

Updates

For the past few weeks, I have been doing literature review and trying to redesign my visualization solutions to a new set of tasks.

I added the tasks of identifying the time pattern of specific projects, and identifying time of the week that are utilized by multiple projects, and identify projects that share the same hours of the week. These tasks are of interest because it is useful to know which projects are competing. To come up with better solutions for this task, I have been searching for papers related to visualizing resource contention. I haven't found much yet, and I am going to finalize the design this week if I can't find anything more.

I also made the data ready for implementation, and explored d3 a bit. Overall I am still behind on my timeline, and will try to catch up this week.

Related Work

Personal Information Visualization

Visualizing personal data is a way to discover more about ourselves, and is promoted by communities such as the Quantified Self [6] and is practiced by individuals like Stephen Wolfram, who collected data about emails, meetings, etc about his life [7]. In the community, visualization is a common technique of gaining insight. In their attempt to understand the practice of quantified selfers, Choe et al. identified the most common visualizations in this context to be line charts, bar charts and custom visualizations, such as infographic style website, calendar or photo grid etc. Personal visual analytics and similar concepts regarding visualizing personal data have been defined and proposed in the visualization community. Huang et al. [1] defined personal information visualization and personal visual analytics by the personal context in which the visual representation is used. In addition, they provided useful design dimensions such as data scope, usage context and actionability, and discussed the challenges such as fitting into personal routines and defining appropriate baselines for consideration. Personal visualization also fits into the broader field of personal informatics. Dey et al. [2] discussed a stage-based model consisting of preparation, collection, integration, reflection and action. Visualization fits into the reflection stage, and could provide important insight for the action stage.

Time Log Data

Barata et al. [3] presented a system visualizing computer usage history to help users answer questions about when and what they are doing with their computer, and how does the usage change over time. They encode the hourly usage in a grid representing specific hours of a time line, the list of applications as text ordered and sized by amount of time spent on the application, and the overall usage as a line chart at the bottom near the timeline. Their study has similar questions to our study, but the scope is limited to activities with a computer. In their user study, they found that users could use the system to introspect about their lives, and users find different ways using the system.

Commercial Tools

There are also several visualizations provided by commercial time tracking tools such as toggle [5] embedded in reporting features containing bar charts for the total time usage, pie charts for the task composition, and interactions through segmentation with various filters. Other systems

such as Timesheet [8] that shows the history as calendar entries and overall hours as area bar charts. The visualization is typically not the primary focus of the applications.

Bibliography

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[2] Li, I., Dey, A., & Forlizzi, J. (2010, April). A stage-based model of personal informatics systems. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 557-566). ACM.

[3] Barata, G., Nicolau, H., & Gonçalves, D. (2012, May). AppInsight: what have I been doing?. In *Proceedings of the International Working Conference on Advanced Visual Interfaces* (pp. 465-472). ACM.

[4] Choe, E. K., Lee, N. B., Lee, B., Pratt, W., & Kientz, J. A. (2014, April). Understanding quantified-selfers' practices in collecting and exploring personal data. In *Proceedings of the 32nd annual ACM conference on Human factors in computing systems* (pp. 1143-1152). ACM.

[5] Toggl, toggl.com

[6] Quantified Self, <http://quantifiedself.com/>

[7] Wolfram, S. (2012 March). The Personal Analytics of My Life, <http://blog.stephenwolfram.com/2012/03/the-personal-analytics-of-my-life/>

[8] Timesheet, <http://lamalab.com/timesheet>