Pregel: A System for Large-Scale Graph Processing
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Introduction

- Google was interested in applications that could perform internet-related graph algorithms, such as PageRank, so they designed Pregel to perform these tasks efficiently.

- Pregel programs is inspired by Valiant’s Bulk Synchronous Parallel model.
Question 1: What is superstep in the Pregel graph processing model?

The computation in Pregel, consists of a sequence of iterations, called supersteps.

Source: http://en.wikipedia.org/wiki/Bulk_synchronous_parallel
Question 2:
In the single source shortest path problem what computation is involved in a superstep?

Each Step the shortest distance is computed.
Question 2: In the single source shortest path problem what computation is involved in a superstep?

Source: Song Jiang Lecture Slide 8
Question 2: In the single source shortest path problem what computation is involved in a superstep?
The synchronicity in Pregel’s execution refer to how computation is synchronous between supersteps.

Benefits:
Enables fault tolerance by check pointing.

Question 3: What does synchronicity in the Pregel’s execution refer to? What benefits can it bring?
In order to terminate all vertex must vote to halt.

**Figure 1: Vertex State Machine**


**Question 4:** How is a Pregel program terminated (completing its execution)?
Question 5: Use Figure 2 to illustrate a Pregel program's execution?
Question ?