COMP 160
Object-oriented Programming

Lab 5

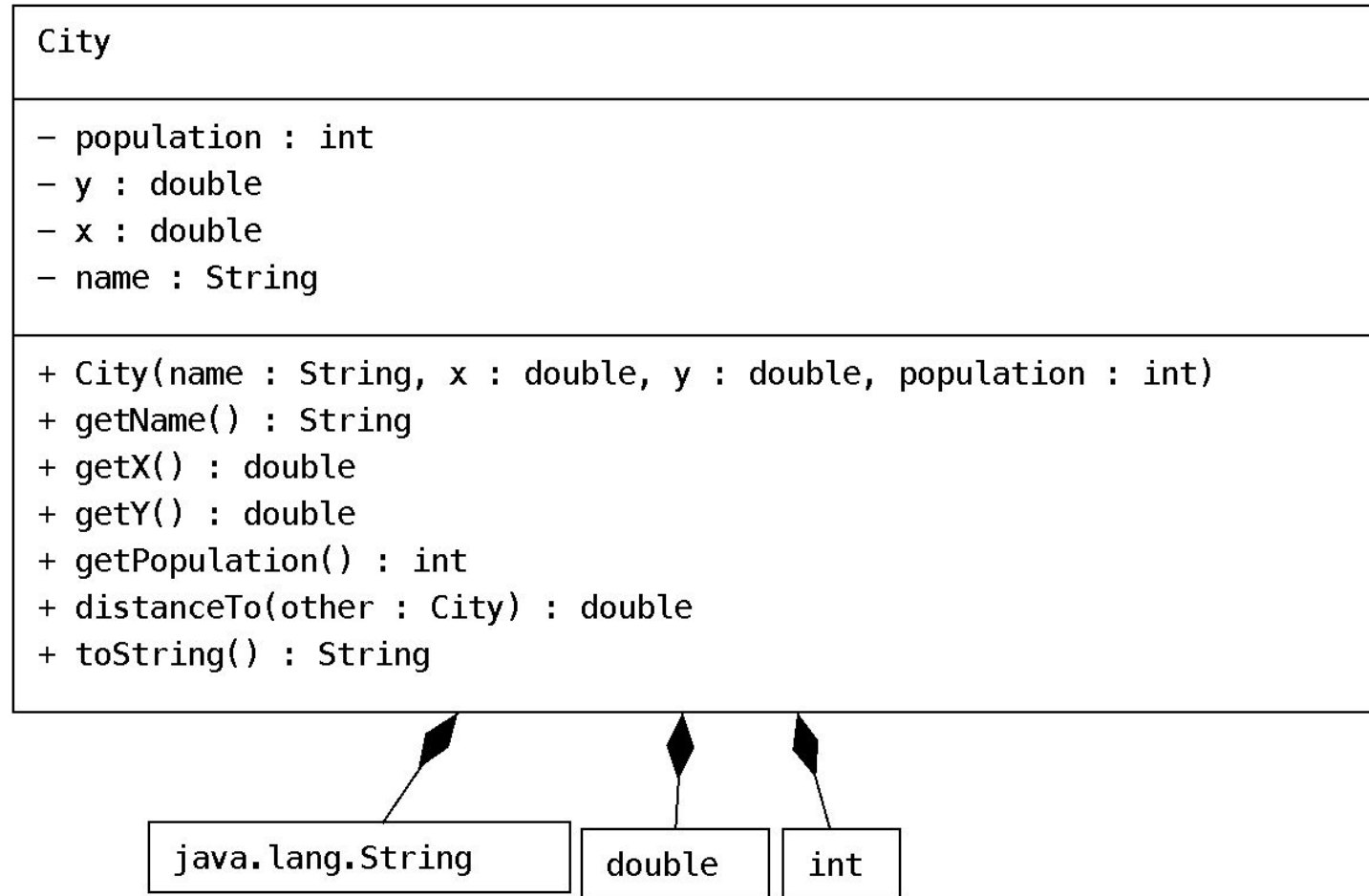# Closest Cities

Istanbul 41.00 28.97 32000
Izmir 38.41 27.12 18000
Athens 37.98 23.72 9000
Rome 41.90 12.49 12000

- Read a ".txt" file that contains the name, the (x,y) coordinates, and the population of some cities.

- Cities should be modeled as a City class.

UML Class Diagrams

```
City

− population : int
− y : double
− x : double
− name : String

+ City(name : String, x : double, y : double, population : int)
+ getName() : String
+ getX() : double
+ getY() : double
+ getPopulation() : int
+ distanceTo(other : City) : double
+ toString() : String
```

```
java.lang.String        double      int
```

Closest Cities

```
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```
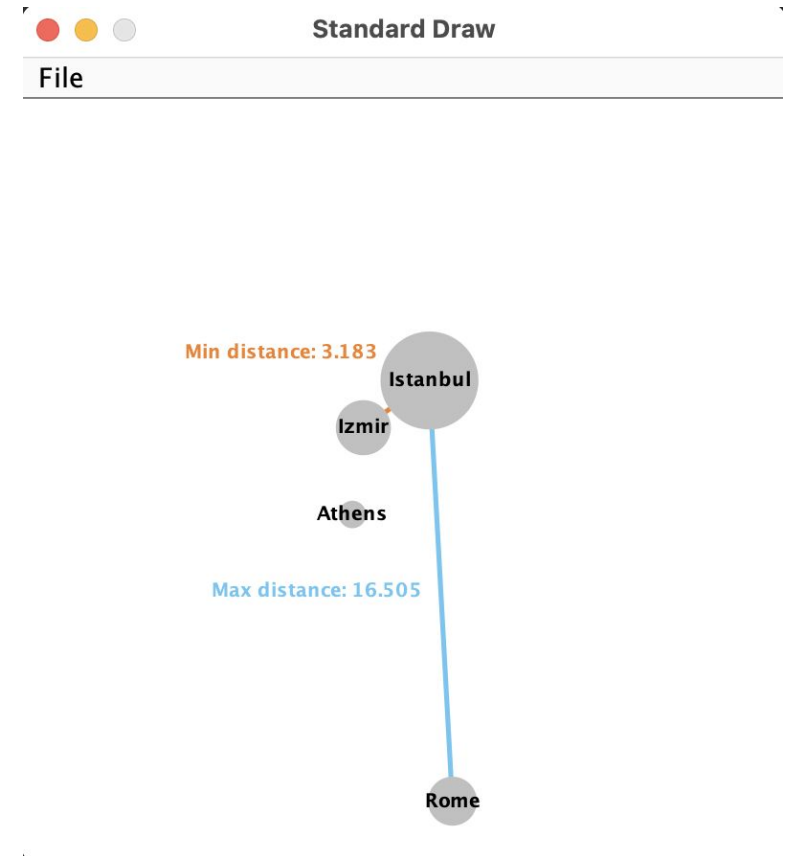
- Calculate the shortest and longest distances between any two cities and output the names of those two cities along with the distances.

- Visualize

  - Each city should be a filled circle on the map with a radius directly proportional to the population

  - Draw 2 lines to illustrate the minimum and maximum distances.

  - Add texts for city names, minimum and maximum distances.