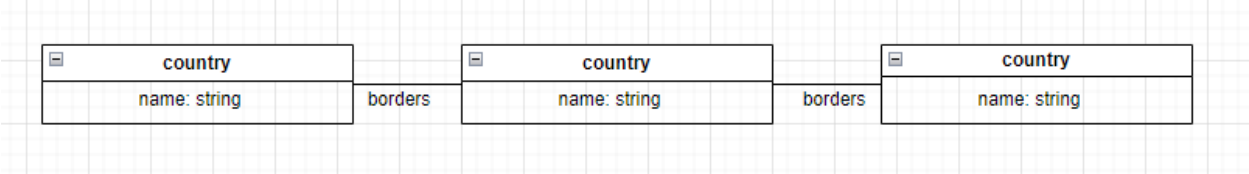
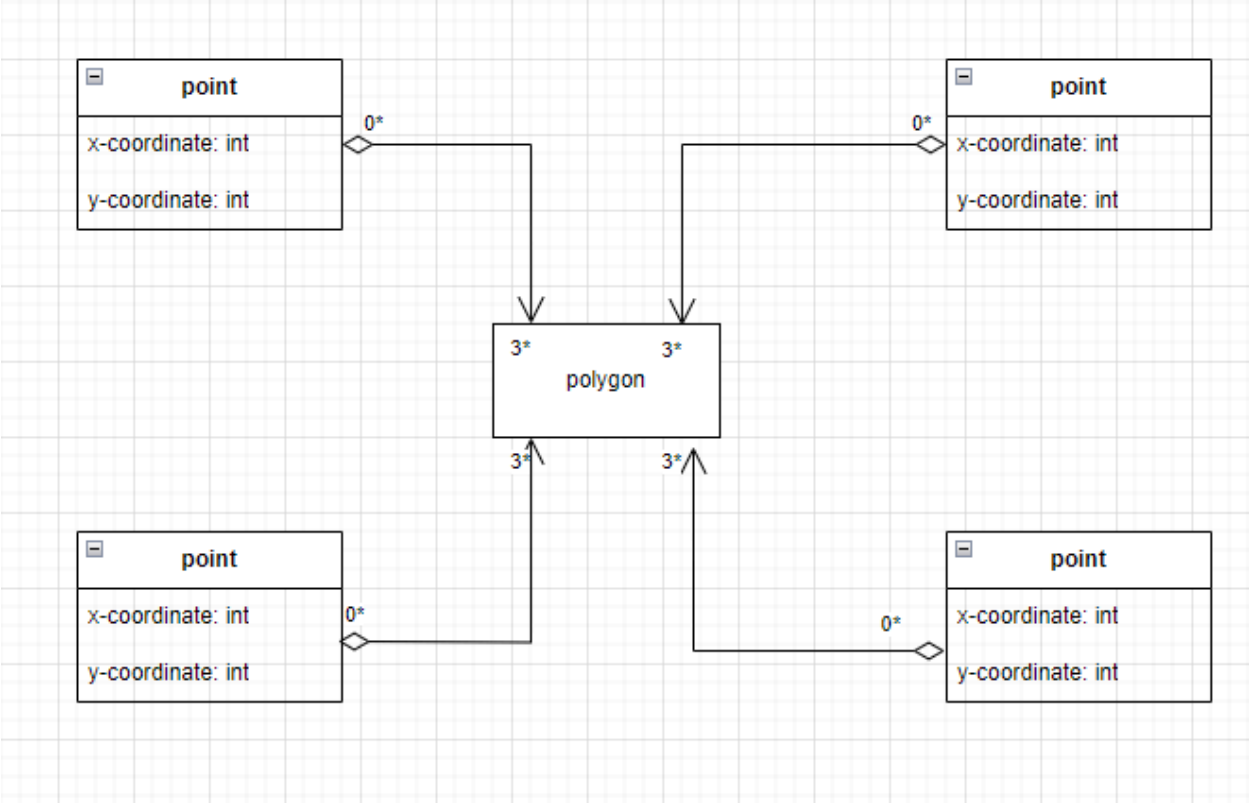
Vivek Chaudhari
202201294

Question 1:



Question 2:



A1. Smallest number of points required to construct a polygon is 3. This is because a polygon is a closed shape with at least 3 sides, which requires at least 3 distinct points.

A2 .Yes, it does make a difference. If points are shared between polygons, then multiple polygons can share the same vertex (or vertices), leading to a connected set of polygons. This is common in mesh-like structures where vertices are shared to minimize redundancy and ensure continuity. If points are not shared, each polygon would have its own set of distinct points, which might be necessary in cases where polygons are independent of each other.

A3: The order of points is crucial in defining the shape of a polygon. The order determines the sequence in which the vertices are connected to form the edges of the polygon. For example, a set of points ordered clockwise will form a different polygon compared to the same set ordered counterclockwise. The ordering also affects whether the polygon is convex or concave.

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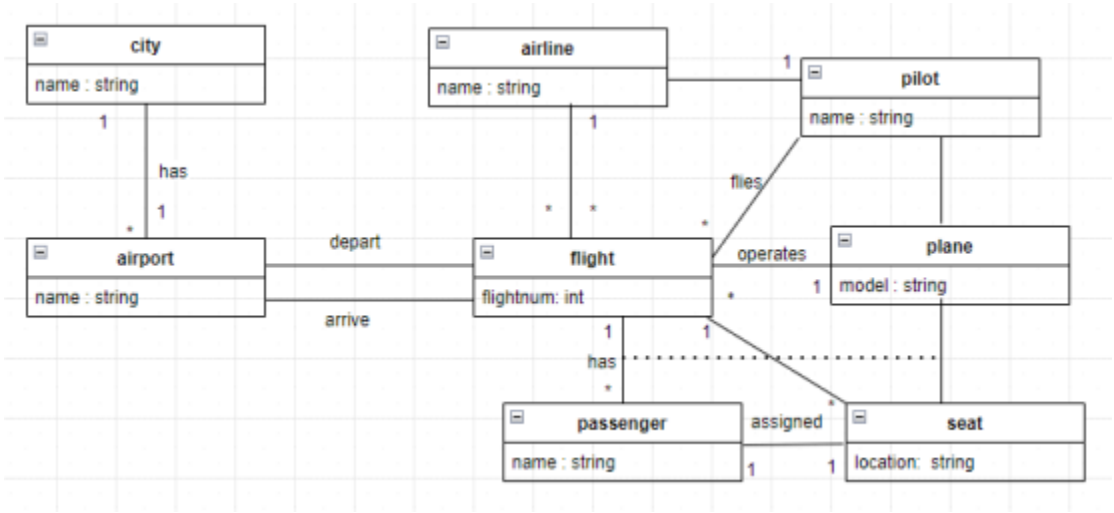
Multiplicity Decisions:

In a class diagram corresponding to the object diagram, each Polygon class would be associated with
multiple Point instances. The multiplicity would likely be:
Polygon - Point: 1 to * (indicating that a polygon is composed of multiple points).
If points can be shared: the relationship might be * to *.
If points cannot be shared: the relationship might be 1 to *.

Question 3:



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Question 4: