FundExplorer – Supporting the Diversification of Mutual Fund Portfolios using Context Treemaps

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Disclaimer

• Yes, although this is about treemaps, this is **not** from the University of Maryland
Overview

- Terminology: Mutual Funds and Diversification
- Diversification of Mutual Fund Portfolios
- Context Treemaps
- Demo
- Conclusion/Future Work
Mutual Funds and Diversification: Terminology

- Investing money can be risky, diversification can reduce risk
- Mutual funds: A security that gives small investors access to a professionally managed portfolio of equities, bonds, and other securities.
- High-level view: Mutual fund = collection of different stocks
- The set of stocks a mutual funds invests in remains relatively stable
Diversification of Mutual Funds Portfolios

- If multiple funds are owned: Where does the money really go? Diversification may be an illusion.
- What fund to pick to get to the desired portfolio structure?
- Key to diversification: Manage the relation between stocks owned and stocks not owned.
- Show the user her portfolio (stocks she bought) and its context (stocks she might want to buy).
Treemaps for Portfolio Visualization

- Jungmeister and Turo
- Smartmoney’s Market Map
Related Work: Smartmoney’s Market Map
Smartmoney’s Portfolio Map

- **PG**
  - you own: $8662
  - last sale: 86.62

- **INTC**
  - you own: $1825
  - last sale: 18.25

- **NOK**
  - you own: $1495
  - last sale: 14.95

- **WMT**
  - you own: $5225
  - last sale: 52.25

- **HD**
  - you own: $2394
  - last sale: 23.94

- **WPI**
  - you own: $2788
  - last sale: 27.88
The 0-Value Problem

- Drawback of treemaps: They only show stocks that are owned ($ invested > 0)
- Existing approaches
  - Constant Minimum Value
  - Constant Minimum Area
  - Exponential Mapping
The Context Treemap

- Context Treemaps: Distorted treemaps which show all data elements, also 0-nodes (here: stocks with $ invested=0)

- Conceptually: Reserves portion of screen real estate, distributes that space amongst 0-nodes (33% works well for funds)

- 0-nodes have the same size, size of non-zero nodes depends on their value

- 0-nodes show the context and can be used as query elements

- Can be used together with existing treemap layout algorithms
FundExplorer

• Tool that supports the diversification of mutual fund portfolios
• Implements the Context Treemap algorithm
• Shows stock portfolio and context
• Uses context as query device
Demo
Conclusion and Future Work

• The FundExplorer project
  – Introduced a treemap extension that also shows the context of tree nodes
  – Developed a system that combines the Context Treemap technique with dynamic querying to support mutual funds portfolio diversification

• Can be useful for other domains in which 0-value nodes are relevant and should be visualized

• Future Work: Increase richness of context representation
Questions