Lecture 22: How can computation... help visualize data?

Demo Day on Wednesday

Class is held in CS 1370
Everyone is expected to attend
  • Students with lastnames starting A-K will demo
  • Other students test and will demo Project 2 later...
5 minutes to set up
  • Do not run from webpage!
    - Bring laptop (charged!) with game ready
    - Or, log in to CS machines (get account ahead of time!)
    • Game on USB or loaded into
  • Student A-F demo 10:00 – 10:20
  • Students G-K demo 10:25 – 10:45
Everyone not doing demo: Play and give comments!

Comment on Other Projects

5 comments due by 5pm Today
Find projects that do not have 5 comments yet!

Project 1 Help

TA lab hours
  Monday 12:30 – 2:15
  Tuesday 4–6
Professor office hours (none Wednesday)
  Tuesday 1:30 – 3:30
Send email to cs202-tas@cs.wisc.edu
Today’s Topic: Data Visualization

TED talk
“Demo: Stunning data visualization in the AlloSphere”
- See, hear and interpret scientific data
- Dive into the brain, feel electron spin, hear the music of the elements
- 6 minutes
http://www.ted.com/talks/joann_kuchera_morin_tours_the_allosphere.html

Today’s Topic: Data Visualization

TED talk
Hans Rosling: “Let my dataset change your mindset”
- Visualizing time-series data sets can give new insights
- Data-bubble software bursts myths about the developing world (health, wealth)
- 20 minutes
http://www.ted.com/talks/hans_rosling_at_state.html#

Steps towards Visualization in Scratch

Forever
- Goto random location on grid
- Stamp random shade of blue
- Random size within space

What is result of running Scripts?

Forever
- Goto random location on grid
- Stamp random shade of blue
- Random size within space
2: What will these scripts do?

Stage scripts

Initializes two lists:
Pen Color and Pen Shade

How long is each List?

Result of Running Scripts

Symmetric picture along both x and y axis (4 quarters)
Ten different color/shade combinations

3: What will these scripts do?

Result of Running Scripts

What if change from \( \text{abs} \) to \( \text{mod} \)?

What if don't set \( Y \) in repeat loop?

What change from \( \text{abs} \) to \( x \times x \)?

How are \( x, y \) varied?

How many pen points for each \( x, y \)?

What is relationship of two Lists?

What is purpose of \( c \)?
Problem with plot of \( Y = X \times X \)?

Value of \( Y \) goes above Stage coordinates for most values of \( X \)!
Possible way to fix?

Interested in \( Z = X \times X \); Scale the computed value of \( Z \) so fits in \( Y \) coordinates
Calculate \( Z = X \times X \); compute \( Y = Z \times \frac{\text{MAX Z}}{\text{MAX Y}} \)

How to draw scaled \( y = x^2 \)?

How to scale plot of \( y = x^2 \)?
Today’s Summary

Today’s topic
- Visualizing data can help everyone better understand the world we live in

“Reading”
- TED talks linked on Course Schedule page
- Please watch!

Announcements
- Project 1 due Wed before 9:55
- Demo in CS building
- Exam 1 graded, returned; solutions on webpage