PocketPT

[**Demo:**](https://www.youtube.com/watch?v=UxmjzW3__Jg)https://www.youtube.com/watch?v=UxmjzW3\_\_Jg

**Background:**

Our app, PocketPT, is a physical therapy app designed to help users pinpoint the location of their injury and provide them with exercises tailored to their needs. For people without access to physical therapy, their tendency at that point may be to search for exercise videos online, but they may not even know what their injury is. PocketPT offers a solution to this dilemma by guiding the user through a series of diagrams designed to help them locate their injury, and it then generates a list of workouts based on this determination. Our app’s audience is those who are having pain and may not have the means to see a physical therapist. The audience also includes people who do not know how to accurately research remedies for their pain.

**Significance:**

A quality of our app that makes it valuable is that there is no cost associated with it and no need for users to register with a medical center to gain access to its resources. There are a variety of reasons why a person could be unable to attend traditional physical therapy whether that be lack of health insurance, financial issues, or lack of easy access to a physical therapist. Therefore, we want our app to be accessible to anyone. We developed this app in response to the problem of not having the means for a physical therapist because injuries that go untreated could become chronic without intervention.

**Innovation:**

One of our app’s most unique features is the labelling of each body part. This feature makes it easy for the user to navigate to the exact location of their body that they are experiencing pain in. Also, the app is unique in that clicking on a specific part of the body navigates straight to a list of workouts that help alleviate pain, preventing a lot less research having to be done on the user’s part. Additionally, the video is embedded in the app, so the user does not have to look up a tutorial for the given workout. There are descriptions provided for some of the workouts if it is not immediately clear why the workout is helpful. Altogether, the unique features of our app provide an easy and smooth experience for the user.

**Approach:**

For the overall layout of the app, we created three sections: ‘Locate Injury,’ ‘Search,’ and ‘Favorites.’ The user may switch between these sections using a TabView. PocketPT loads its data, which consists of the parts of the body and exercises, from two .json files into a ViewModel. The .json file that holds exercise data uses optional values to provide descriptions for workouts when the purpose of the workout is ambiguous. These descriptions appear in the workout view if they are provided in the .json.

We implemented the injury locator, which is also one of our unique features, through a series of Navigation Views through which the user may click, and each of these views is contained in a ScrollView. The diagrams in each view grow increasingly more specific. For example, for a knee injury, the user first clicks on “leg,” then looks through another list containing items like “Meniscus,” “IT Band,” and “Knee Joint,” with accompanying diagrams. After selecting the most specific location, the app displays a list of stretches and exercises for that part of the body.

Each workout screen features a WKWebView that allows the user to watch a YouTube video that gives a demonstration of a particular exercise. It includes a timer for the user to time their own sets. Since the json data provides a recommended number of sets and time per set, we use a computed property to display the total time that will be spent in the workout for the user.

The app also has a search workouts feature, a Favorites ViewModel to save Favorite workouts, and push notifications reminding the user to do their favorite workouts. For configuring these notifications, we implemented a DatePicker view inside of a popover as well.

**Information on what each team member contributed:**

Grace Erk made each of the ViewModels and Models. She made all the functionality regarding the Timer on each workout page, including creating the TimeManager and different functions to start, stop, and restart it. She implemented the search function and created the Exercises page with each exercise listed. She implemented adding a favorite workout alongside Grace Barnes. Finally, she contributed to the .json files.

Grace Barnes implemented displaying the favorite workouts on the favorites tab. She styled the theme of the app, including coloring different elements (such as the tab buttons and the navigation bar). She did the heaviest amount of work on the .json files, finding information about several different injuries and exercises that alleviate the pain of said injuries. She implemented the optional variables in the models and .json files (the video descriptions).  
 Amy Cunningham implemented the UI for displaying body parts and workouts (the lists of rounded rectangles), which were used all across the app. She implemented allowing the user to schedule a time for a daily notification that will remind them to do their favorite exercises. She implemented the WebView that includes an embedded YouTube video. She calculated the Total Workout time on each workout page. She contributed to the .json files.

**The group’s appraisal of the application and the process:**

One thing that went well was version control through GitHub. The setup was easy, and XCode has an intuitive interface for resolving merge conflicts. Our team communicated well as to what changes were made, too, keeping the number of conflicts low. One aspect of our app that we anticipated being complicated was embedding YouTube videos for the workout example videos. However, it went smoothly and all videos that we wanted to have in the app worked!

Next, an unexpected challenge was encountered in styling the app. We wanted to change the background and foreground colors of the navigation title, but it proved more difficult than expected. Adding a few tags to the end of navigation view did not change the color correctly. Instead, we had to use a ViewModifier for the navigation bar. This was a new aspect of swift for us and taught us more about how views work.

The application does well withhaving an easy and intuitive user experience. It opens to page telling the user to locate where their injury is, and then the location gets more specific (for example, leg --> thigh). It is not difficult to figure out how to use the app.

The range of data provided in PocketPT could be improved upon. There is a substantial amount of data currently available, but having even more suggested workouts for each body part would enhance the usefulness of the app. The more body parts we provide workouts for, the more helpful our app will be to our users. Our team compiled all the existing data and wrote the json ourselves, which explains why the amount of data is not yet all encompassing.

Future versions of PocketPT would include filtering by body parts in the search view. We would support viewing only exercises meant for the leg, for example, when the user chooses a “leg” filter. Also, in the favorites view, we want to sort the favorited workout by body part as well to improve visibility of desired workouts.