



Fysio

Bacta Health
Sponsor: Artera



Who we are



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artera



The Setting

- You've been injured in a car accident and need physical therapy
- You are part of one of the following groups:
 - The 10% of americans who don't have health insurance [1]
 - The other 90% of americans whose insurance company pays doctor and could:
 - Deem PT unnecessary at any time
 - Only cover a portion of the expensive services with copays you can't afford
- Currently few or no solutions exist to motivate, engage, monitor, and assess your recovery without a dedicated physician, which you can't access.
- Even with physicians, different doctors will give wildly different predictions

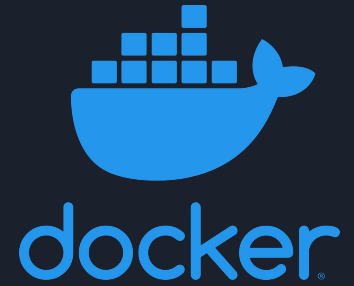
[1]: <https://www.simplyinsurance.com/how-many-americans-dont-have-health-insurance/>



Demo

- Four Sections
 - Main Page: shows aggregate graphs and useful information that the user will be interested upon first opening the app
 - Roadmap Page: where the user can see their recovery graphs per injury, as well as the list of exercises they need to complete on a given day
 - Exercise Page: where a user's most recent injury progress is displayed. Subjective pain level and calculated range of motion are displayed on a rating out of 10. Daily exercises are also shown here to be checked off upon completion
 - Forms Page: where the user can update general information such as exercises, height/weight, medication, etc

Technologies





Our Prediction Algorithm

Score diet, water, exercise, exercise form, range of motion, and pain levels daily

Find the correlation coefficient of each factor on the recovery outcome

Weight scores by coefficients and sum to get that day's "Recovery Credits"

Total credits = total days to recover if strictly following recovery plan

New patients use their average recovery credits to predict recovery timeline



Challenges

- The data we need to predict recovery times isn't publicly available
 - Solution: Our service provides value and our users provide the data we need
- The research we need to predict recovery times uses data we can't access
 - Solution: We perform research to discover statistical models on the data we collect
- The algorithm we need must be based on research we can't yet perform on data we don't yet have access to
 - Solution: We created a proof of concept algorithm as presented which was used to generate substitute data.
 - In the future, we would perform statistical and AI research to discover a better algorithm.



Next Steps

- Gamification
 - Engage the user during and after PT to keep them focused
 - Use phone as a controller, enabling the play of gamified exercises
 - E.g. Hold phone and play an archery game to exercise shoulder
 - Use websockets to relay phone control data to a user's PC as a display
- Improved UI/UX
 - Enable the user to add, update, or remove any of their data easily
 - Simplify user experience to make it easily usable by any user group
- Collect data & perform algorithm research

Thank you! Questions?

