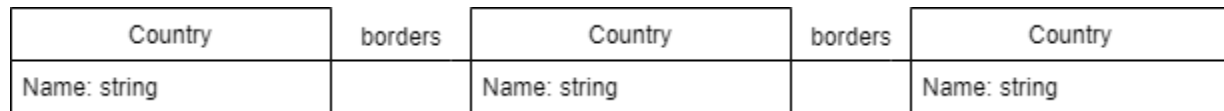


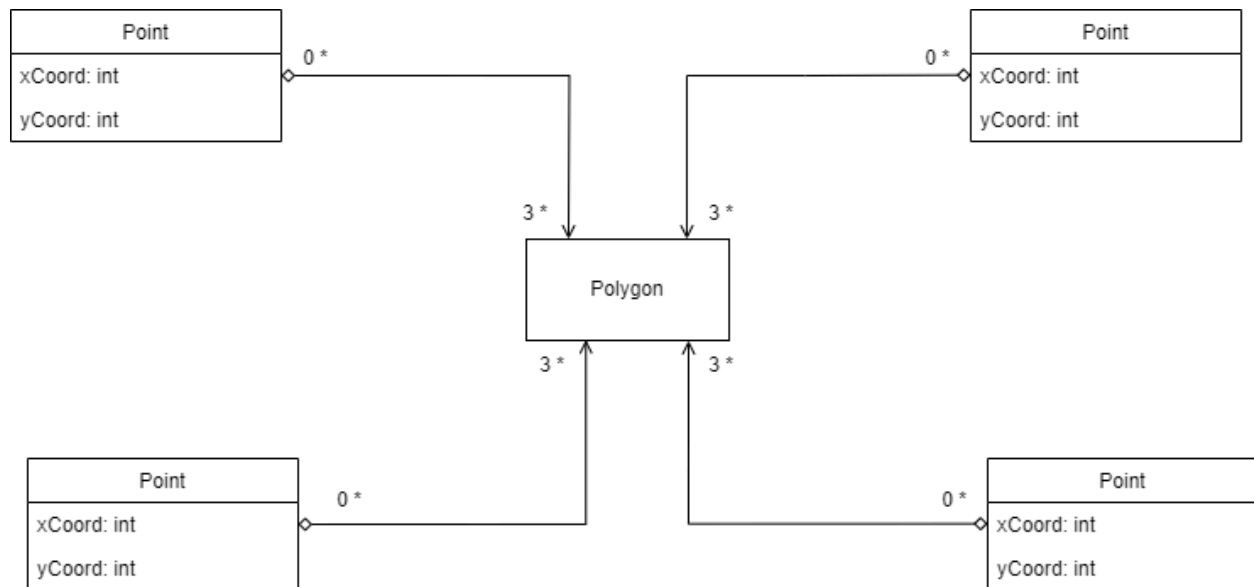
IT314-Lab4

202201323-Shrestha Thakkar

Q1.



Q2.



1. Smallest Number of Points Required to Construct a Polygon:

Answer: The smallest number of points required to construct a polygon is 3. As a polygon is defined as a closed shape it needs at least three sides and hence three distinct points.

2. Does it Make a Difference Whether Points May Be Shared Between Polygons?

Answer: 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.

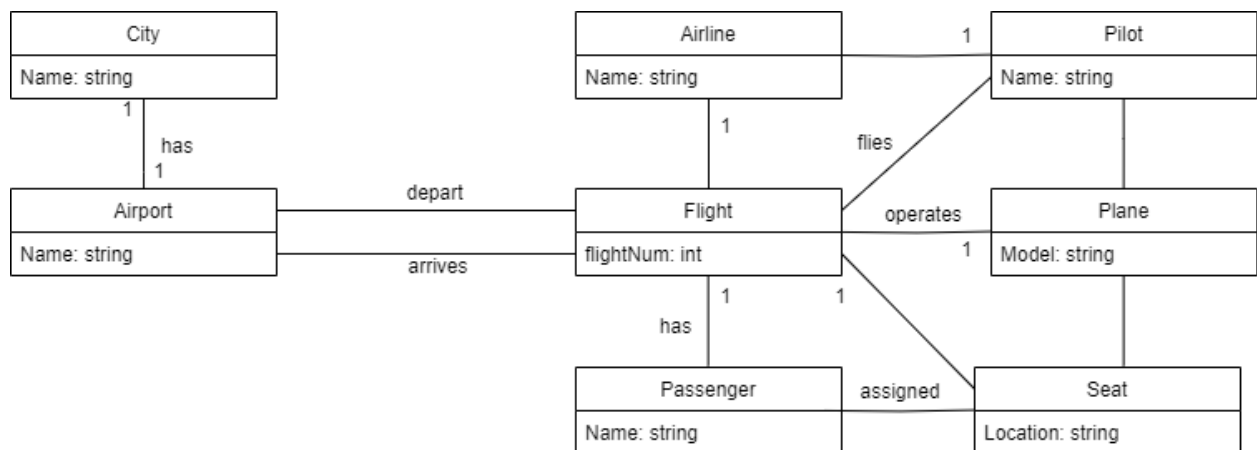
3. Addressing the Fact That Points are Ordered:

Answer: 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.

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 *.

Q3.



Q4.

