**Exercise 8**

*Unstructured Spark exercise*

**Prior Knowledge**

Unix Command Line Shell

Simple Python

Spark Python  
Simple SQL syntax

**Learning Objectives**

Pulling together your skills from previous exercises

**Software Requirements**

(see separate document for installation of these)

* Apache Spark 2.1.1
* Python 2.7.12
* Jupyter Notebook

**Aim**

There is a file on Github that contains some data about health practices (e.g. GP surgeries) in the UK.  
  
wget https://freo.me/doctors-practices -O practices.csv

The CSV file has a header line with titles of each column.

The aim is simple:

I’d like you to calculate the number of practices per postcode prefix for the data.

The postcode prefix I define as the first few characters of the postcode up to the space.

Please tell me the number of surgeries for the postcode areas: OX1, SW11.  
  
We are going to do this locally, NOT on EC2.

**There are some hints overleaf.**

**Hints:**

1. Create a new Jupyter Notebook as in previous exercises
2. Use the CSV reader from the SQL exercise to load the data in
3. You should know enough to do this:  
   1. either as a set of Map/ReduceByKey operations.
   2. Alternatively, you can do this all in SQL if you like SQL.
4. If you like to mix and match SQL and Map/Reduce you can do that too.  
     
   If you started with a DataFrame and then converted to an RDD, then you convert any of the resulting RDDs back to a DataFrame using rdd.toDF()
5. Ask me or David if you get stuck.