Employee's Work Life Balance

Data Analysis

DS 501 - Case Study 4

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Overview

Lifestyle and Wellbeing Dataset

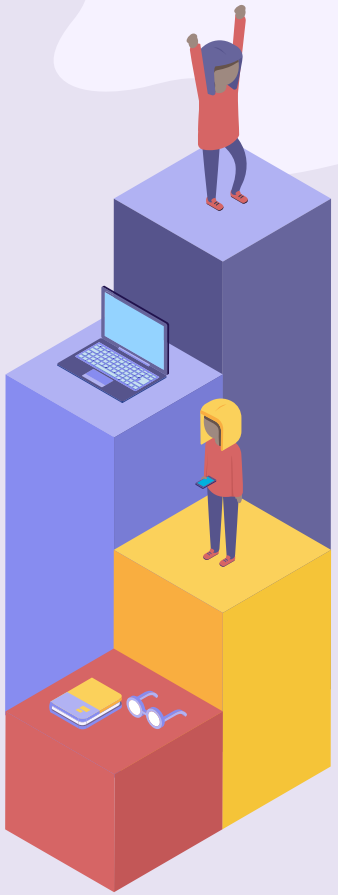
Work Life Balance Score (WLBS)

About
16,000

Survey responses

24

Attributes for describing the factors affecting people's lives



Motivation

Maintaining a good work life balance is important to the work environment and would make employees more productive, increasing profit

Going through the lifestyle and wellbeing dataset

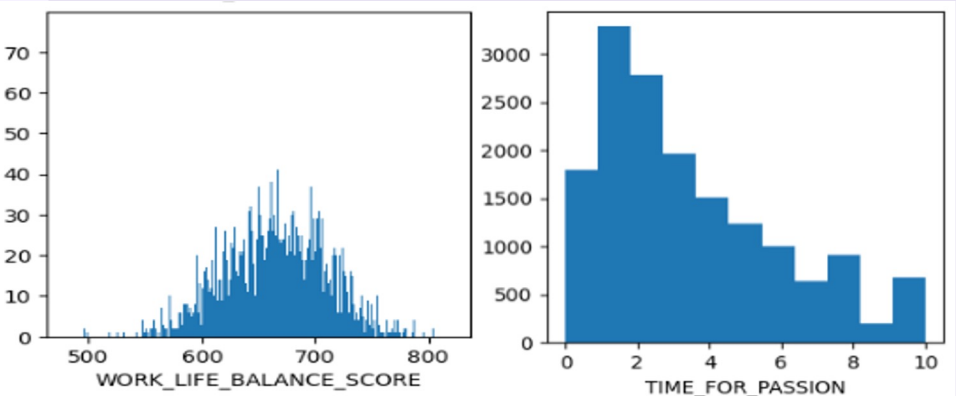
Work-life balance score calculated based on 24 attributes

Examining the work-life balance of the employees which plays an important role in the employee’s satisfaction and the quality of their life

Exploratory Analysis and Conjectures

Understanding the data

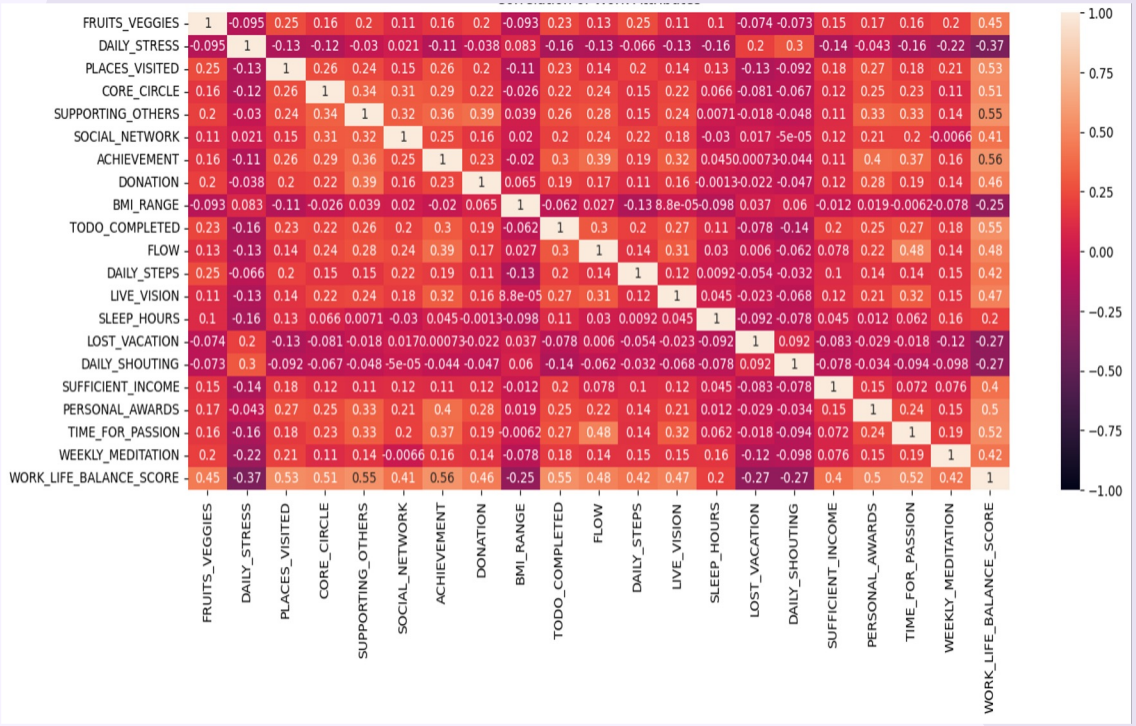
Exploratory Analysis



1. Histograms to understand distribution

2. Box Plots for change between ratings

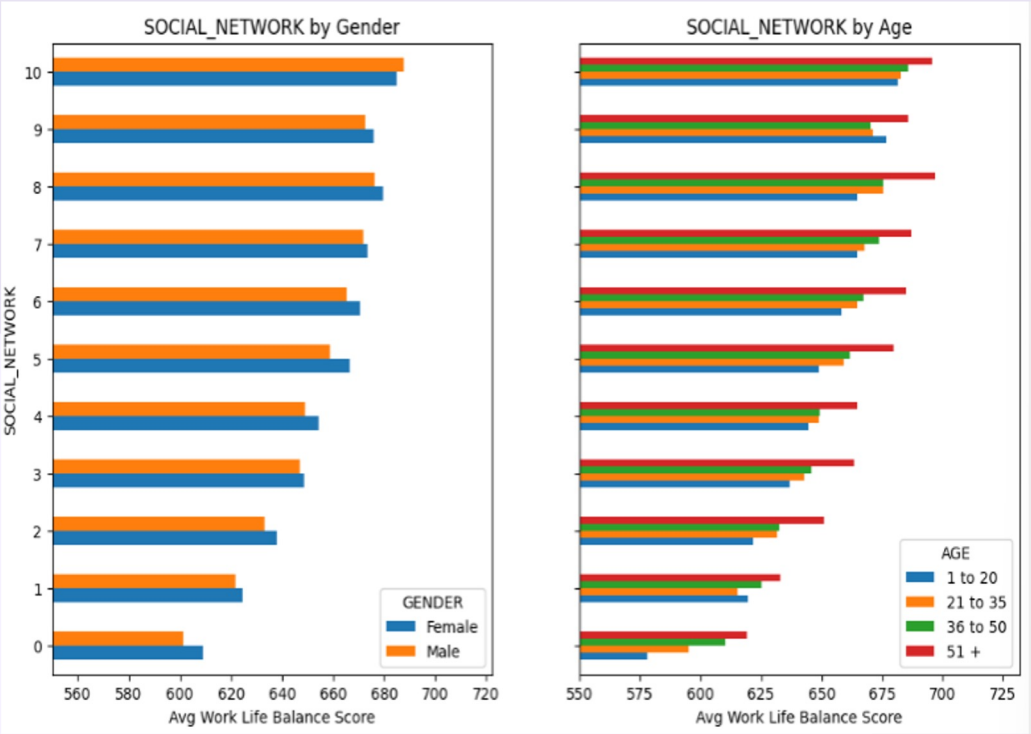
Conjectures



1. Achievement and WLBS have the strongest correlation of .56

2. WLBS negatively correlated with stress, BMI, lost vacation, shouting

Conjectures by Age and Gender



1. Oldest age group has the highest ratings

2. Increased social activity leads to higher WLBS

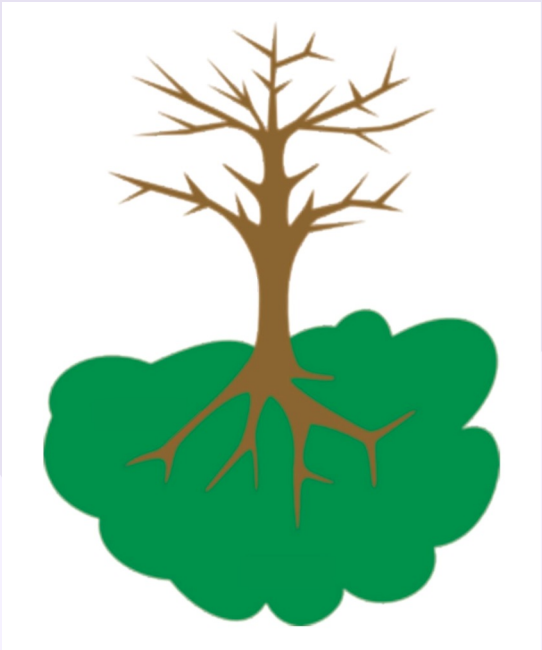
Regression Tree and Lasso Regression Models

The models, Performance, How they bring value

Regression Tree

Prediction

Used to predict a person's WLBS



Model Improvement

Tuned hyperparameters using GridsearchCV

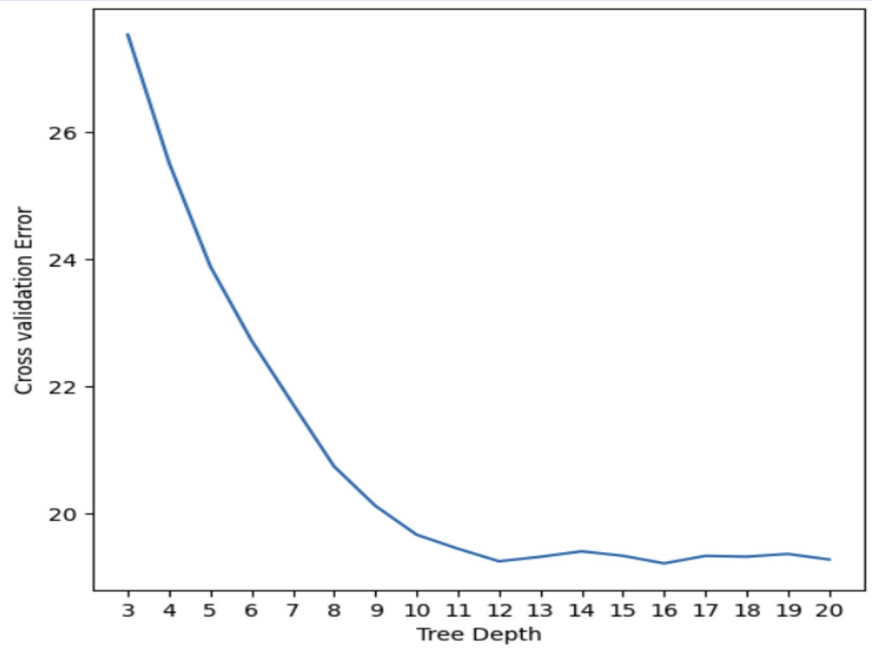
Interpretability

The results of the model are easy to interpret

Feature Importance

The model highlighted the most important features

Regression Tree Results



1. Achieved an initial MAE of 22.38

2. MAE improved to 17.77

Regression Tree Business Applications

1. An improved WLBS leads to higher productivity and more profit

2. The model generated the most important features

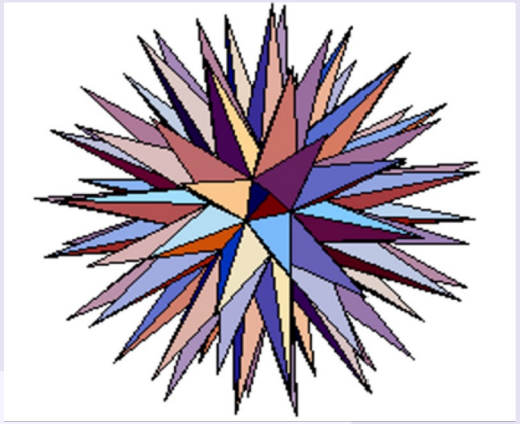
3. Implement policies aimed at improving WLBS based on feature importance

	importance
SUPPORTING_OTHERS	0.229161
PLACES_VISITED	0.132326
TODO_COMPLETED	0.130958
ACHIEVEMENT	0.072891
SUFFICIENT_INCOME	0.064832
WEEKLY_MEDITATION	0.036785
LIVE_VISION	0.036540
TIME_FOR_PASSION	0.033391
BMI_RANGE	0.029857
CORE_CIRCLE	0.029308
DAILY_STEPS	0.025678
DONATION	0.025654
FRUITS_VEGGIES	0.023568
PERSONAL_AWARDS	0.023257
DAILY_STRESS	0.022997
LOST_VACATION	0.021436
SOCIAL_NETWORK	0.019414
FLOW	0.015956
DAILY_SHOUTING	0.015058

Lasso Regression

Prediction

Used to predict a person's WLBS



Model Improvement

Scaling features using StandardScaler
hyperparameters using GridsearchCV

Interpretability

Simple and interpretable

Feature Importance

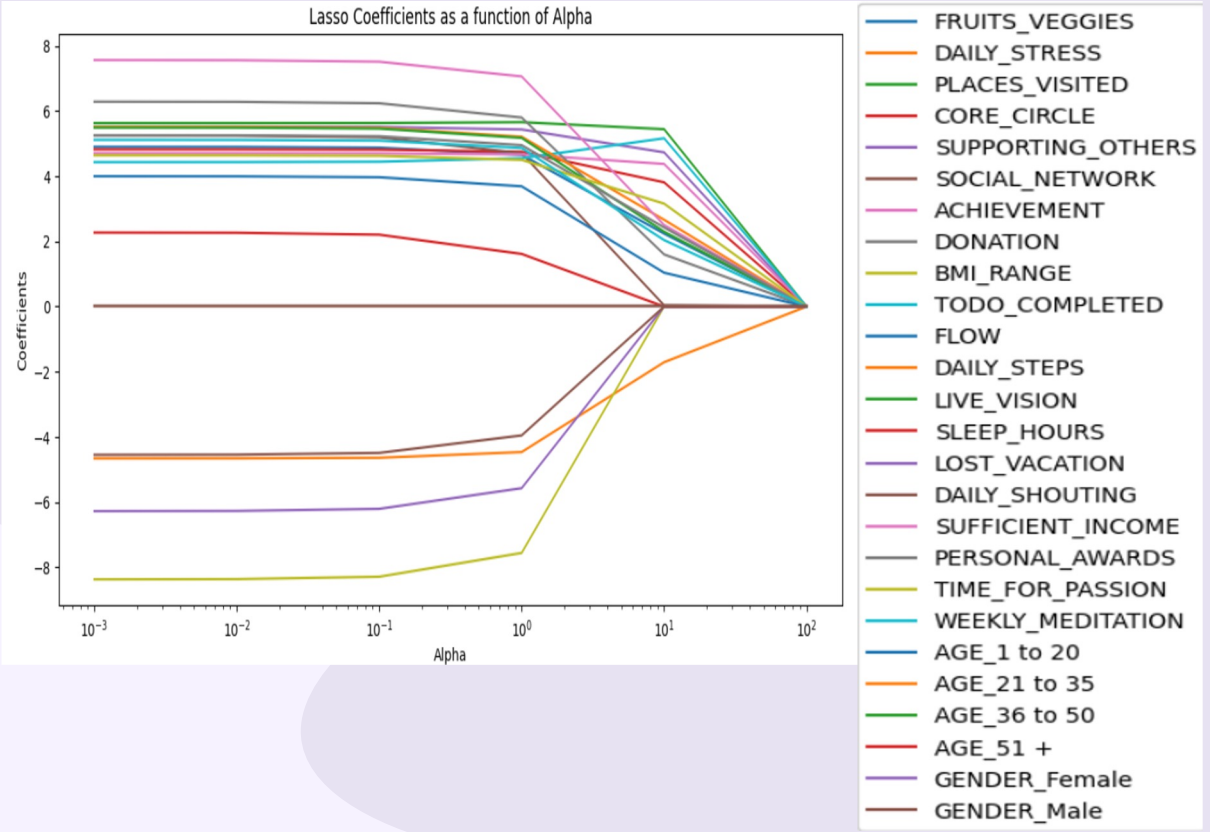
Reduces the dimension by performing feature selection

Lasso Regression Results

1. The best alpha value: 0.001

2. Achieves MAE of 0.0022

3. Lower MAE



Lasso Regression Business Applications

1. Attributing coefficients to different features

2. Reduction of the age and gender features

3. Improving WLBS based on feature importance

	coefficients
SUFFICIENT_INCOME	7.562072
DONATION	6.285710
PLACES_VISITED	5.628306
SUPPORTING_OTHERS	5.519891
DAILY_STEPS	5.514508
LIVE_VISION	5.491162
PERSONAL_AWARDS	5.256317
SOCIAL_NETWORK	5.247667
WEEKLY_MEDITATION	5.115969
FRUITS_VEGGIES	4.899502
CORE_CIRCLE	4.822820
ACHIEVEMENT	4.705888
TIME_FOR_PASSION	4.640448
TODO_COMPLETED	4.432221
FLOW	3.998684
SLEEP_HOURS	2.270681
AGE_1 to 20	0.000000
AGE_21 to 35	-0.000000
AGE_36 to 50	-0.000000
AGE_51 +	0.000000
GENDER_Female	-0.000000
GENDER_Male	0.000000
DAILY_SHOUTING	-4.547868
DAILY_STRESS	-4.657373
LOST_VACATION	-6.274896
BMI_RANGE	-8.368297

Closing Thoughts

Regression Tree

Top 3 Features:
Supporting Others, Places Visited, To-Do Completed

Lasso Regression

Top 3 Features:
Sufficient Income, Donation, Places Visited

THANKS!

Do you have any questions?