Test task for "Context-Aware Recommender Systems for Personal Knowledge Assistants" research topic

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Dear student,
This task is mainly about investigating users' behaviors in computers as a primary step toward developing context-aware recommender systems for personal knowledge assistants. Your results can help us understand whether this topic suits your skills and interests and decide better about our research collaboration in future.

For accomplishing this small task, you should:

1. First, download the BEHACOM dataset. You can use one of these links:
   https://data.world/technology/behacom-computer-use-behavior-data
   https://data.mendeley.com/datasets/cg4br62535/2
2. Read about this dataset in the paper below:
   https://www.sciencedirect.com/science/article/pii/S2352340920306612
3. Provide an overview of the data (in a visualized way preferably) presenting basic information about the dataset, like the amount/distribution of data per user, the included features, etc. (via histograms/boxplots/… by your own choice)
4. Use some of these features (e.g., mouse movements/apps switching/etc.) to define some states presenting the amount of user activity. These states can consist of categories like: fully-active (having a considerable number of interactions via mouse/keyboard/…), middle, and passive (very few interactions)
5. Divide users' activities into some time slots and indicate to which state each time slot belongs. (Applying this on only one user's data by your choice can be enough, applying on all 12 users is not mandatory) In other words, you should show how much active a user is in terms of computer interaction over time.
6. Calculate the probability of switching among these detected states. That is to say, providing information like "a user goes to the passive state after being in a fully-active state with 60% probability…"
7. (Bonus question!) Can you surprise me by getting some interesting insight about the user's behaviors using this dataset? 🙂

* Visualizing the results in any of the above steps is not mandatory but very encouraged ;)

Don't hesitate to ask me your questions in case of any ambiguity.
I'm looking forward to your interesting results.
Good luck and have fun with the task. 😉
Mahta