

## 2/12 Milestone Report - HearthNash

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### **Major Changes**

There have been no major changes in the goals or implementation of our project since the last milestone report.

### **What You Have Accomplished Since Your Last Meeting**

Since the last meeting, I added data visualization using Google Charts, implemented the first metric for analyzing match trees (match length), and tested it on a small randomized data set.

### **Meeting Your Milestone**

We met all of our milestone goals for this week, which included designing and implementing a measurement scheme for one desirable quality, and using this scheme to collect a small dataset on at least 2 different formats. However, I would like to build a more extendible structure for storing and testing different formats.

### **Surprises**

I've discovered that even with fairly small formats, the combinatorial explosion of the match tree causes a significant performance hit. Generating and processing about 20 match trees takes almost as many seconds. Optimization, such as with dynamic programming, will likely be necessary before larger scale data analysis.

### **Looking Ahead**

Over the next two weeks, we plan to deviate from our projected milestone goals in order to work on optimization. Specifically, I will implement some form of dynamic programming in order to collapse duplicates in the match tree. I also plan to design and implement two more measurement schemes for desirable qualities. In addition, as mentioned above, I will build a more extendible structure for storing and testing different formats.

### **Resources Needed**

We do not require any additional resources to complete this project.

## Revisions to Your Future Milestones

Green indicates goals added. Red indicates goals moved/removed.

### February 24th

- Optimize match tree generation and processing
- Design and implement two more measurement schemes for desirable qualities.
- Integrate some form of data ingestion for real-world decklist winrate data.

### March 16th

- Implement a command-line tool to streamline data generation and analysis.
- Integrate some form of data ingestion for real-world decklist winrate data.
- Collect and analyze data for each match format, across all measurable qualities.
  - Draw conclusions and build understanding based on the results.