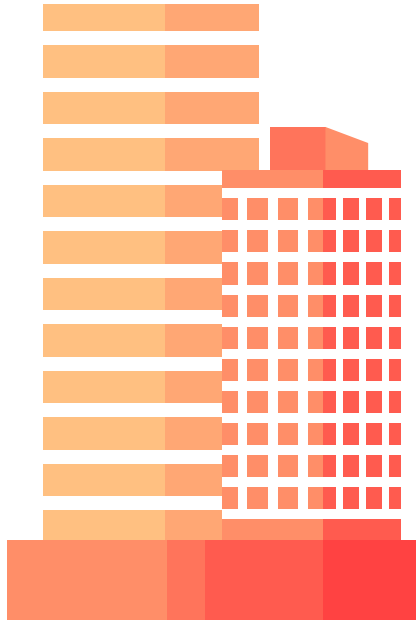


A stylized illustration of a city skyline on the left side of the slide. It features several rectangular buildings of varying heights and colors, including shades of orange and red. Each building has a grid of small white squares representing windows. In the foreground, there are two simplified trees with orange oval canopies and thin red trunks. The background is plain white.

# **Predicting Structural Damage from an Earthquake**

-Lhamu Tsering

# Business Context



- “Earthquakes don’t kill people, buildings do.”
- 2015 Nepal Earthquake
- Model purpose

# Process Outline

## Data Collection

2015 Nepal  
Earthquake Portal



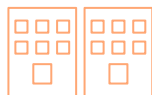
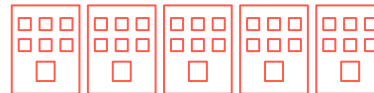
## Preprocessing

Feature Engineer,  
Class Imbalance,  
standardizing



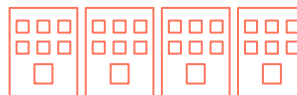
## Model Evaluation/ Model Selection

Evaluation Metrics  
Confusion Matrix



## Cleaning and EDA

Data cleaning,  
Exploration and  
visuals



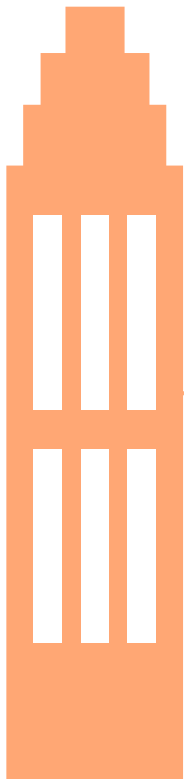
## Multiclass Classification Models

Logistic Reg,  
Decision Tree

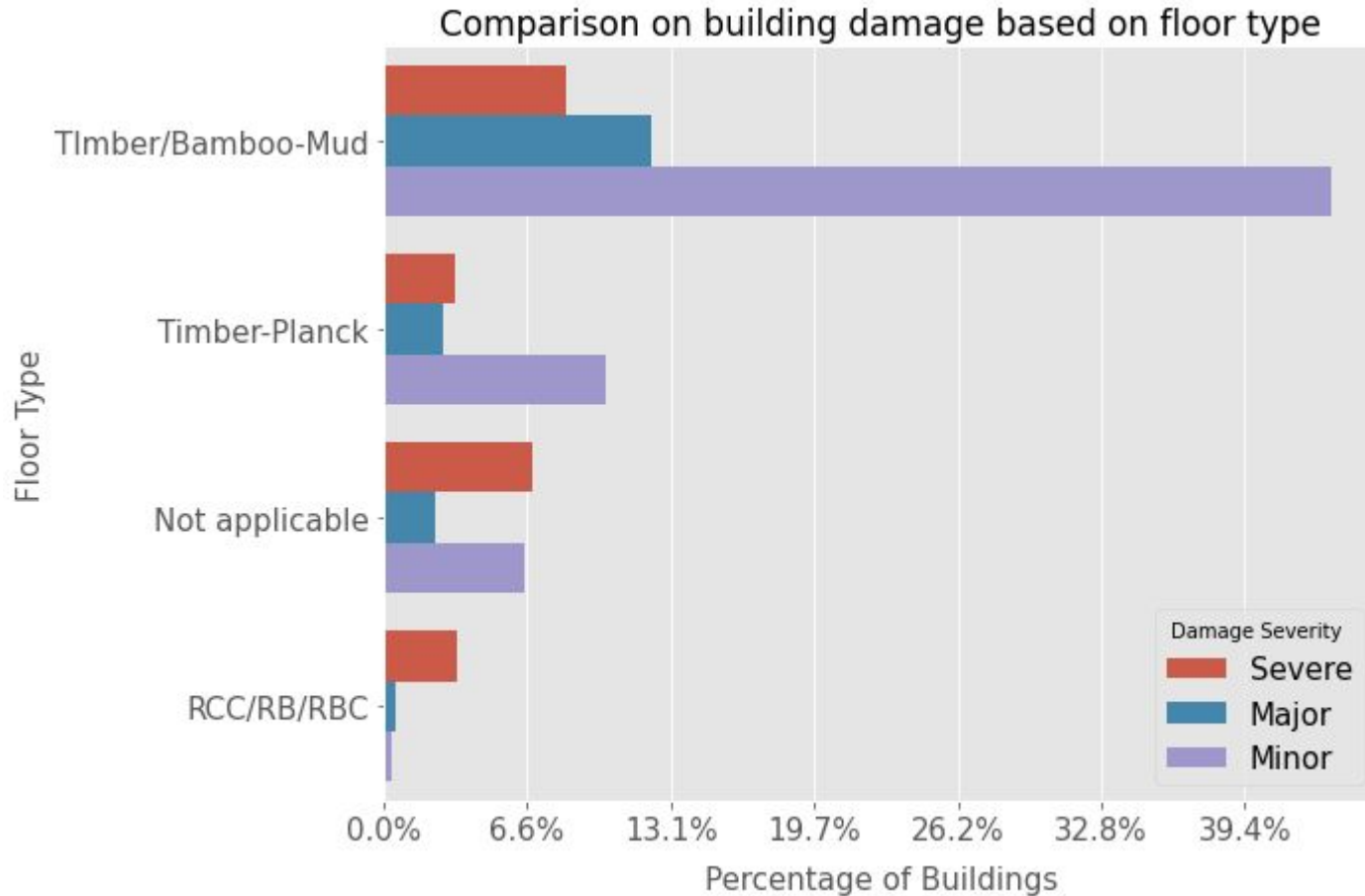
# Data Introduction

## 2015 Earthquake Nepal Data Portal

- Raw survey data
- Building Use (762106, 17)
- Building Structure (762106, 31)
- Building Damage(762106, 12 )



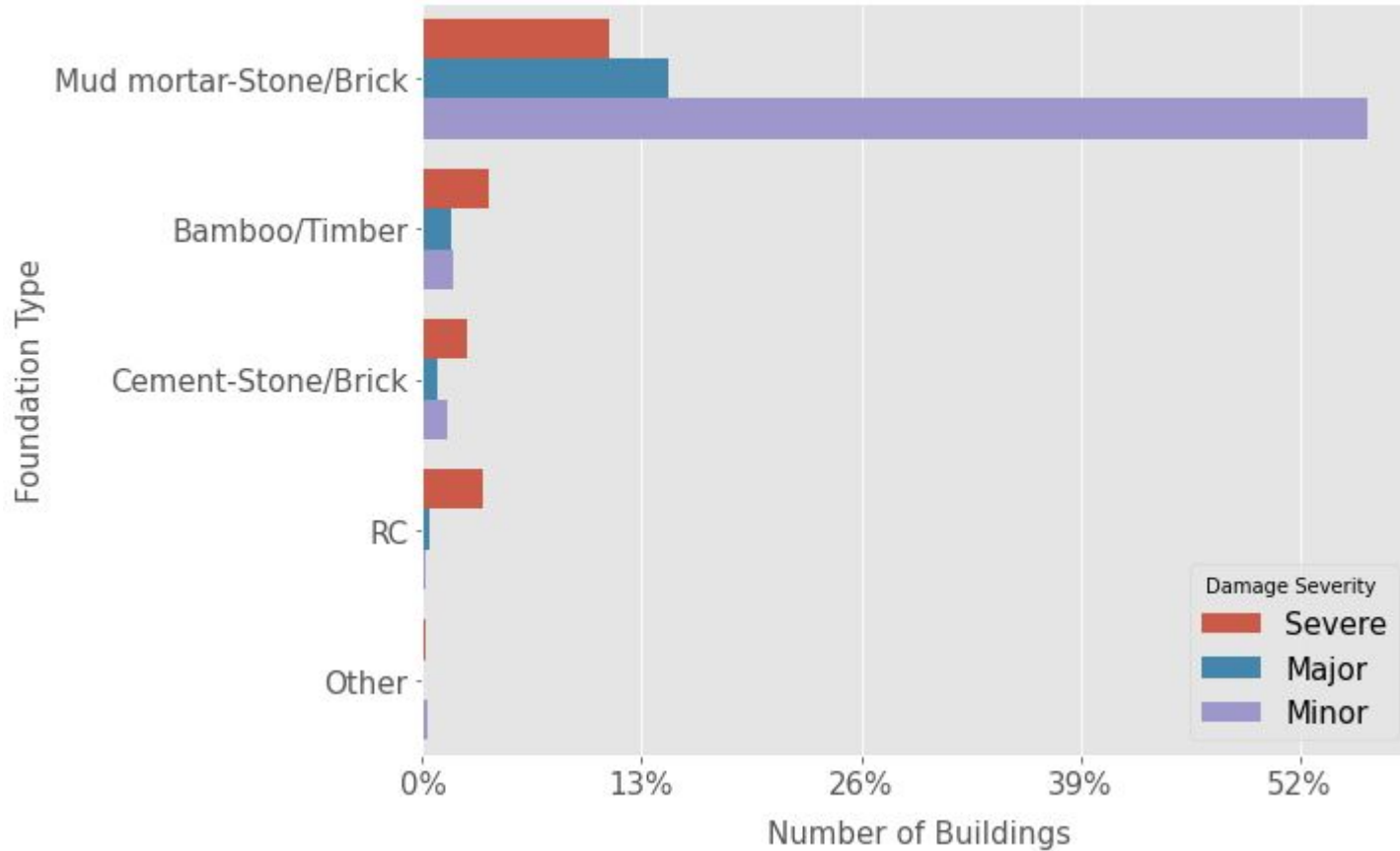
# Floor Type



RCC/RB/RBC floor  
type buildings  
faired better

# Foundation Type

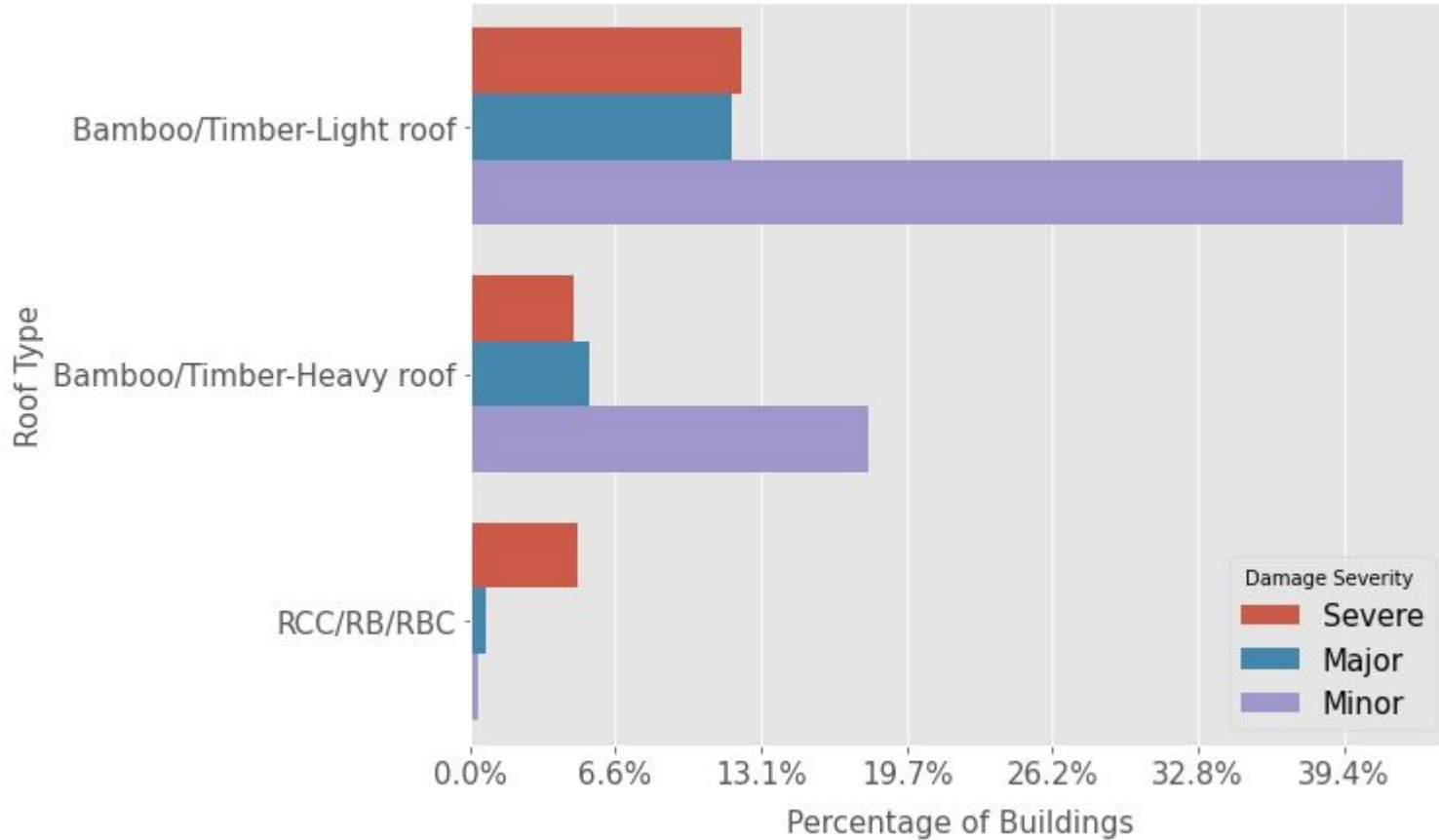
Comparison on building damage based on Foundation Type



RC foundation  
type buildings  
faired better

# Roof Type

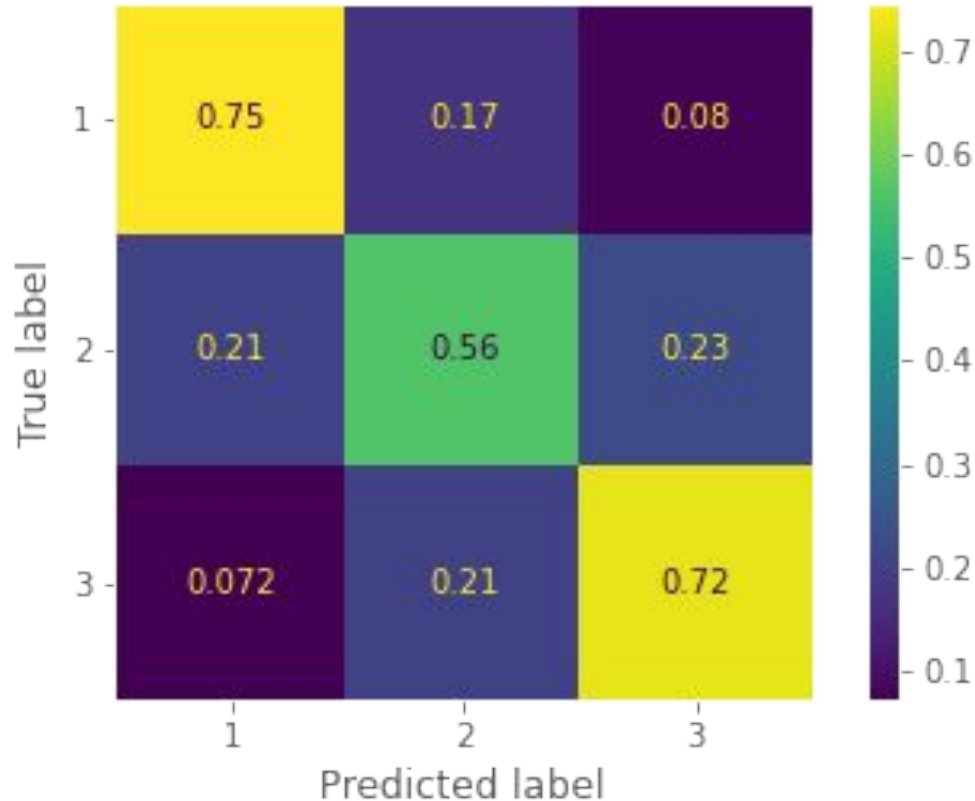
Comparison on building damage based on Roof Type



RCC/RB/RBC  
roof type  
buildings  
faired better

# Model Results

## Decision Tree Classifier



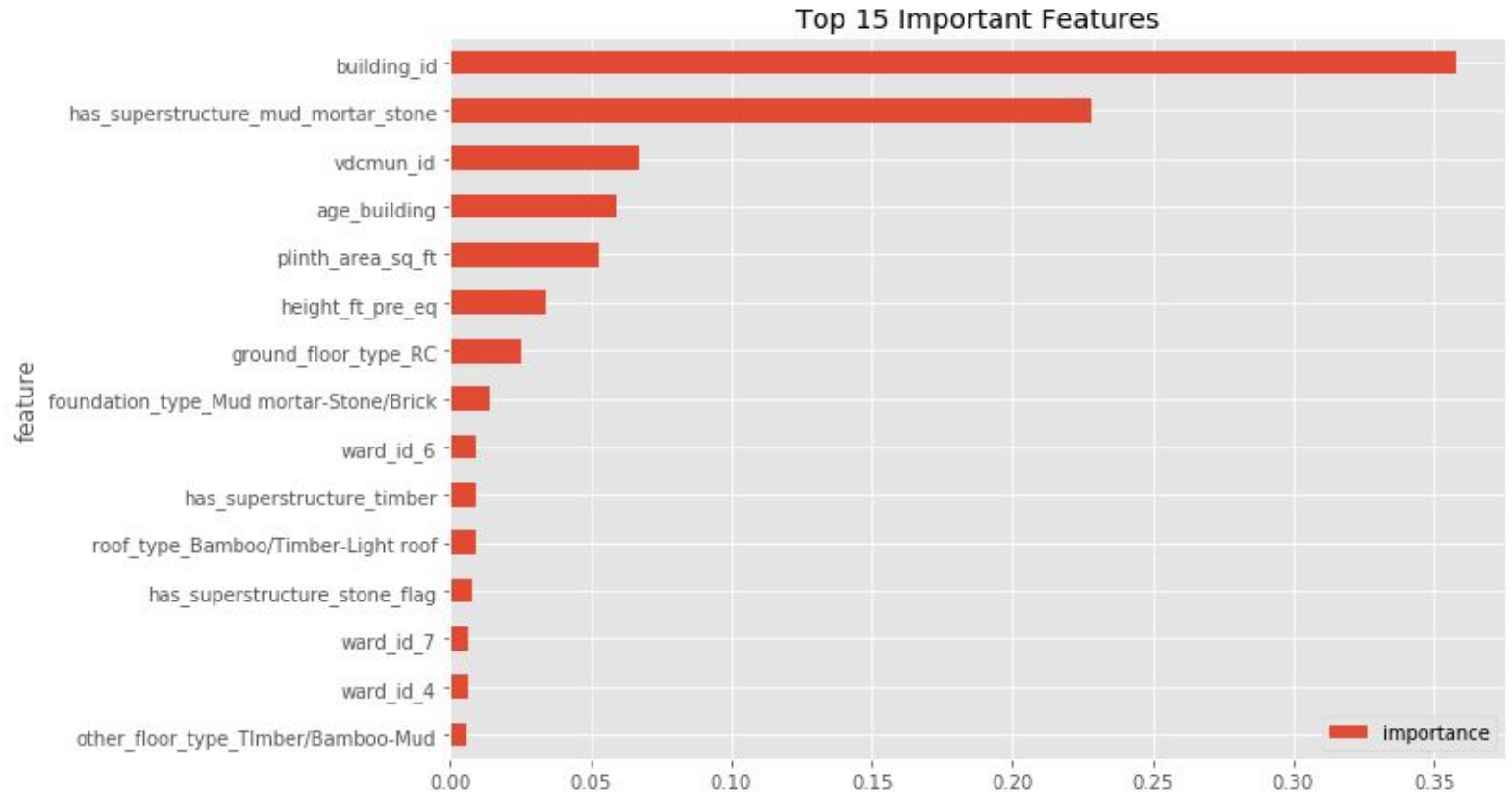
**Evaluation Metric**

Recall Score: 0.68

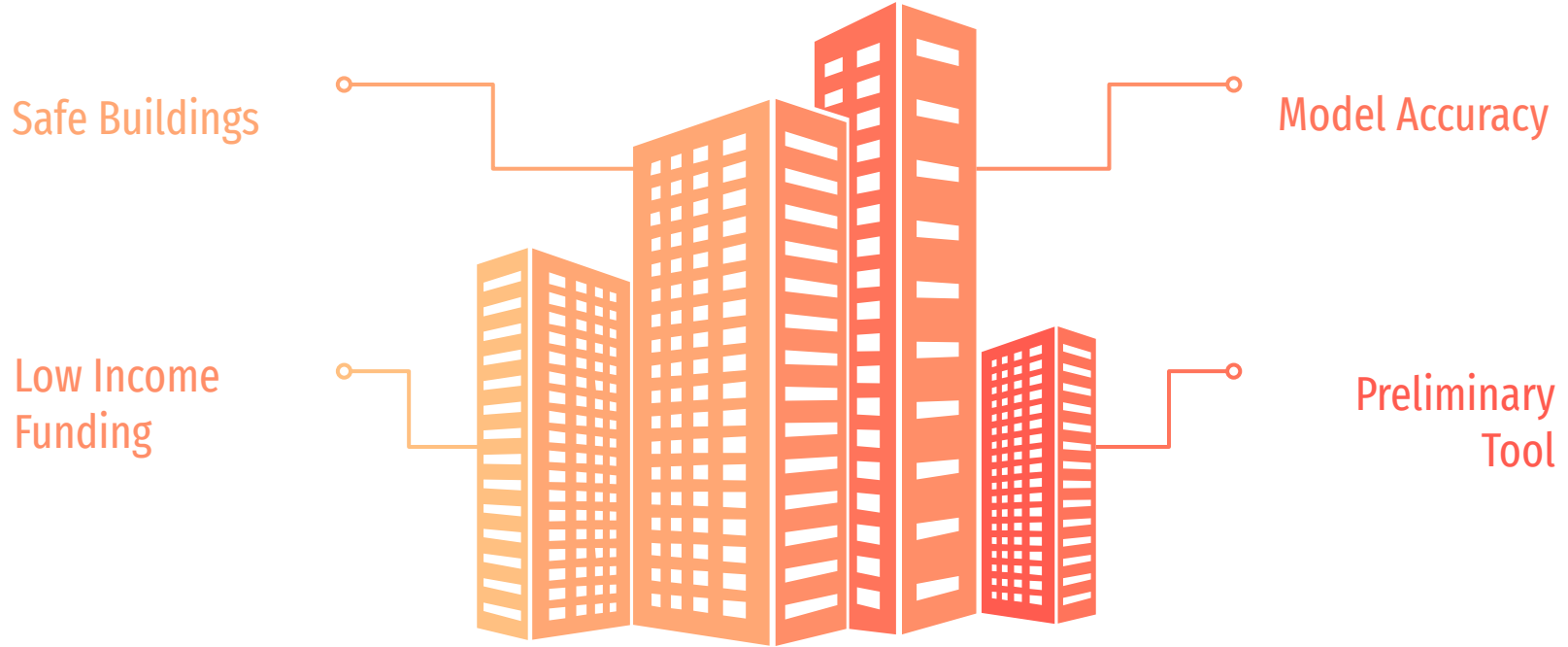
F1 Score:



# Decision Tree Model Important Features



# Recommendations



# Further Steps

SVM, Random  
Forest, XGBoost

Gauge the  
importance of  
location

Class Imbalance

Better Visuals

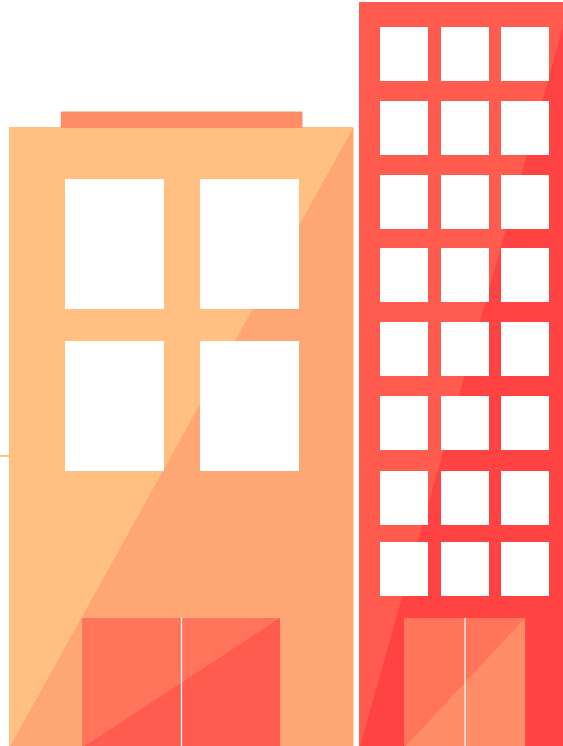


# Thank You!



## GitHub Repo

<https://github.com/Yeshi341/structural-damage-from-earthquake>



## Contact

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slides template credit:  
[www.slidesgo.com](http://www.slidesgo.com)