Better Bookmarks
07/01/2019

Bookmark Boys

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Better Bookmarks

A Chrome Web App that utilizes Machine Learning and Natural Language Processing to automatically sort your Chrome bookmarks for you!

High Level Goals:

- Allow users to click a button and organize their bookmarks into folders with predefined categories.
- Have our Chrome add-on available for users to download in the Chrome web store.
- Allow users to create their own categories.
- Organize our code and architecture to allow continuous integration and automated testing.
- Collect user data and use it to continually improve our machine learning models so the user experience improves over time.
- Create a user-friendly GUI which will simplify user access to their favorite websites.

Sprint 1

- User stories
  - As a power-bookmarker with no patience to organize, I want my Chrome bookmarks to get organized with one button click using a chrome add-on.
  - As a user with lots of different topics bookmarked, I want there to be enough predefined categories to adequately compartmentalize my bookmarks.
- Spikes
  - Learn how to do automated testing, prototyping, and how to organize our code to allow continuous integration.

  ML People
    - Source a suitable dataset.
    - Train an initial model.
    - Learn how to do inference in the browser.

  Web Development
    - Learn Javascript.
    - Learn how to make a Chrome add-on and how to send chrome API data around.
- Infrastructure
  - Set up git repository.
  - Install all needed software dependencies.
  - Create a Google account with a lot of bookmarks to serve as a test user.

Sprint 2

- User stories
  - As a public user, I would like to download the app from the Chrome Web Store so that I can have it as an extension.
  - As a power-bookmarker, I want the structure of the bookmarks to be hierarchical so that I can create subcategories.
  - As a unique user, I would like to create my own categories and subcategories.
- Spikes

  ML People
    - Learn how to do hierarchical clustering.
    - Communicate the cluster information to the web dev people.

  Web Devs
    - Learn how to get our app into the Chrome Web Store.
    - Take the hierarchy information obtained from the ML model and put the bookmarks into a corresponding folder structure.
- Infrastructure
  - TBD.

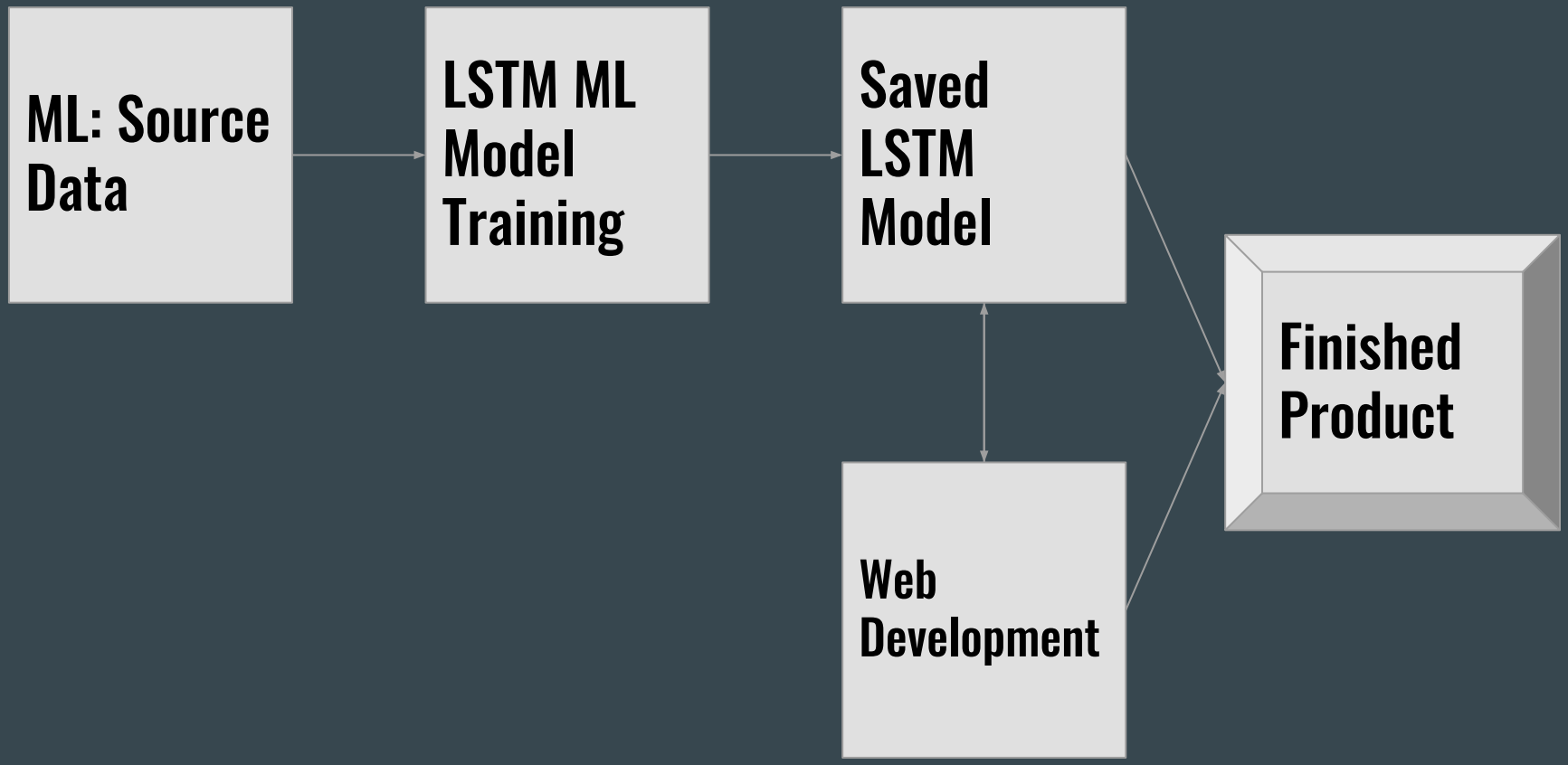
Sprint 3

- User stories
  - As a non tech oriented user, I would like if my bookmarks were organized in an aesthetic, visually intuitive manner.
  - As a user with ever increasing performance demands, I want my bookmark organization to get better over time automatically.
- Spikes

  ML People
    - Set up our ML infrastructure to aggregate user data, and then retrain the model.

  Web Devs
    - Learn a web dev software stack like MEAN so we can provide an intuitive UI.
- Infrastructure
  - Install all of the required libraries for our web dev stack.

Architecture



Challenges

Challenge 1: None of us have experience with web development. We will be learning new languages, techniques, and web development tools during every sprint.

Challenge 2: Some of us have machine learning experience, but have never applied in a browser based setting before.

Challenge 3: Creating an efficient ML feedback loop using a server that allows us to aggregate user data, retrain the model, and update our chrome add-on regularly to reflect the improvements.

Technologies

- Python3 for various ML things
- Pandas for CSV wrangling
- NLTK for text processing
- Keras to train our ML model
- Javascript as our main web dev language
- Tensorflow.js to do ML inference in the browser
- MEAN stack (MongDB, Express, Angular, Node) to serve our web dev needs
- Bootstrap as our CSS framework if we need it
- Maya for creating a custom logo

Minimum Viable Product

- Our chrome add-on in the Google Play Store
- The ability to sort one's Google Chrome bookmarks into useful categories(folders) automatically.
- Give user ability to create and edit pre existing category(folder) names.