

Machine Learning to Predict Health Status

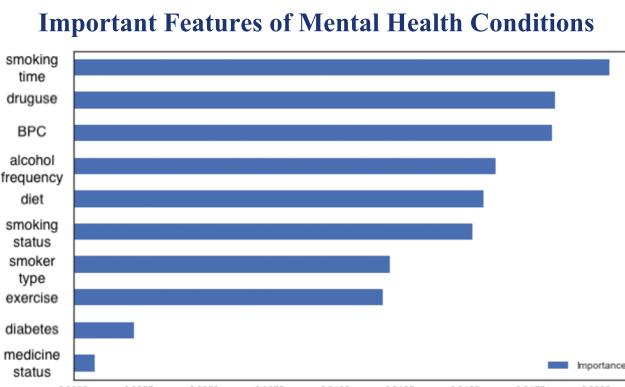
Utilizing your behavioral data to help you
understand how to live a healthier life!

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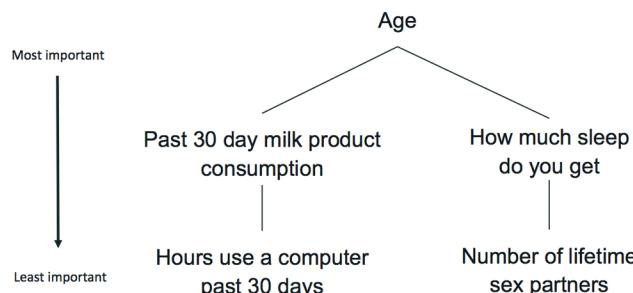
PROJECT DESCRIPTION

The World Health Organization redefined health as “complete status of physical, mental, and social well-being.” Therefore, our team studied both chronic disease and mental health conditions. As they are preventable and cost U.S. trillions of dollars every year, we used machine learning to understand the relationship between health status and life behaviors. We built a robust (98.5% accuracy) health-status predictor through random forest model. Additionally, we created a user interface that will provide personalized life behavior recommendations within a few seconds.

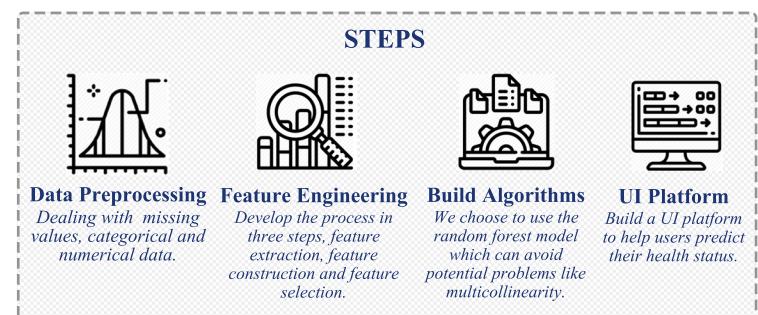


For mental health, we have found smoking time, drug use, blood pressure and cholesterol status, alcohol consuming, and diet are the most important features.

Important Features of Chronic Diseases



For physical health, we have found age, milk product consumption, quality of sleep, computer usage, and number of lifetime sex partners are the most important features.



Industry Application

Potentially, our project will contribute to predictive healthcare system. By using machine learning to predict health status of NHANES participants, our project differs from other studies. Our project will add value to the field by understanding the relationship between daily behaviors and health status. People could benefit from our project by finding a low-cost and efficient way to live a healthy life.

Interpretation

Machine learning is like a black box. However, feature importance tells us the association between daily behaviors and health status. For example, smoking time and drug use are important for mental health. Depressed people are more likely to consume drugs and smoke. Number of lifetime sex partners reveals a person's willingness to take risks, which relates to health. In short, important features provides insights toward daily behaviors and health status.

We provide a user interface for users to input their daily behaviors data. Our models will analyze their data, and offers personalized recommendations