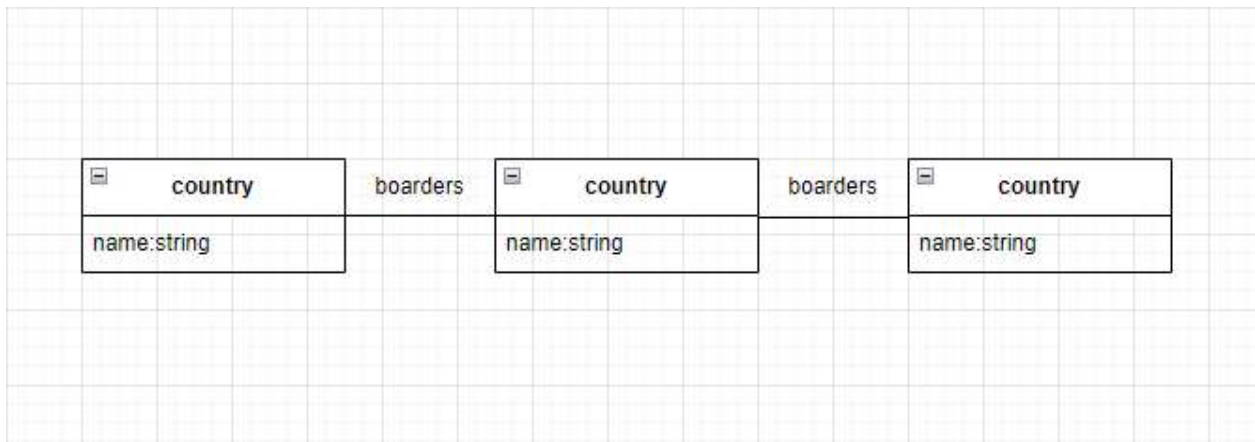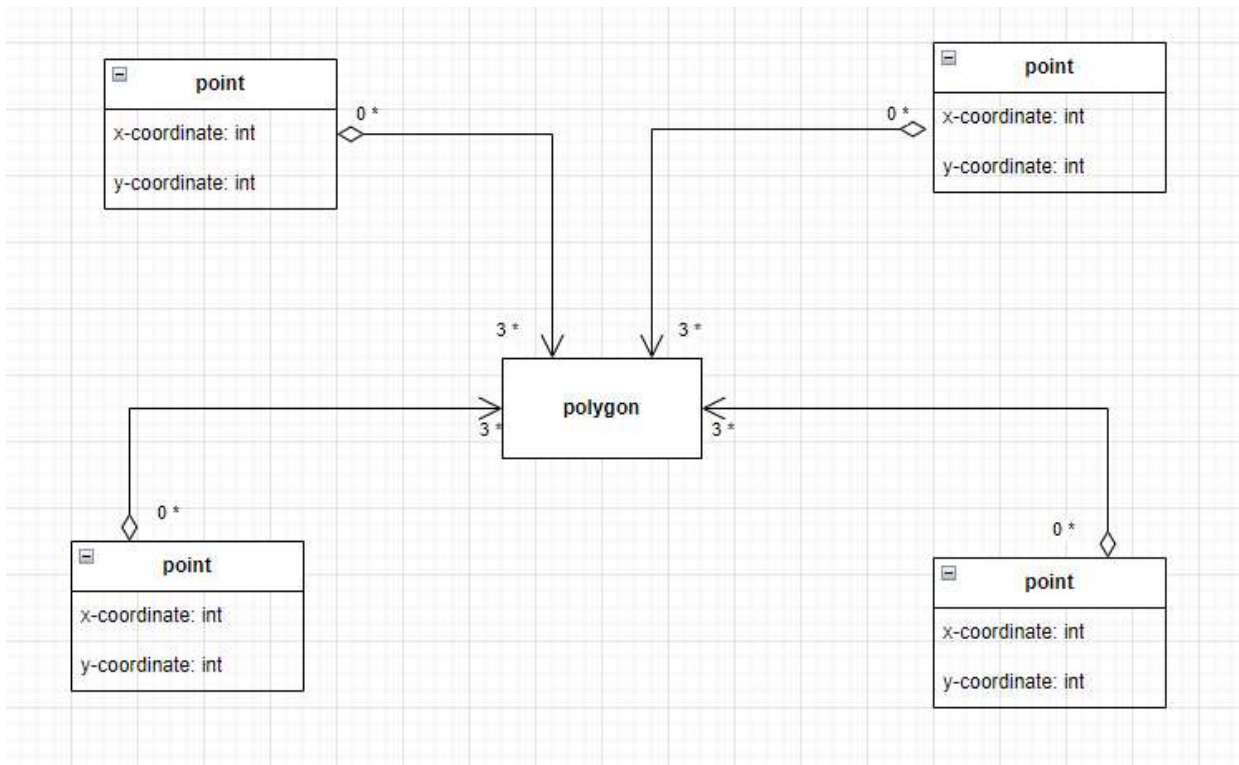**LAB-04**
RISHABH JAIN (202201271)

Question 1:

Question 2:

1. **What is the smallest number of points required to construct a polygon?**
    The smallest number of points required to construct a polygon is 3. This is because a polygon is defined as a closed shape with at least 3 sides requiring at least 3 distinct vertices.

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2. **Does it make a difference whether or not point may be shared between polygons?**
    Yes, it does make a difference. If points are shared between polygons, then multiple polygons can share the same vertex, leading to connected sets of polygons.

3. **Addressing the fact that points are ordered**
    The order of points is crucial in defining the shape of the 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.
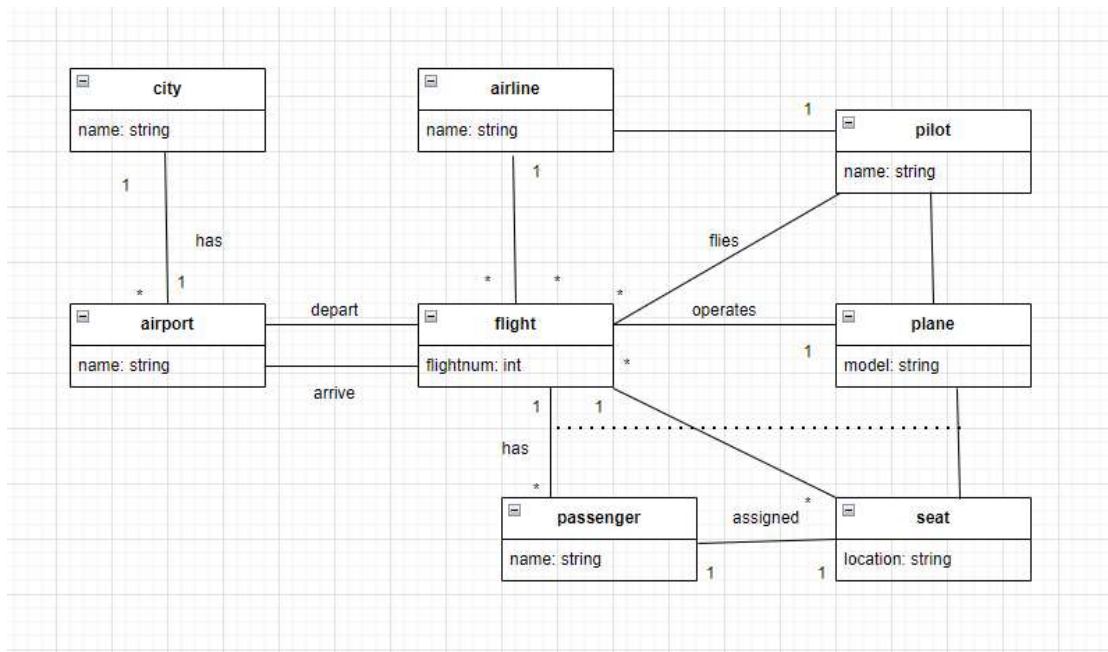
    Multiplicity Decisions:

    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 *.

Question 3:

Question 4: