



Sleep, and Health

Team 1

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USE CASES

- Users want to know their sleep conditions related to the health
- Users could understand how relate between each sleeping factors with health
- Users could interact with the interface to analyze and export the report



METHODOLOGY

Investigate the relation and trend between sleep conditions and health, provide predictions for people how is their health

Provide an interactive interface for the users to explore about sleep and health

- **Sleep Conditions** include(these would be put inside vector)
 - a. Sleep duration
 - b. Sleep quality (mark as scores)
 - c. Stress Level
- **Health** (y-outputs)
 - a. Blood pressure
 - b. BMI number



DATA SOURCES

- Sleep Health and Lifestyle Dataset

This dataset contains 373 rows and 13 columns, with information on sleep, daily routines, gender, age, profession, sleep duration, sleep quality, physical activity, stress levels, BMI classification, blood pressure, heart rate, daily step count, and presence of sleep disorders.

- Heart Attack Analysis & Prediction Dataset

This dataset has 57 rows and 15 columns, covering factors like age, sex, exercise-induced angina, number of major vessels, chest pain type, resting blood pressure, cholesterol level, fasting blood sugar, resting electrocardiographic results, and maximum heart rate achieved.

MILESTONES/SPRINTS



Week 1

- Data Collection and Preparation
- Exploratory Data Analysis



Week 2

- Feature Engineering
- Machine learning
- Prediction




Week 3

- Model Development
- Interface Creating
- Debug



Week 4

- Interface Continue
- Debug
- Presentation Prep



What will you program in Scala (and will there be any code not in Scala?) and where is your code repository?

1. Data Analysis for each dataset
2. Featuring Engineering (Data cleaning and dataset Combination)
3. Machine learning methods (Logistic Regression, gbt, random forest, etc.)
4. Play framework with scala to build interface combined with html
5. MongoDB with scala to get the data remotely

Code Location: <https://github.com/ChenYangNEU/CSYE7200-Final-Project>



ACCEPTANCE CRITERIA

- Prediction Accuracy : 70%
- F1-measure : 0.7 or higher



GOALS OF THE PROJECT

- Goal 1: To investigate the relation between sleep (with its condition) and BMI and blood pressure. Will our sleep have a strong relation to our health actually?
- Goal 2: Investigate our self-sleep hours and behaviors as inputs, to predict our BMI and blood pressure.
- Goal 3: Provide bunch of functions in the interface for the users to investigate their own sleep and health conditions.