Graph Wars I: The Rise of Data

CPSC 601.08

March 18, 2010

Examples

1. The file `file1.dat` contains time-series data showing the Internet traffic generated yesterday by 1000 Internet users on Tatooine. Draw a graph showing the aggregate traffic profile.

2. The file `file2.dat` contains results from death-ray absorption experiments conducted in the lab on materials with different concentrations of dark matter. Plot a graph showing the relationship between columns 2 and 3 of data, accompanied by a least-squares (linear) regression line that best fits the data.

3. The file `file3.dat` contains sensor data showing the approximate locations of Tauntauns on the planet Hoth. Draw a two-dimensional scatterplot showing these locations.

4. The file `file4.dat` shows time-series data representing the energy readings near the planet Alderaan just before and just after it exploded. Draw a graph of this data.

5. The file `file5.dat` shows time-series data representing the number of text messages exchanged daily between Darth Vader and the Emperor for the past two months. Draw a graph of this data.

6. The file `file6.dat` shows the steady-state throughput achieved by two different implementations of inter-planetary TCP (TCP-Empire in column 6, and TCP-Rebel in column 9), as a function of observed packet loss rate (column 1). Draw a graph comparing the throughputs.

7. The file `file7.dat` shows histogram data representing the observed energy (in Joules) that is dissipated in each electrical discharge by the Emperor. Draw the Cumulative Distribution Function (CDF) for this data set, clearly indicating the median value of the distribution.

8. The file `file8.dat` shows the log-transformed version of the data in the previous question, namely the observed energy (in Joules) that is dissipated in each electrical discharge by the Emperor. Using boxes, draw a histogram of this data set to illustrate whether the distribution is log-normal or not.

9. The file `file9.dat` contains 10,000 data points representing the signal waveform measured from Darth Vader's voice synthesizer during a recent speech. Draw a time-series graph showing this signal behaviour.

10. The file `file10.dat` contains data showing the accuracy (successful target hit rate) of X-wing fighter laser-sighting cannons from three different vendors (columns 3, 6, and 9) as a function of their price (column 1). Draw a graph showing the relative performance of each laser-sighting cannon.