

Exercise Video Recommendation for Physical Therapy Patients

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Business Problem

1/2 American population > 18 develop a musculoskeletal injury that lasts longer than 3 months

65% patients not adherent

Non adherence to physical therapy exercises is due to:

- 1) Lack of motivation
- 2) Difficulty of exercises
- 3) Difficulty integrating exercises in daily routine (PT surveys)



Solution

Developing a web application to **recommend** exercise videos to physical therapy patients and thus giving them a **choice** to choose from a wide array of exercises.



Equation-Softmax

$$P(v|x) = \frac{e^{-\theta_v * \vec{x}}}{\sum_v e^{-\theta_v * \vec{x}}}$$

v=like/dislike video

x=age, symptom, etc

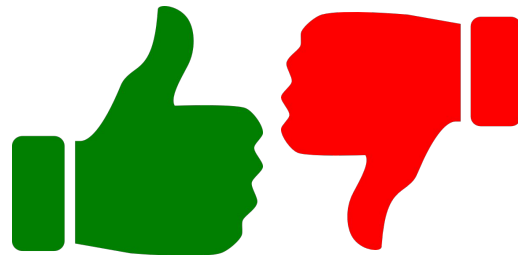


What is X and Y and how would we obtain it?

- **X = Patient characteristics**
 - age/symptoms/muscle groups etc
- **Y = Videos**
 - click time ,like/dislike ,how many percent of video they looked,relevant to the filter factor

Obtained via Google survey:

<https://docs.google.com/forms/d/e/1FAIpQLSfW2zON6fYMyQKpmaEx7Y0GXmTT80JfZOcX948ErHlMfedKJQ/viewform>

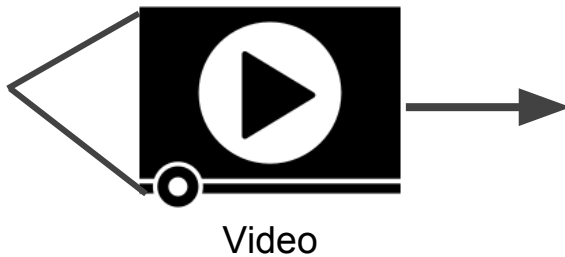




Validation- by Patient



Physical Therapist



Improved
Therapy for
Patient





Collaborative Filtering Algorithms

