Journal Paper Summary (25 points total)

Paper Title	Human-Centered Information Visualization
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1. What do you think the paper is about in layman's terms? What are the main arguments and any recommendations/suggestions about human-centered visualization? Do you agree with the recommendations/suggestions? Why or why not? [5 points]

Focus of this question
• This question encourages you to evaluate the arguments, evidence, assumptions, and conclusions about key issues (i.e. think critically about the paper) • This question encourages you to develop your own knowledge, comprehension and conceptual understanding and to connect, synthesize, and/or transform your ideas into a new form (i.e. be a creative thinker and contribute your ideas and thoughts)

Write your answer below:

The main point of the paper is to discuss visualizations in the scope of intended audience and human readability, bringing up readability assumptions about the population the visualization is catered toward. I do agree with the assertions made about the importance of user and task specificity, but I feel it could have gone deeper into the direction of cognitive load. It brings up the idea toward the beginning, but hardly brings it up further when it could have easily been used more in the section about altimeters and how it relates to a pilot. In fact, without stronger emphasis to those factors and various other aspects of a pilot's job, its descriptions feel disingenuous as an explanation to people not involved in pilot work. The visualizations work in conjunction with other tools such as compasses, so talking about just the altimeter alone rather than as a part of the whole dashboard draws from the author's point rather than strengthening it.

2. The authors present one application of multilevel human-centered approach. Think about and suggest one real-world application or approach of multi-level human-centered approach, focusing (like the authors) on the relations between tasks and representations. [5 points]

Focus of this question
• This question encourages you to connect your learning to "real world" issues or life experiences and consider diverse perspectives for the application of concepts in the paper to the real-world • This question encourages you to develop your own knowledge, comprehension and conceptual understanding and to connect, synthesize, and/or transform your ideas into a new form (i.e. be a creative thinker and contribute your ideas and thoughts)

Write your answer below:

My CPAP machine is linked to an app for the purpose of better monitoring of problems and adherence measures. The CPAP machine is used to allow for better sleep in people with sleep apnea and thus limit issues related to the problem (such as migraines and daytime sleepiness). The app uses multiple categories to create a usage score for each day, all of these criteria having their own charts for the user's viewing pleasure. All of these exist in the form of bar charts, which fit this use case better than a line chart because it more clearly shows the scores for each individual day. Sleep quality specifically could be a determining factor for mood and migraines, so having these laid out specifically by day is important to the user as a potential explanation of symptoms. One chart also lays out apnea episodes per hour for the given night, thus giving knowledge to the user on their need for the machine and encouraging long term adherence.

This works well to put a representation to the tasks, but there are still some limitations to address with the system. It only shows month intervals, so issues are less apparent as it moves across months. The app also does not have a place to view long term activity in a form like a line graph, thus missing a key opportunity to encourage long term adherence for people who would benefit from such a representation. Thus, while the app exemplified does cover the important health-related tasks well, there are more ways and representations that could be used to better fit the required adherence model.

3. Choose and discuss at least three of the bullet points suggested by the authors as "nice features that make visualization attractive".[15 points]

Focus of this question
• This question encourages you to connect your learning to "real world" issues or life experiences and consider diverse perspectives for the application of concepts in the paper to the real-world • This question encourages you to reflect on what you are learning • This question encourages you to contribute your ideas and thoughts • Consider diverse perspectives (gender, political, ethnic, racial, etc) during class or in assignments • Challenges you to develop and present your own knowledge, comprehension, and conceptual understanding

Write your answer below:

- "Provide information that can be directly perceived and used such that little effortful processing is needed to interpret and formulate the information explicitly." This point is necessarily difficult to gauge as what could be easy to interpret for one may be difficult for another with certain sensory processing disorders, many of which the audience may have while you, the presenter, do not know about it. This goes back to the class discussion on borders on tables, as at least for me, the no borders version skyrockets cognitive load as the combination of my brain not being able to process it and the anxiety that I am going to read it wrong just takes a lot out of me. The average person viewing the table may have reduced their cognitive load by a small amount compared to the light borders, but how does that small reduction compare to the unstated possibility of someone like me existing in the audience and having vastly increased load due to this change compared to the light bordered version? This is a consideration that makes this point a lot harder to follow than it seems on the surface.
- "Determine decision making strategies through accuracy maximization and effort minimization." This is an interesting part to note, as it is also the whole intention of a lot of the concepts used for cashiering in modern grocery stores. The combination of the bar code system and pricing databases have made that profession open to anyone as compared to even the last decade. It may be better to come into this point from this cashiering perspective, assuming similar idiot-proofing methods could be ingrained into the visualization itself.
- "Aid processibility by limiting abstraction." I am going to disagree with this point to the extent that there is a certain amount of abstraction inherently ingrained in culture that can be good to play off of for a visualization, but may be different

depending on context. Businesses use green for good and red for bad in aspects like scorecards all the time, so it would make sense to use this to prop up a visualization for a business audience using this form of abstraction. The same idea extends to red for hot and blue for cold for temperature, red for republican and blue for democrat in politics, up for good and down for bad in numbers and finance, and so on. Of course, the sentiment makes sense as it can backfire, specifically with the analog altimeter being an analog to analog clocks in the pilot example, but that does not mean abstraction is always bad. If anything, however, the use of common abstractions could help processibility in relating these familiar concepts to their graphical counterparts. As such, I would change this point to something like “better relate abstraction to context for better processibility.”