(Moderately) Complex Information Visualizations for the Non-Programmer

ProtoWiz

Michael Cohen & Thomas Schluchter
Motivation
$3h + 1h = \infty$
~1d ≠ success

years of software development experience
NEW STORY

2 WHEELS GOOD

What do architectural landmarks, transportation whiz kids, Friar's Market, local growers, the "Green Light" district, and Le Bon Mot have in common? They're Alexis K.'s favorite Meridien sights.

Join Urban Museum's Executive Director, Alexis K., as she fearlessly takes us on a fun, informative, and conscientious bicycle tour of Meridien.

- Organic Night Life
- Dot HUB! A Look into Meridien's Bike Sharing Program
- Meridien's Very Own Historical Hotspots
- The Water Debate
- Pizza to Treasure
- Coffee Break
- Park Cleanup Concert Series
- Meridien's Top Spots for Awesome Picnics

AU NATURALE

Excess convenience can take all of the fun and appreciation out of the process. Instead of heading to the convenient megastore for food, clothes, and every other little thing imaginable, Meridians have taken to supporting local growers and artisans in commerce, and have also decided to appreciate the hard work that goes into producing and obtaining our daily necessities.

- Trash to Treasure
- Coffee Break
- Park Cleanup Concert Series
- Meridien's Top Spots for Awesome Picnics
- Uptown Sprouts found
- 3 local designers shed a progressive light on the manufacturing of South Square

ANIMAL LOVE

Uptown Sprouts founder proudly says, "If it had a face, this isn't the place." Yes, we are honored to serve you everything that never had a mother, a thought, or an instinct. We serve only vegan meats. Vegetables, fruit, and a delicious assortment of liquids are prepared with great care in this uniquely upscale restaurant.

Uptown Sprouts is located in the heart of downtown Meridien's Financial District. Our lunch patrons can be confident that even the most worldly client will be impressed by our menu.

- One for All
- Fancy a Fancy Platter?
- What's so Fishy about Something Fishy?
- Gettin Down with Gabel and Looff!

LOCAL

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Prior Work
Scratch

Figure 4: Scratch Script for Ball in a Simple Paddle Game

Supporting a graphical approach

- Protovis visualizations consist of marks
- Graphical decomposition is the way Protovis “thinks”.

Fig. 1. Decomposing a visualization into marks.
Supporting a graphical approach

- We can think of graphical decomposition as exploding a graphic into layers...
Supporting a graphical approach

- We can think of graphical decomposition as exploding a graphic into layers...
Storyboard

- **Library of visual elements (marks)**
- **Layers stack**
- **Canvas and data settings**
Mark is immediately drawn
Fed with dummy data
Using all defaults
• Clicking a mark’s layer entry reveals the mark’s properties
• Each mark has different properties associated, the form reflects this
Properties are immediately editable
• Data sources can be hooked up from within the editing panel
• Mark type determines which properties are available to be generated from data
Non-graphical elements

- **Scales**
  - Scales are generated separate from marks
  - Reusable and editable

- **Functions**
  - Excel-style formula editor for creating simple functions to transform values
  - Writing code directly should also be supported
Open Questions

- Can we help users understand how Protovis works?
- How to support interactions/behavior?
- What are the limits of GUIs for this kind of programming task?
Milestones

- Problem definition and mockups (done)
- Complete Protovis code generator (in progress)
- Develop UI in HTML/CSS (to be done)
- Test with users (to be done)
- Write paper (to be done)