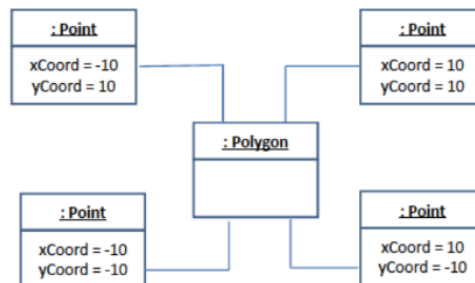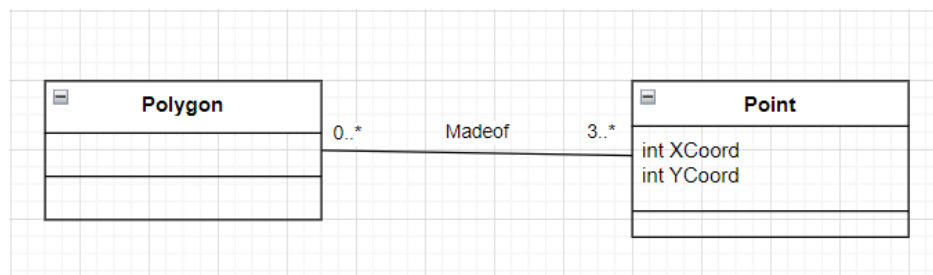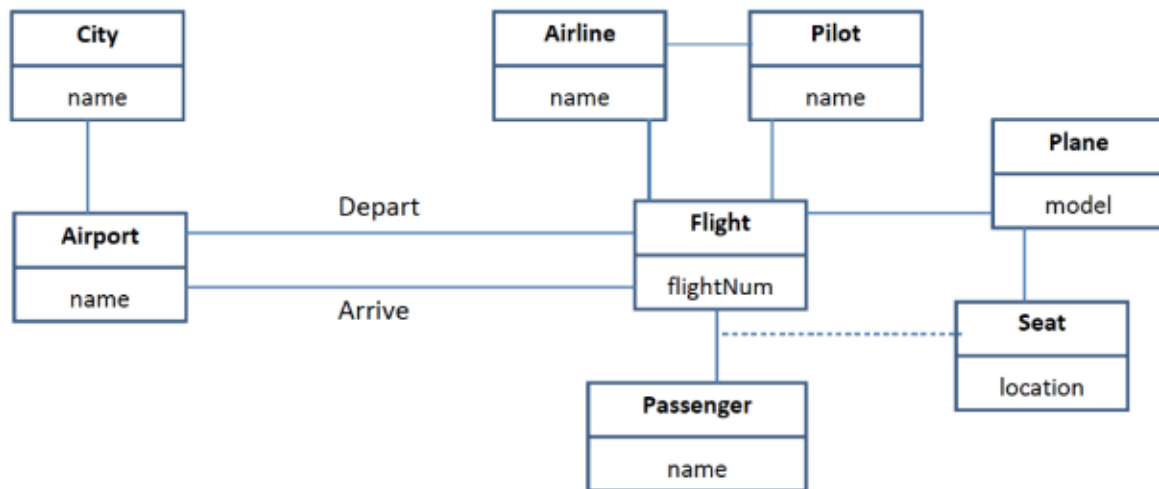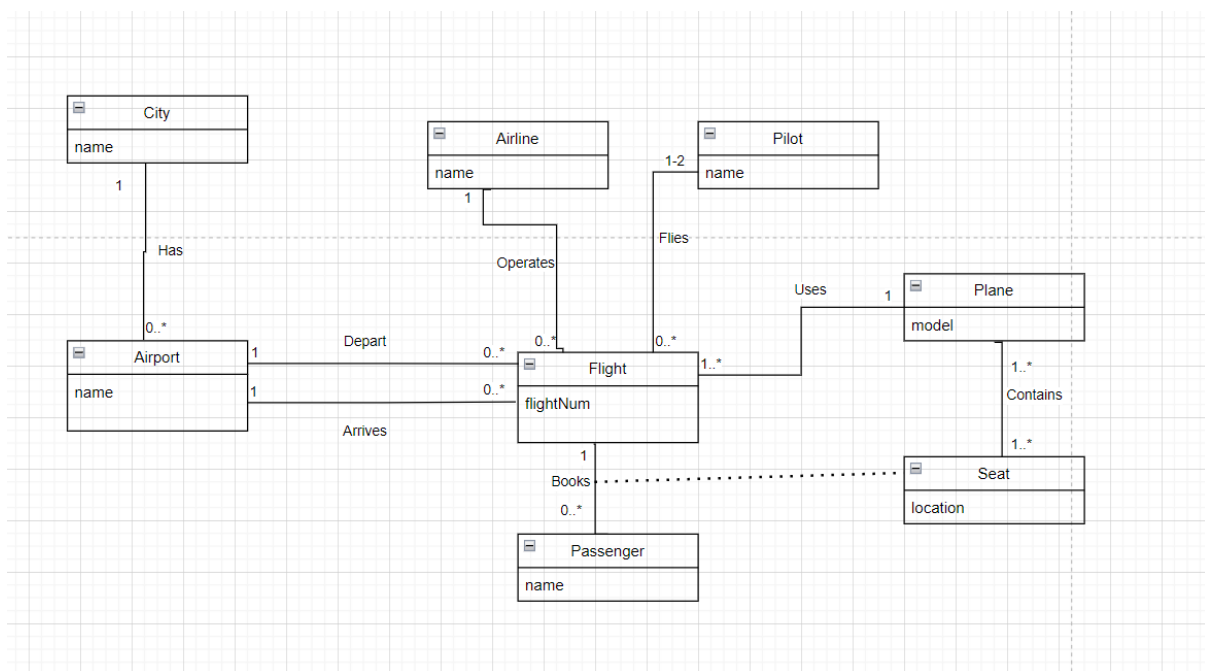

Figure - 2

Answer:

- Polygon can be made up of atleast 3points as smallest polygon is triangle.
- Atleast 3 points are required to construct a polygon.
- No it doesn't make a difference if the point is shared or not between the polygon, we wiil need atleast 3 point.
- The order of the points does not matter as it determines the edges of polygon and how they connect. If the point are not ordered the structure of polygone would not be proper.

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.

Answer:

Q.4 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.

Answer: