Functional Programming with Scala: Class 6

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Review

- Recipes
- Present solution(s)
- Code review and discussion

Lecture

Scala Check

- Lets revisit SCTestQueue

Scala Style

- What is good Scala style?
- What are some good Scala Style guidelines?
  - http://docs.scala-lang.org/style/
  - http://twitter.github.io/effectivescala/
- Can style be automatically checked?
  - http://www.scalastyle.org/
  - https://github.com/scala-ide/scalariform
  - Intellij analyze/inspect code, format
- Where did Databricks go wrong (and why)?
  - https://github.com/databricks/scala-style-guide

Less Than Nothing

- What is the difference between
  - Nil
  - null
  - Nothing
  - None
  - Unit
  - ???

Iterable, Traversable and Streams

- Iterator.sc

Type Parameters

- Erasure.sc

Variance

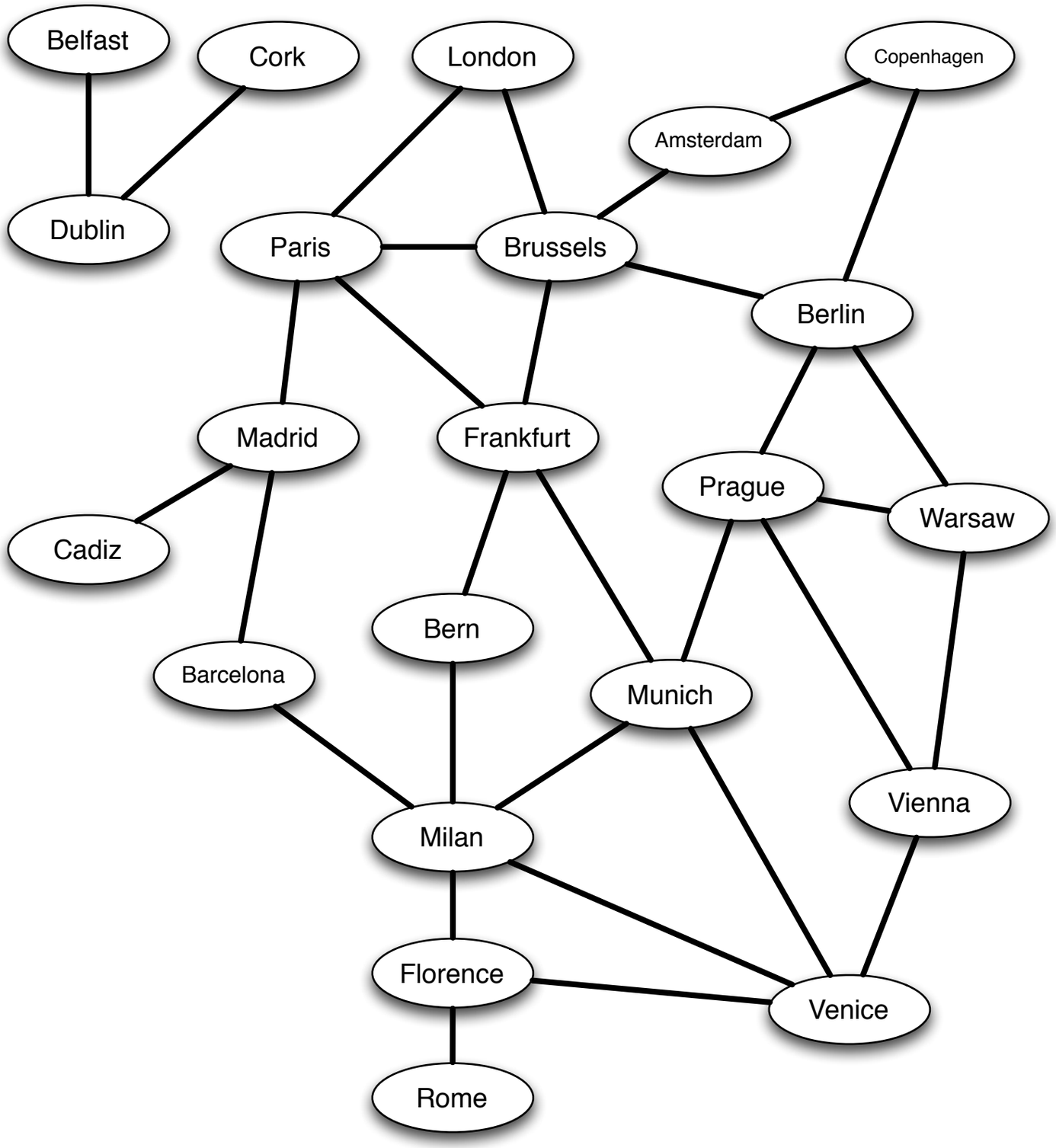
- Variance.sc

Assignment 6

Assign 6: Trains

- Goals
  - Another pure functional exercise
  - Graph data structures
  - Graph algorithm

Trains Undirected Graph



Trains

- Read in graph from file into immutable data structures Source.fromFile(“data/trains.txt”).getLines()
- Find and print out a shortest path between all cities and Paris by time
- Include the time
- Include the sequence of cities in the path
- Sort by city
- Deal with cases where these is no path

Sample Output

```
Amsterdam to Paris 5:28: (Amsterdam,Brussels,Paris)
Barcelona to Paris 16:50: (Barcelona,Madrid,Paris)
Belfast to Paris : no path
Berlin to Paris 9:42: (Berlin,Brussels,Paris)
Bern to Paris 7:50: (Bern,Frankfurt,Paris)
Brussels to Paris 3:35: (Brussels,Paris)
Cadiz to Paris 18:26: (Cadiz,Madrid,Paris)
Copenhagen to Paris 13:47: (Copenhagen,Berlin,Brussels,Paris)
Cork to Paris : no path
Dublin to Paris : no path
Florence to Paris 13:27: (Florence,Milan,Bern,Frankfurt,Paris)
Frankfurt to Paris 3:55: (Frankfurt,Paris)
London to Paris 4:35: (London,Paris)
Madrid to Paris 14:00: (Madrid,Paris)
Milan to Paris 11:50: (Milan,Bern,Frankfurt,Paris)
Munich to Paris 7:05: (Munich,Frankfurt,Paris)
Paris to Paris 0:00: (Paris)
Prague to Paris 13:10: (Prague,Munich,Frankfurt,Paris)
Rome to Paris 15:02: (Rome,Florence,Milan,Bern,Frankfurt,Paris)
Venice to Paris 14:10: (Venice,Munich,Frankfurt,Paris)
Vienna to Paris 16:13: (Vienna,Venice,Munich,Frankfurt,Paris)
Warsaw to Paris 15:47: (Warsaw,Berlin,Brussels,Paris)
```

Trains

- Look at data file
- Look at code template
- Use only immutable data structures