Final Sprint Report (03/12/24) - ImageGen

Actions to Stop Doing:

These are the activities or actions the team determined they should stop doing. This is the answer to the question, "What things should we stop doing?" The items should take the form of a brief description of what the team wants to stop doing, followed by a brief explanation. If there are no items, this section should describe why the team is completely satisfied with their current process.

- **Sprint 1: Stop Researching Other Models and Abandon Instruct Pix2Pix:** We stopped researching different image generation and img2img models because we found many of them were based on Stable diffusion models but fine-tuned. In addition, we found that Stable Diffusion can be used for both of our features, ImageGen and ImageEdit, simplifying things and using fewer resources overall.
- **Sprint 2: Stop working on AWS Suite**: Remove AWS and spikes related to that because it was a waste of time.
- **Sprint 3: We will stop working on ImageGen, CaptionGen, and EditImage in the backend:** The current progress in the backend is sufficient enough that we can just focus on working on the frontend and the backend APIs.
- **Sprint 4: Pair Programming:** We finished most of the coding portion of the product that requires a GPU so we can switch to the front end and have the GPU member's necessary parts.

Actions to Start Doing

These are the activities or actions the team would like to start doing to improve their development process. This is the answer to the question, "What should we start doing?" The items should take the form of a brief description of what the team wants to start doing, followed by a brief explanation.

- **Start to add login and sign-up authentication:** We should start investigating methods to implement authentication and store user information.
- **Start to add archive page**: This page is a private database for each user to save their generated images
- **Start to redesign UI**: We should start redesigning our UI for the front end using Figma.

Actions to Keep Doing:

This is the answer to the question, "What is working well that we should continue to do?" The items should take the form of a brief description of what the team wants to start doing, followed by a brief explanation.

- **Focus on the Frontend Website**: We need to prioritize enhancing the user experience on the front end, even though it's currently being utilized primarily for testing rather than as a finished product for end-users.

- **Meetings with 3-day gaps.** The extended gap between meetings gave our team sufficient time to complete individual tasks. These tasks often involved working in isolation. Expanding the time between meetings proved beneficial, as it increased productivity during stand-up sessions by providing more substantial updates to discuss. Additionally, it afforded team members the flexibility to manage their workload efficiently, particularly if they anticipated a busy week ahead, ensuring tasks were completed before the next stand-up meeting.
- **Using Discord**: Our main platform for communication has been Discord, where we frequently engage in lengthy discussions about the challenges we face and coordinate test runs on other team members' GPU resources. Discord has proven invaluable in keeping us connected and active participants, making it much more convenient to reach out to one another compared to other communication methods.
- **Using Jira Board**: Using Jira has been helpful in keeping track of what other team members are working on and what needs to be donein this sprint.
- **Demoing:** This helps identify problems that need to be fixed right away. In addition, identify what improvements we can make related to the product we are trying to make.
- **GitHub Repo Branches:** This allowed team members to work on isolated features without worrying about conflicts.

Work Completed + Not Completed:
This is a list of the user stories that were completed during the previous sprint, and a list of the user stories not completed during this sprint (but which were part of this sprint and were in the sprint plan).

As a user, I want to interact with a website to input an image and/or caption. (Completed)
○ Task 1: Setup React (Completed)

As a user, I want to be able to generate a descriptive caption from a picture I have uploaded. (Completed)
○ Task 1: Edit CaptionGen to show both BLIP caption and LLM caption (Completed)
○ Task 2: Link model to frontend (Completed)

As a user, I want to quickly edit my photos(with a prompt) so that I can post them on my social media (ImageGen). (Completed)
○ Task 1 - Setup model for image generation (Completed)
○ Task 2 - Link model to frontend (Completed)
○ Task 3 - Social Media Integration (Product Backlog)

As a user, I want to interact with a website to input an image and/or caption. (Completed)

○ Task 1: Set up Flask Inference (Completed)

- ○   Task 2: Implement Input and output validation (Completed)

As a user, I want to be able to generate a funny descriptive caption from a picture I have uploaded (CaptionGen). (Completed)

- ○   Task 1: Implement LLM to make a funny caption (Completed)
- ○   Task 2: Link model to frontend (Completed)

As a user, I want to pick between a faster but less detailed image-generating model, and a slower but more detailed model(ImageGen). (Completed)

- ○   Task 1 - Implement two different StableDiffusion ImageGen models (Completed)
- ○   Task 2 - Link models to frontend (Completed)

As a user, I want to quickly edit my photos(with a prompt)(ImageEdit). (Complete)
- ○   Task 1 - Implement StableDiffusion image editing model (Completed)
- ○   Task 2 - Link models to frontend (Completed)

As a user, I want to interact with a website to input an image and/or caption: (Completed)
- ○   Maintain Website hosting (Completed)
- ○   Redesign Website (Add Features and Edit UI) - (Completed)

As a user, I want to be able to see the caption generated from my uploaded image that will be used to generate a social media caption: (Completed)
- ○   Edit CaptionGen to show both BLIP caption and LLM caption - (Completed)

As a user, I want to pick between different image-generating/editing models: (Incomplete)
- ○   Add a model that produces different art styles (Product Backlog)
- ○   Tune models/add features (Completed)

As a user, I want to be able to see each generated image sequentially rather than waiting for a large batch: (Completed)
- ○   Make images load one by one (Completed)

As a user, I want to be notified if there was an error or success in generating captions or images on the webpage: (Completed)
- ○   Add error handling (Completed)
- ○   Implement Input and output validation (Completed)
- ○   Add Toastify alert messages (Completed)

As a user, I want to be able to archive my images privately (Added and Completed):
- ○   Create an image archive page (Completed)
- ○   Toggle between public and private to share to Explore page (Completed)

Work Completion Rate:
This section should report the following: total number of user stories completed during the prior sprint. Total number of estimated ideal work hours completed during the prior sprint. Total number

of days during the prior sprint. For the previous sprint, the user stories/day and ideal work hours/day figures should be reported. For sprints past the first sprint, this section should also provide the average user stories/day and average ideal work hours/day figures computed across all sprints to date. The final sprint burnup chart for the previous sprint should be available for viewing in the lab and an email of this chart sent to the TA/prof.

Numbers of Story worked vs. Estimates:
- We estimated 165 hours across our six user stories. We actually worked a total of 150 hours.
- For the most part, we worked an average of 3.17 hours per day.

Burn-up Chart: