SENG 371 Software Evolution

Lab #1

Lab Instructors

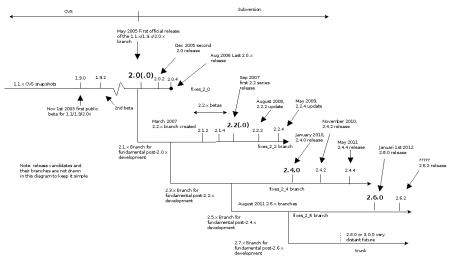
Pratik Jain

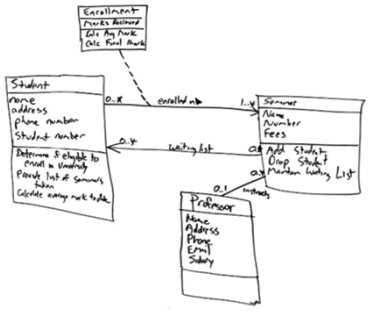
Przemek Lach

Lorena Castañeda

Lab Themes Outline

1. Software Visualization Tools
2. Source Management Tools
3. Corporative Solutions





Lab Themes Outline

1. Software Visualization Tools
   A. Software Visualization Graphs
   B. UML Visualization tools
   C. Source Management Visualization tools
2. Source Management Tools
3. Corporative Solutions

Lab Themes Outline

1. **Software Visualization Tools**
   - A. **Software Visualization Graphs**
   - B. UML Visualization tools
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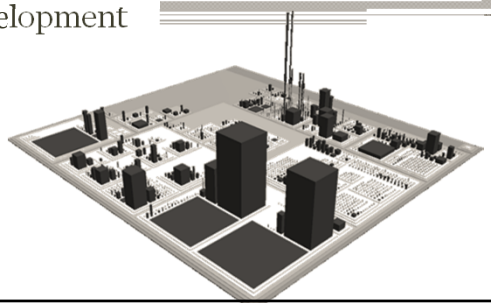
Part 1: Software Visualization Graphs

Critical for software development

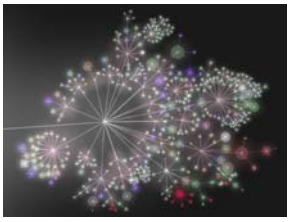


Why software visualization?

- To understand data
- To make data human readable
- To share information and make better desicions
- To make predictions
- To manage source code

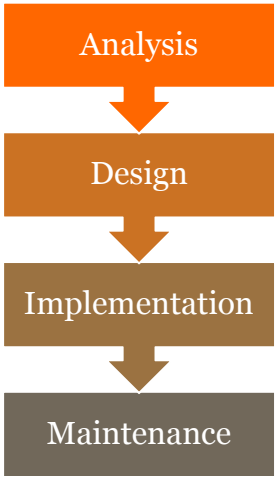
... and many more

Facebook breakup graph



The Linux Kernel Project

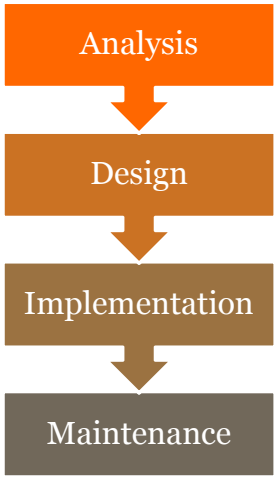
Software visualization for development



- What to do?

- Who?
- When?
- What is next?
- What is the latest version?

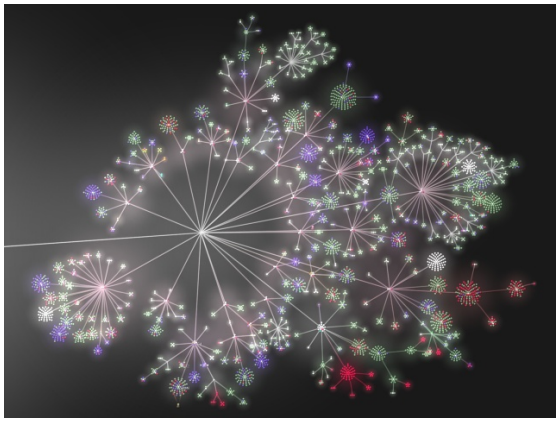
Software visualization **tools** for developers



- UML Visualization tools
  1. **IDE plugins** (e.g. Eclipse, JDeveloper, Visual Studio)
  2. **Online tools** (e.g. yUML,)
  3. **Desktop** (e.g. StarUML, ArgoUML, Dia)
- Source management visualization tools
  - e.g. Gource, CodeSwarm, SVN Time-Lapse View

Software Visualization for source management

Tracking the evolution of a software project
https://code.google.com/p/gource/

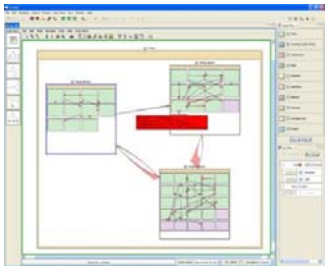


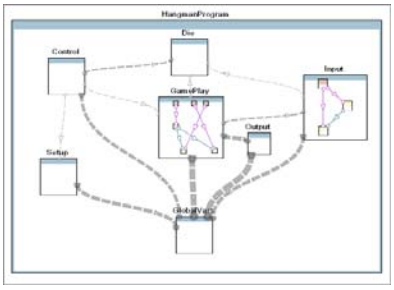
The Linux Kernel Project

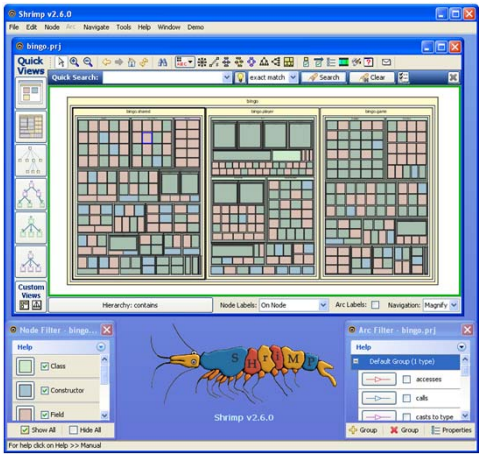
Software Visualization Tools

- UVic
  - Rigi VisualizationTool http://rigi.uvic.ca/
  - SHriMP views http://sourceforge.net/projects/chiselgroup/
- U. Lugano
  - CodeCity http://www.inf.usi.ch/phd/wettel/codecity.html
- U. Gronigen
  - Scientific Visualization and Computer Graphics (SVCG) http://www.cs.rug.nl/svcg/

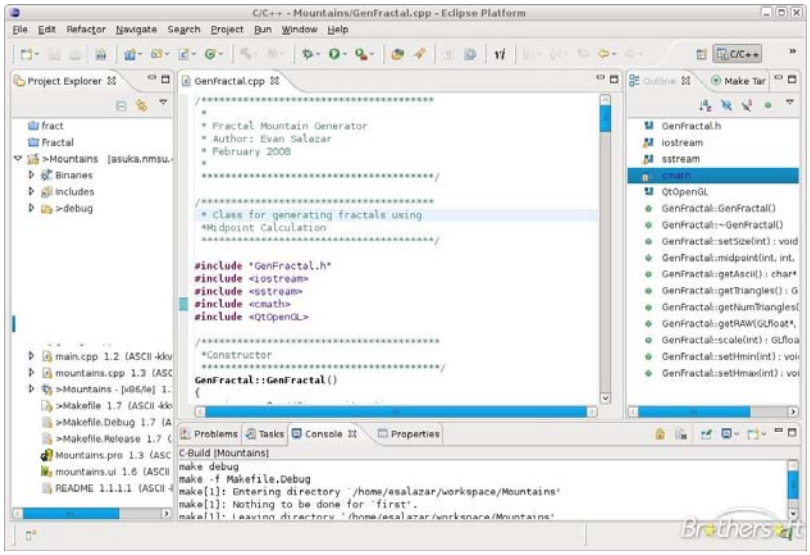
Software visualization





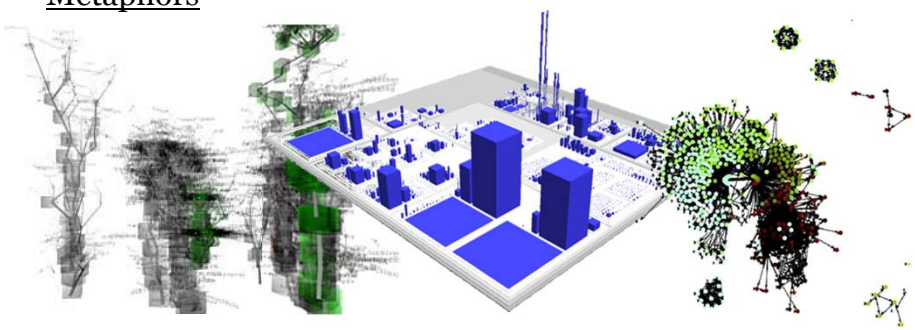


Software visualization



Software visualization

Metaphors



Tree City Explosion

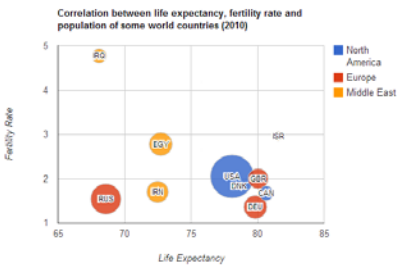
Any other idea for a good one?

Playing with graphs

and getting information

Step 1: Finding the right visualization

1. Go to Google Code Playground and play with the **VISUALIZATION** types, check out the code, edit the data and run it again. (Some graphs are interactive to find more information)



Feeling curious? Go to the Google Developers website to create your own app with these source codes

Step 2: Getting data sources

IMPORTANT: When creating a visualization you need to know the format of the data set

You can get free data from some places (just to play):

- Infochimps http://www.infochimps.com/
- Freebase http://www.freebase.com/
- IBM Many eyes http://www-958.ibm.com/software/analytics/manyeyes/
- Weka http://www.cs.waikato.ac.nz/ml/weka/datasets.html
- … Your own facebook profile

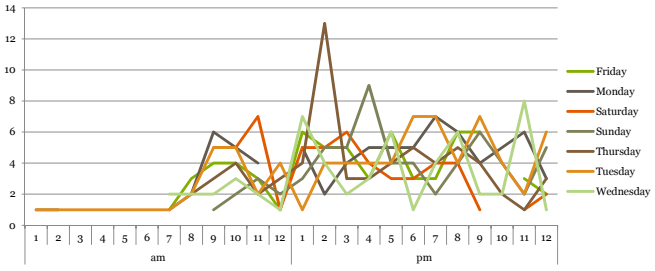
Step 3: Getting information from data

1. Open any visualization tool and load the data (e.g MS Excel, Weka, Google Drive)

Or, http://webhome.csc.uvic.ca/~lcastane/

Go to MS Excel, open de **account_activity_excelDemo.xlsx** file and play with dynamic tables and charts to find information

… for example that users facebook highest activity is on Thursdays at noon for the past months.



Step 3: Getting information from data

Some questions for yourself:

1. What useful information did I get?
2. Did I find what I was looking for?
3. Did I find more than what I was looking for?
4. Is there any data I need to get more information?
5. If I change the type of graph do I get new information? Did the type of graph matter?

Discussion

1. How software visualization is a tool for engineering?
2. Is it really THAT important? Why?
3. How software visualization impacts other areas and users?,
   - Pick a different one from CS (e.g Arts, Politics, Health, Traffic, Police) and give an application example that you would like to see.

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