



# PROCESSING

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# PROCESSING?

- Open source environment and programming language (very similar to Java)
- "An electronic sketchbook for developing ideas"
- <http://processing.org/>



# PURPOSE?

- Teaching tool for programming.
- Medium for art design and prototyping
- Data representation



# WHEN IS IT USEFUL?

- Visualize data more meaningfully through the use of animation
- Make something that can be easily embedded in a web page
- As a teaching tool - provides a much needed "Visual Honesty" to beginners



# INSTALL

- Download ( <http://processing.org/download/index.html> )
- Run



# GOOD THINGS

- Free!
- Easy to do complex graphical things, even for relatively inexperienced programmers
- Usual benefits of Java-based applications



# SUB-OPTIMAL

- Work in process - not yet stable, crashes periodically
- Unhelpful error messages
- No in-built Polar Coordinates
- Math can get complex for creating more advanced art.



# THE COMPETITION

- No clear competitor
  - Adobe Illustrator for static 2D images
  - Flash for 2D animations (with time as a third dimension)
  - 3D dimensional programs, but require more advanced programming skills



# LICENSING

- Development environment released under GPL (GNU General Public License)
- Core (export) libraries released under LGPL
- Sketches and Projects made using can be distributed without opening source code (and commercially) and export libraries can be linked into any project under LGPL.
- Changes to core libraries or development environment source code **must** be released as open source



# CONCLUSION

- Used by Designers, Artists, Educators, Programmers...
- Around since 2001
- "Processing strives to apply the spirit of open source software innovation to the domain of the arts"



# EXAMPLES

- Obama / McCain money graph ( <http://www.pitchinteractive.com/election2008/> )
- Courbes ( <http://phpbb.sans.entraives.free.fr/forum/jeux/applet/index.html> )
- Homo sapiens chromosome 20 - first 140,000 bases ( <http://www.flickr.com/photos/thirteen/2738353101/> )
- Proximity of Needs ( <http://www.proximityofneeds.org/> )



# INTERACTIVE

- The God of Music ( <http://www.artisopensource.net/GoM/> )
- Last FM Graph ( <http://www.swcp.com/~atomboy/lastfmgraph/> )
- tigtag ( <http://tictag.cc/> )
- ChakraPuter ( <http://www.artisopensource.net/Chakraputer/index.html> )
- Shooting with the Burdening Game ( <http://gromina.googlepages.com/shootingwiththeburdeninggame> )



# REFERENCES

- <http://processing.org/>
- Processing, A Programming Handbook for Visual Designers and Artists, Casey Ross and Ben Fry
- GPL Licensing ( <http://www.opensource.org/licenses/gpl-2.0.php> )
- LGPL Licensing ( <http://www.opensource.org/licenses/lgpl-2.1.php> )