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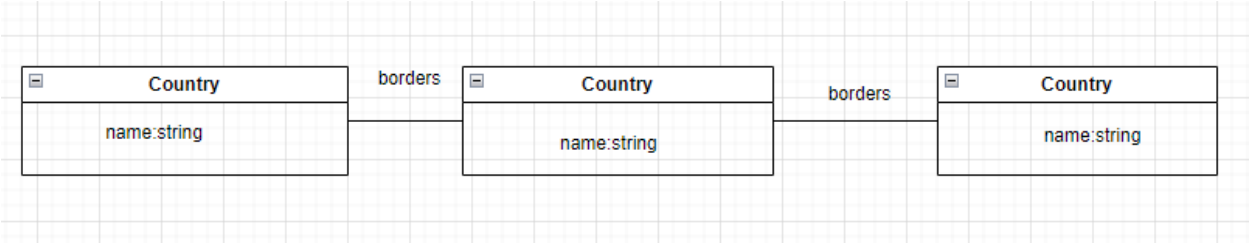
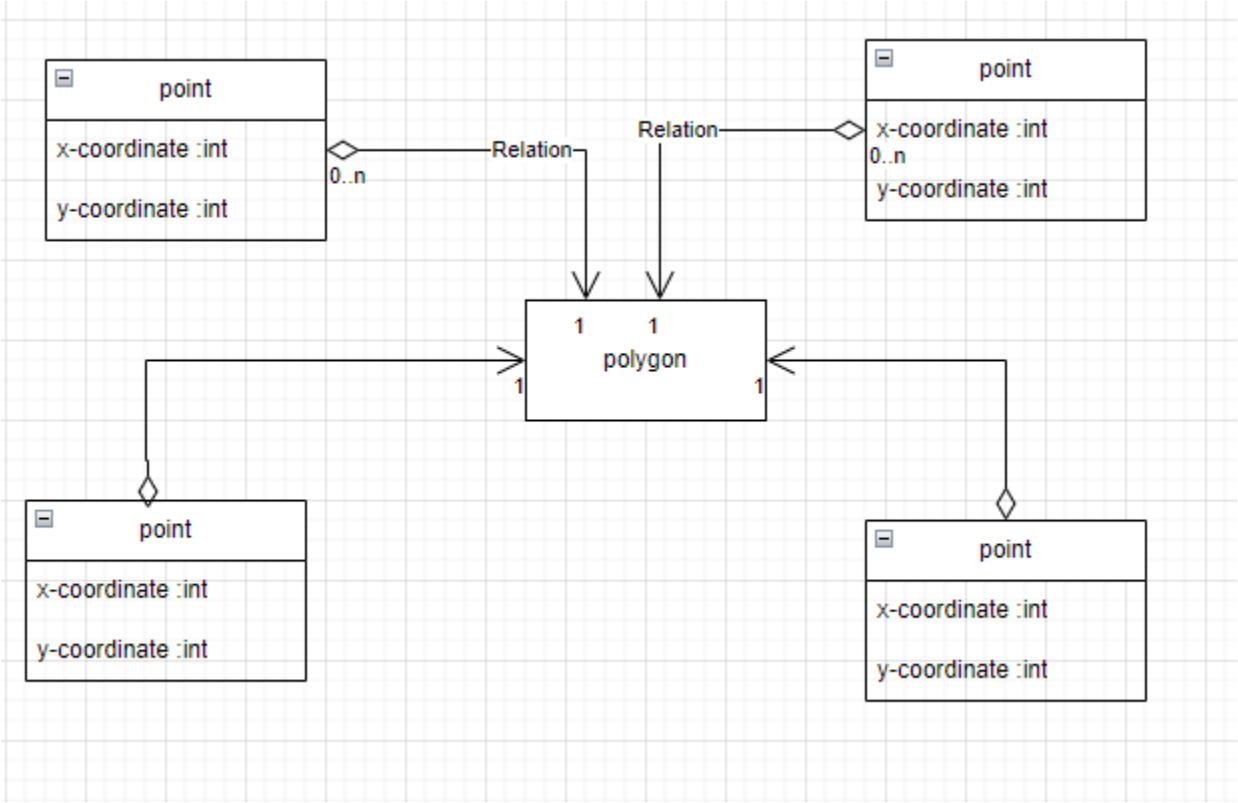
Sakshi Shah

Question 1



Question 2



1. **Smallest Number of Points Needed to Create a Polygon:**
   The minimum number of points required to form a polygon is three. This is because, by definition, a polygon is a closed shape made up of at least three sides, which in turn requires at least three distinct points or vertices.

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2. **Does It Matter If Points Are Shared Between Polygons?**
   Yes, it matters. When points are shared between polygons, multiple polygons can have common vertices, creating a connected structure. This is often seen in mesh systems, where sharing vertices reduces redundancy and ensures the polygons are connected smoothly. On the other hand, if points aren't shared, each polygon will have its own distinct set of points, which might be necessary when polygons are independent and separate from each other.
3. **The Importance of Point Order**:
   The order in which the points are connected is key to defining the shape of a polygon. The way points are ordered determines how the edges are drawn, and whether the polygon is oriented clockwise or counterclockwise. The same set of points can produce different polygons depending on their order, which also impacts whether the shape is convex or concave.

Multiplicity Considerations:
In a class diagram representing polygons and points, each polygon would be associated with multiple points. This relationship could be described as:

- Polygon - Point: 1 to * (one polygon is made up of multiple points).
- If points can be shared between polygons: the relationship might be * to *.
- If points cannot be shared: the relationship would likely be 1 to * (one polygon has multiple unique points).

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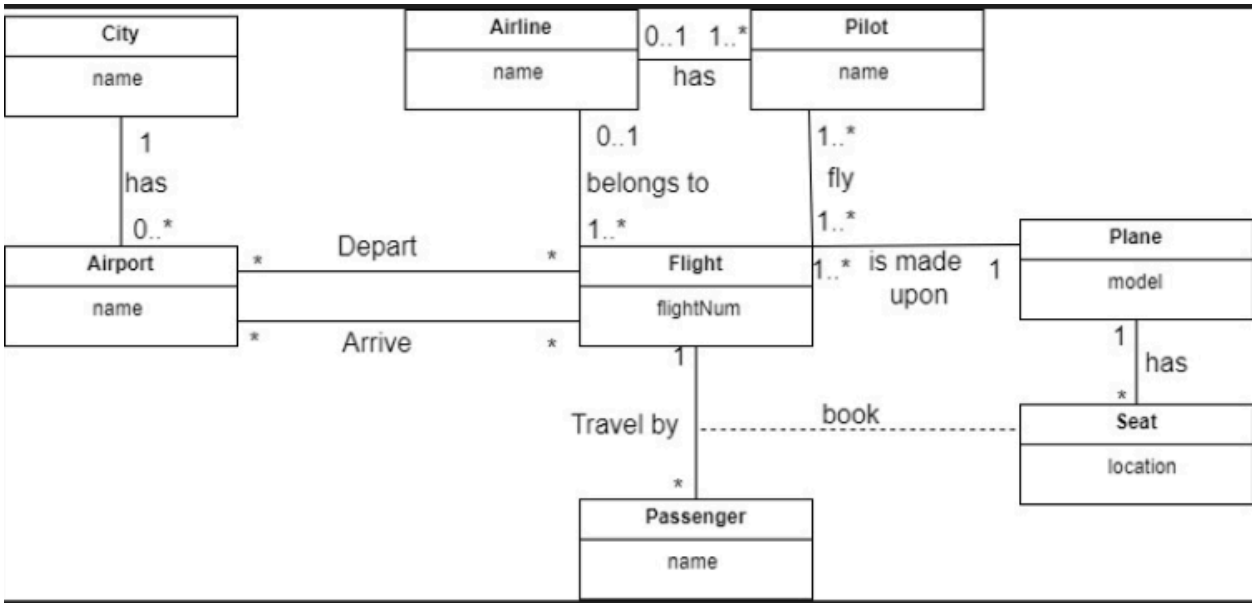
Question 3



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