

## Scribe Notes for December 2 Part 2

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Presentations were given on Scott Aaronson as well as a few shortest path problem solutions.

Reminder: You should have received Rakan's skeleton for the shortest path problem to assist you in finishing your own program.

Courier Problem (Due Mon 12/9):

In the 3<sup>rd</sup> century, Hannibal, a general from the North African city of Carthage, set out to invade the Italian peninsula by coming down from the North. During the campaign, Hannibal sends for his brother, Hasdrubal, to join him with reinforcements. But while Hasdrubal was on his way to meet his brother, the Romans apprehended the messengers he sent to alert Hannibal of his arrival. With the information of the captives, the Romans were able to intercept Hasdrubal before he was able to meet up with his brother.

The assignment:

Your job is to design a system of information to give your couriers enough knowledge to alert Hannibal of Hasdrubal's arrival, but not too much to any one courier. In the original if one courier were intercepted, the Romans would be able to attack Hasdrubal. Solution: send 3 couriers, each with enough information such that you need 2 couriers in order to be able to determine Hasdrubal's location.

Hints:

1. Encode any letter with a 2-digit number
  - a. Ex. 60=A; 61=B, 62=C
2. Give each courier 2 numbers
3. Two numbers indicate a point on the x-y plane