Comparative Analysis of Deep vs Wide Menu Structures

Milestone 1

Arman Heydari

NSID: nki179

Progress

Progress aligns with the initial project plan, having successfully created a categorized CSV file, "Menu.csv," containing 64 food and drink items organized across different hierarchical levels. Also, a JavaFX application called "demo" was developed from scratch, which reads data from "Menu.csv" and presents users with tasks to order randomly selected items. These tasks involve generating menus with varying hierarchical depths (1-6) and measuring user accuracy and speed in identifying intended items. Results of user interactions are recorded in an "output.csv" file for further analysis.

Dataset Schema

Item	level_1	level_2	level_3	level_4	level_5
Kashmiri indian tea	Drink	Tea-based	Asian	Middle Asia	Indian
Masala Indian Chai	Drink	Tea-based	Asian	Middle Asia	Indian
Persian herbal tea	Drink	Tea-based	Asian	Middle Asia	Iranian
Gol Gav Zaban tea	Drink	Tea-based	Asian	Middle Asia	Iranian
Oolong tea	Drink	Tea-based	Asian	East Asia	Chinese
hot jasmine tea	Drink	Tea-based	Asian	East Asia	Chinese
Matcha green tea	Drink	Tea-based	Asian	East Asia	Japanese
Genmaicha tea	Drink	Tea-based	Asian	East Asia	Japanese
Sencha-style Portugalese green tea	Drink	Tea-based	European	Green teas	Portugalese
Portugalese Gunpowder tea	Drink	Tea-based	European	Green teas	Portugalese
Matcha green tea (European Varieties)	Drink	Tea-based	European	Green teas	Others
European Herbal Green Teas	Drink	Tea-based	European	Green teas	Others
earl grey superior organic tea	Drink	Tea-based	European	Black teas	English
English breakfast tea	Drink	Tea-based	European	Black teas	English
Caravan tea	Drink	Tea-based	European	Black teas	Russian
Zavarka tea	Drink	Tea-based	European	Black teas	Russian
Colombian coffee	Drink	Coffee-based	American	South America	Others
Puerto Rican Coffee	Drink	Coffee-based	American	South America	Others

Each of the 64 items have 5 categories, and for any category we have equal number of sub-categories. This way, when finding an item with a menu of depth 4, the user has 2,2,2,8 options subsequently. Actually, there are always 2 choices which gives the user equal options after selecting any of them, unless it’s an item selection page which the number of items depends on the depth. The video shows this hierarchy better.

User Output Sample

This is a sample test that I done, with only one task for each of the possible depths. This is not a reliable result as I’m so familiar with the system and data.

item	depth	duration	mistakes
Kaviar fish	5	9.4900844	2
Margherita Thin crust pizza	4	9.8045993	1
Shrimp Pad Thai	6	15.8502202	1
Big Mac (McDonald's) burger	3	9.437222	1
earl grey superior organic tea	1	7.9027072	0
Espresso	2	14.5121019	1

Important Notes and Discussions

- I just had a git issue that the username was not set in my cmd, so the first few commits' user is "unknown", but I've done all the commit
- Some foods or drinks are very familiar for some users, so they know the categories precisely and find it sooner than the unknown ones which causes problem in comparing width and depth.
- Sometimes, by lock, you find an item very fast. So if we don't have lots of data these chances can make the results bias.
- For now the application doesn't have any icons or images or visualization. It's just measuring with pure text data.
- Is the idea of having 2 choices per each page unless it's the last page of the task a good idea? I believe it is to have consistent setting in different depth. So the depth of the task and the width of item-selection page are the only variables which we intend to compare.
- Position of the items is not changing in different tasks and different users or tasks. To see the spatial memory's effect on more experienced users.
- This is just on a food data with 64 samples, gathering more data is very time-consuming as I have to categorize it too. By the way, I don't have so many users so it is probably enough and the questions will not be repetitive, as in one quiz there is no item that asks the user more than once.
- Scrolling takes some time from the user that can cause error.

Next Steps

- Enhance the styles of the application by editing the styles.css file.
- Engage with family and friends to encourage their participation in submitting one or more quizzes through the application, then gather and analyses all received results
- If there's any error or outlier data, for example a less known data or an unexperienced user, try to remove it from analysis or replace it
- Find a reasonable answer to the main question which is the best depth and width at least on this Menu dataset, and change the number of items at each page if required for more solids then have quizzes again
- Analyse the importance of user's experience in the system