1.

0..*

Borders

Country

String name

String Borders_with

string get_name()

string set_name()

string get_border()

string set_border()

0..*

2.

Polygon	

made of

0..* ————————— 3..*
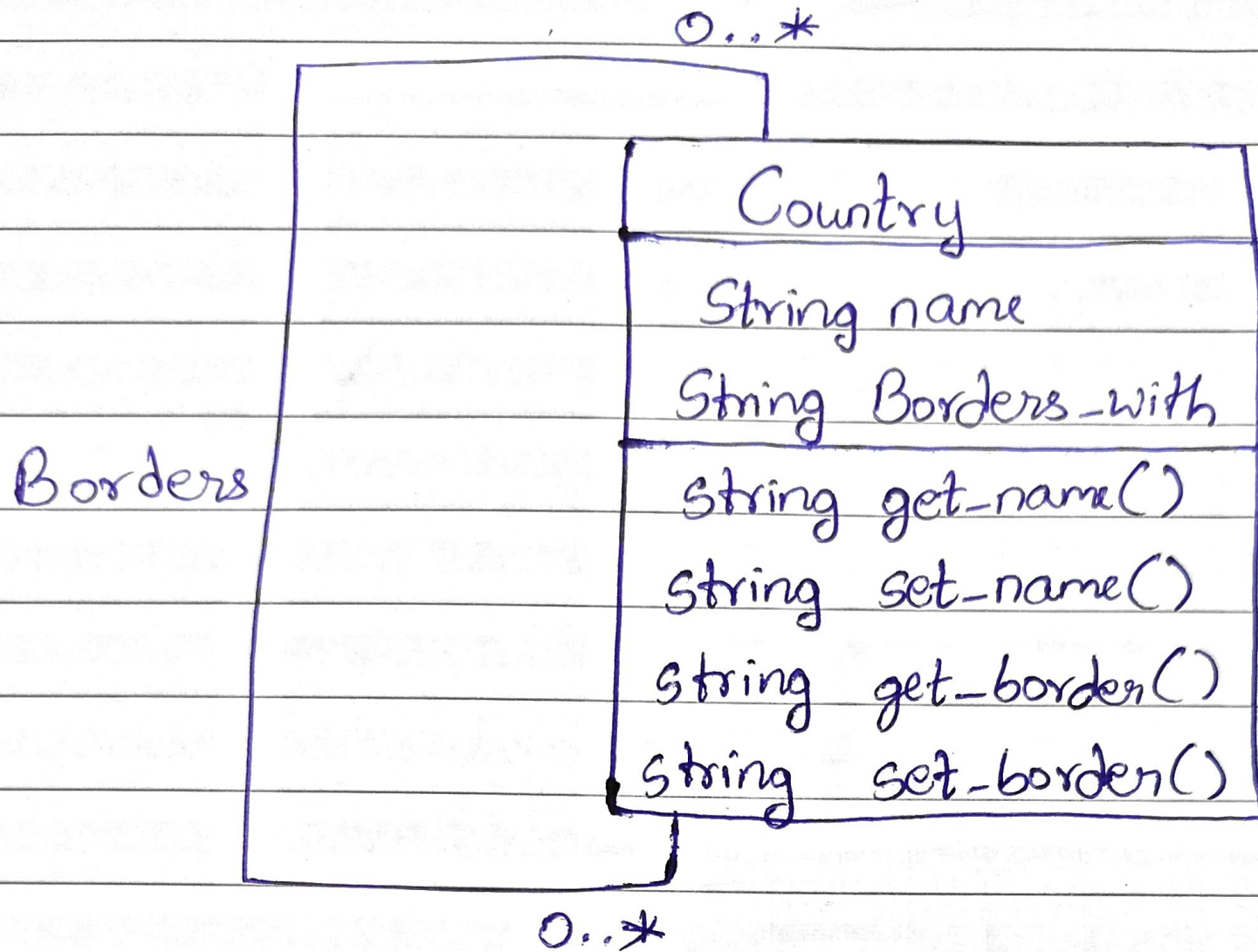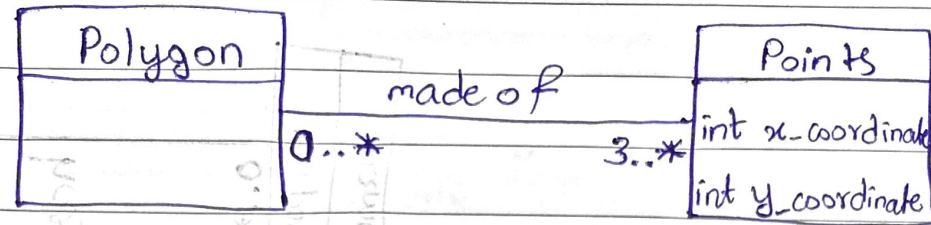
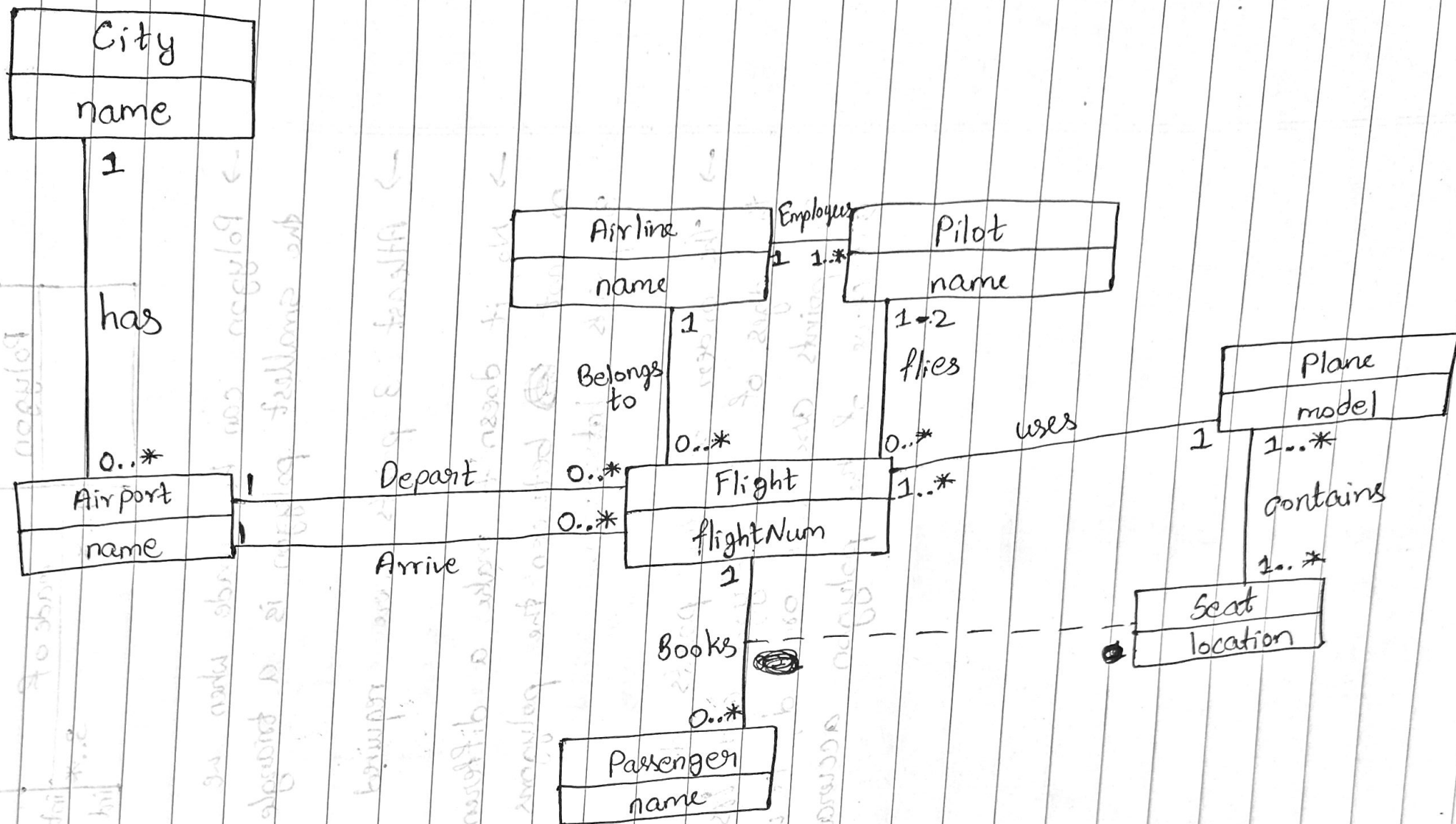| Points |
|---|
| int x_coordinate |
| int y_coordinate |

→ Polygon can be made when we have atleast 3 points as the smallest polygon is a triangle which requires 3 points.

→ 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 polygons, we will need atleast 3 points whatsoever.

→ The order of the points does matter as it determines the edges of the polygon and its order of connection. If points are not ordered, it would not define the structure of the polygon accurately.

3.

City
name

1

has

0..*

Airport
name

Depart   0..*

Arrive   0..*

Airline
name

1

Belongs
to

0..*

Employees

1   1..*

Pilot
name

1..2

flies

0..*

Flight
flightNum

1..*

uses

1..*

1

Books

0..*

Passenger
name

1

Plane
model

1..*

Contains

1..*

Seat
location

4.

UML class diagram:

Airline
- int ID
- string name

Flight
- int ID
- String arrival_time
- String departure_time

Airport
- int ID
- string name

Aircraft
- String name
- String repair
- String landed

Aircraft_type
- String name

Pilot
- String name

Pilot 1 | Pilot 2 | Pilot 3

Relationships:
- Airline 1 — Belongs to — * Flight
- Flight * — arrives — 1 Airport
- Flight * — departs — 1 Airport
- Flight * — uses — 1 Aircraft
- Flight — Driven_by — 2..* Pilot
- Aircraft_type 1 — is of — * Aircraft
- Aircraft_type * — Navigates — * Pilot
- Aircraft_type * — Copilots — 1..* Pilot
- Aircraft_type * — Captain of — 1 Pilot 1