Jarett Koelmel

Milestone 1

Section 1

Executive Summary

During these unconventional and trying times, there seems to be a lack of availability in the physical therapy market to help facilitate the ease of acquisition of medical care as well as the administration of said care for those needing rehabilitation from injuries or surgical procedures. This is the gap that {{app name}} seeks to fulfill with its physical therapist portal. As the extant client-facing portal pairs users with registered therapists, our portal will provide the medical staff remote access to records, progress tracking, and vital interfacing options to aid in successful physical therapy and rehabilitation. Looking beyond the circumstances of the pandemic, the success rate of therapy is directly correlated to the ability for clientele to stick with the assigned exercise regimen. When this can be conducted properly in an asynchronous manner, it allows for greater flexibility for both the client and therapist while not sacrificing the overall quality of care provided.

Specifically, the portal will allow therapists to organize and view their patients, both current and tentative. Within each patient page, generating tailored exercise programs will be as simple as dragging and dropping exercises from a curated library of common exercises used in therapy. Beyond this, the ability to upload custom instructional videos will be simple and intuitive. For often used programs, or treatment of specific commonplace injuries, therapists will be able to create workout regimens and save them for easier deployment later. From the client-side, uploaded videos of exercises performed will be available to the therapists under each patient’s profile for review and assessment of progress, to include feedback on individual videos. Messaging between patients and therapists will be available around the clock, with an adjustable email notification system to alert therapists to patient questions and concerns in a timely manner. Tracking metrics will be implemented so that therapists and administrative personnel can generate regular reports which detail progress of specific patients across multiple time scales as well as logging therapist’s time investment on a per-client basis. Furthermore, it is vital that the web application secure access to medical records in a manner that protects all users and complies with HIPAA regulations.

Aside from the bridging the gap for remote physical therapy, something that is currently missing in the medical services space, our web application will seek to provide additional tools to assist physical therapists in assessing clients that increases efficacy and accuracy which may be a concern for therapists accustomed to in-person evaluations. The ability to draw on screenshots of client-submitted videos, while providing joint-angle calculations, allows for quantitative measure of range of motion and progress tracking. Our team is also investigating the possibility of implementing open-source AI (artificial intelligence) tools to provide body position in videos, either in real-time or separate processing, that can speed up this necessary portion of physical therapy. This is largely contingent on the required resources to perform said calculations while minimizing the outlay costs to the physical therapists using the platform. That being said, our primary goal is creating a web application that functions across a variety of devices and web browsers seamlessly so as to maximize our total addressable market.

Our team is a diverse group of SFSU computer science students working to prototype a vertical slice of a full-fledged web portal to be utilized by physical therapists. This project is specifically tailored to Netic, a Berkeley start-up. After assessing their needs and goals, the following is an outline of our understanding and process to achieve such a product.