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Project 3 – Writeup

Data

For this project, I decided to visualize Dota 2 gameplay data. During a typical game of Dota 2, a large variety of data is produced including data pertaining to individual game units, actions, events, and locations among other things. For this project, I decided to use data produced by individual game units called “heroes” and focus on four main attributes: gold, number of kills the unit made, number of the times the unit died, number of times the unit assisted a team mate in killing someone, and the unit’s level throughout the game. I am trying to visualize this data because I believe that it can be used to answer various questions pertaining to the game and why/how its outcome happened the way it did.

Initial Proposal

Initially, I proposed to visualize the data using a series of visualizations that would capture certain aspects of it. The visualizations included things such as bar graphs and a main line graph. These visualizations would either focus on showing aspects of individual units or of the team as a whole. The reason for doing it this way is that it would allow the visualization to show both a detailed and a general perspective of the data that would allow the user to choose between the two.

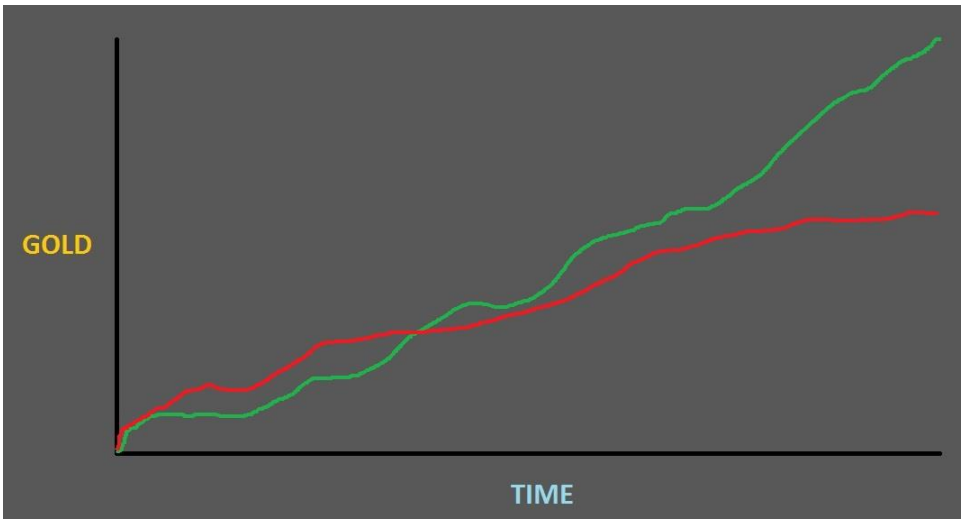

Figure 1Line graph indicating total gold for each team

Figure 2Bar charts for each hero indicating the number of kills, deaths, and assists

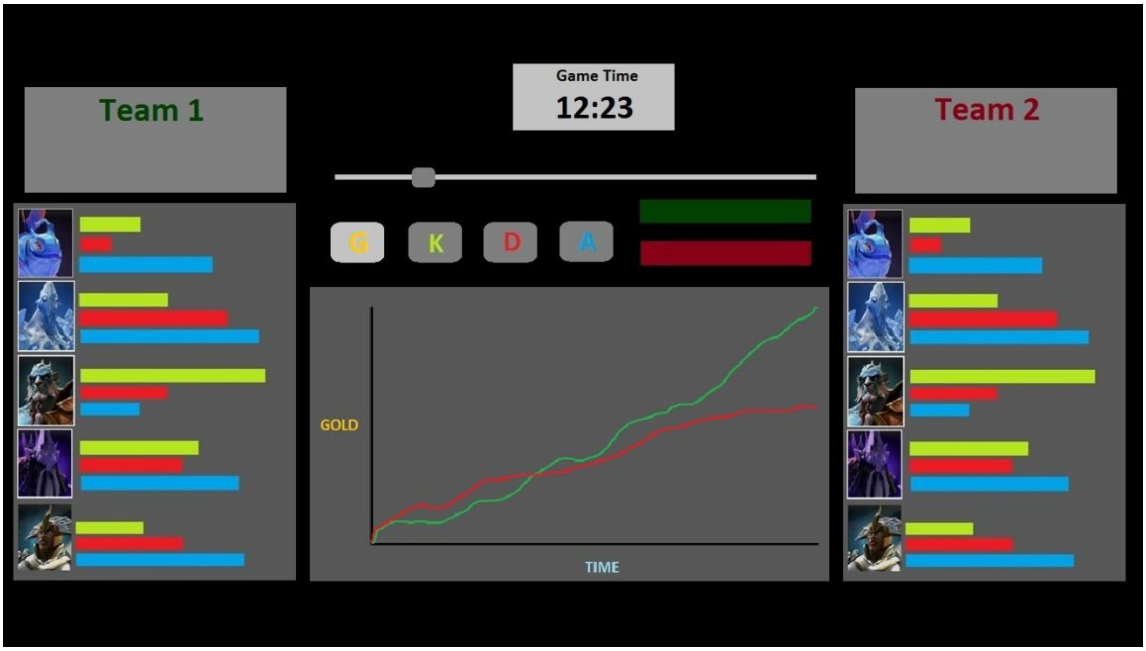

Figure 3OVerview of the whole visualization

Development

To some degree, the visualization did not change a whole lot from its original proposal. It included detailed views of each hero and the number of kills, deaths, and assists that they had during the game as well as a general line graph detailing data for each team based on the filters that were selected.

A new feature that I implemented that was different from my proposal was the ability to select each hero and display a bit more detailed view of data pertaining to it. In this case, I used a pie chart to show kills, deaths, and assists instead of bar charts simply because it seems easier to tell difference between the 3 that way.

Figure 4Overview screen

Figure 5Hero Detail

Description

The final visualization was done in Processing. When you start it up, you will see the main screen where the heroes in each team are represented on the sides with a blank graph in the middle.

Above the graph you will see various buttons as well as a slider. The slider is used to control the time that the game is currently in and can be dragged forwards or backwards. The play button can also be used to advance through the data and runs at a speed of 32 times the normal clock speed.

Below the slider, you will see 6 buttons. The first 4 buttons control the 4 attributes (gold, kills, deaths, assists) that are displayed and the last 2 buttons control the team whose information will be displayed.

The color of each line will be different depending on which teams are selected. If both teams are selected, then the lines will have a dark green and a gray color to show the difference between them. If only one of the teams are selected, then the lines' color will be based on the attribute(s) that are selected. Gold is gold, kills are green, deaths are red, and assists are blue.

In addition, each line will contain a small icon at the end indicating what team/attribute combination it's representing.

As the game progresses, you will see the bar graphs for each hero constantly fluctuate to indicate the events that are occurring in the game. The size of each bar graph is scaled against the highest value of all the bars of all the heroes. In addition, each hero's level is displayed in a circle on the bottom left of its portrait.

If you double click on a hero's box area you will be taken to a more detailed view of that hero where its K/D/A are represented by a pie chart and where you can see the total gold that hero has earned during the game. In addition, you can also toggle between the rest of the heroes in the team or go back to the general team view.