Torstar – Data Engineering Assignment

# Overview

The goal here is to get an idea of your technical skills and what it would be like to work with you everyday. Once you finish the assignment we’d like you to come in and basically do a code review with our team. The evaluation process will be like a code/solution review: design choices, implementation, reusability of code, etc. As long as you can justify your choices, pretty much anything goes.

Please give us a time estimate for this as soon as you can so we can proceed with further scheduling.

# Tech Stack

The only requirement from our side is that you use one of the following languages: Java, Python, Scala or SQL. Bonus points for using MapReduce or Spark. If you don’t want to use ANY of the languages, we’d like you to use Talend Open Studio. You can choose to use any/no other tools as you see fit. Please keep scale in mind while developing the solution. While this is a toy problem in an interview setting, we’d like to see how you would approach something we would want as part of our production pipelines.

# Requirements

We’ve provided a copy of the [Posts.xml](https://drive.google.com/file/d/1BHZPlsjt3_mo77jyACqbeYCV0v-T07-E/view?usp=sharing) file (2.5G) from Math Stackexchange[1] dated June 5th (the entire archive is available [here](https://archive.org/details/stackexchange)) . It contains approximately 2.3 million posts from math.stackexchange.com. We would like you to process this data set and answer the following questions:

1. Count the number of posts made in June 2016.
2. Calculate the number of posts tagged with “combinatorics”.
   1. For all posts tagged with “combinatorics” find the count of those not tagged with “fibonacci-numbers”.
3. Determine the month that was most popular for posts tagged with “graph-theory”
4. Create a timeseries plot of the number of “graph-theory” posts across all time captured in the dataset by quarter.

# Deliverables

Please share your solution with us as an archive file via your favorite file sharing cloud or as a public code repo (GitHub, BitBucket etc.). You can continue to make changes to your code after you submit if you like.

For the in-person review process, please bring your own laptop and walk us through your design process and solution live. If you would like to use one of our laptops, please provide us with all steps required to build and run your solution on a Windows 10 machine.

### [1] Stack Exchange Creative Commons data now hosted by the Internet Archive

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<https://archive.org/details/stackexchange>