# **Insurance Cost Prediction**

Yuwei Deng

### Motivation



Insurance Contractor By predicting the health insurance cost insurance contractors need to pay, this app helps beneficiaries to:

Obtain an approximation as to what will be their health care and gain a fair idea of their health condition

Insurance Company This app helps insurance companies to:

Have a better understanding of the health costs of their potential customers and set premiums accordingly to make profits.



## Data



#### Dataset

- ▲ Obtained from Kaggle
- ▲ 1338 instances
- ▲ Factors that may influence the insurance charge of patients

#### Predictors

- **▲** age
- **▲** gender
- ▲ BMI: Body Mass Index
- ▲ children
- **▲** smoker
- ▲ region

#### Target

▲ charges: Individual medical costs billed by health insurance

## Model



Random Forest Regressor

Success Criteria: an R-squared above 0.8 on the test dataset

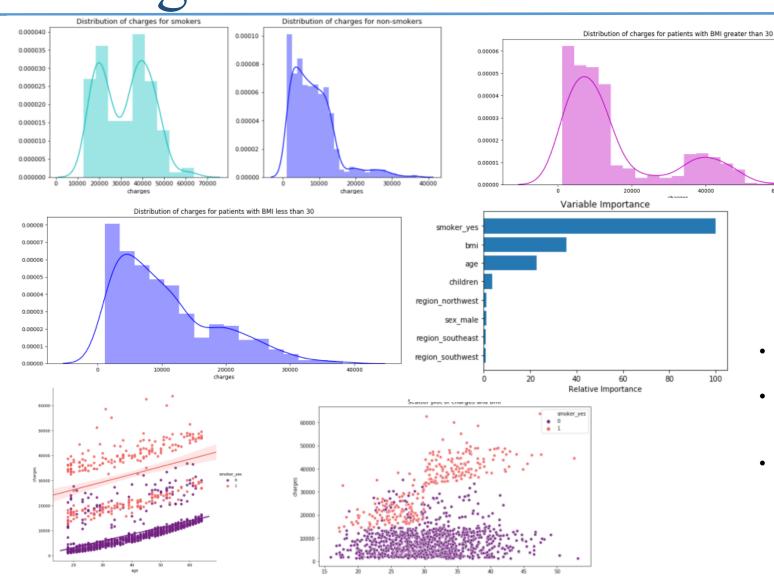
A train/test split of 80/20 was applied.

Result:

MSE: 3746403.169 R2: 19568385.032







- Smokers spend more on treatments than non-smokers
- In non-smokers, the cost of treatment increases with ages. In smoking people, this dependence does not exit.
- Patients with BMI above 30 spends more on treatments

# Thank you!

yuweideng2020@u.northwestern.edu