The background of the slide is a dense field of 3D-rendered numbers in various shades of blue and white. The numbers are of different sizes and are scattered across the entire frame, creating a sense of depth and complexity. Some numbers are in the foreground, appearing larger and more detailed, while others are in the background, appearing smaller and more faded. The overall effect is a vibrant, abstract pattern of digits.

# Life Insurance Assessments

Joseph Nebres

<https://github.com/joeneb24>

# Presentation Overview



## Target/Prediction

Life Insurance Assessment

Underwriting

Response



## Visuals

Explanatory

Exploratory



## Summary

Key Points

Takeaways

Recommendations

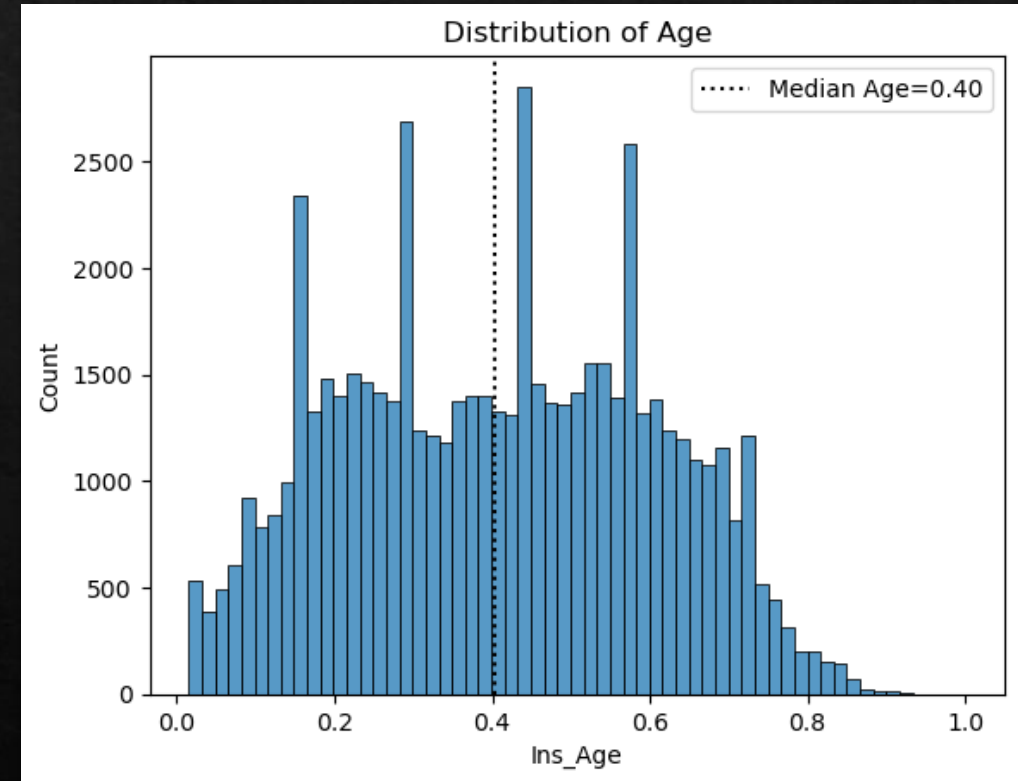
# Target

- ◇ Response
- ◇ Major Considerations
  - ◇ Health
  - ◇ Insurance Policy
  - ◇ Risks
  - ◇ Moral vs Morale



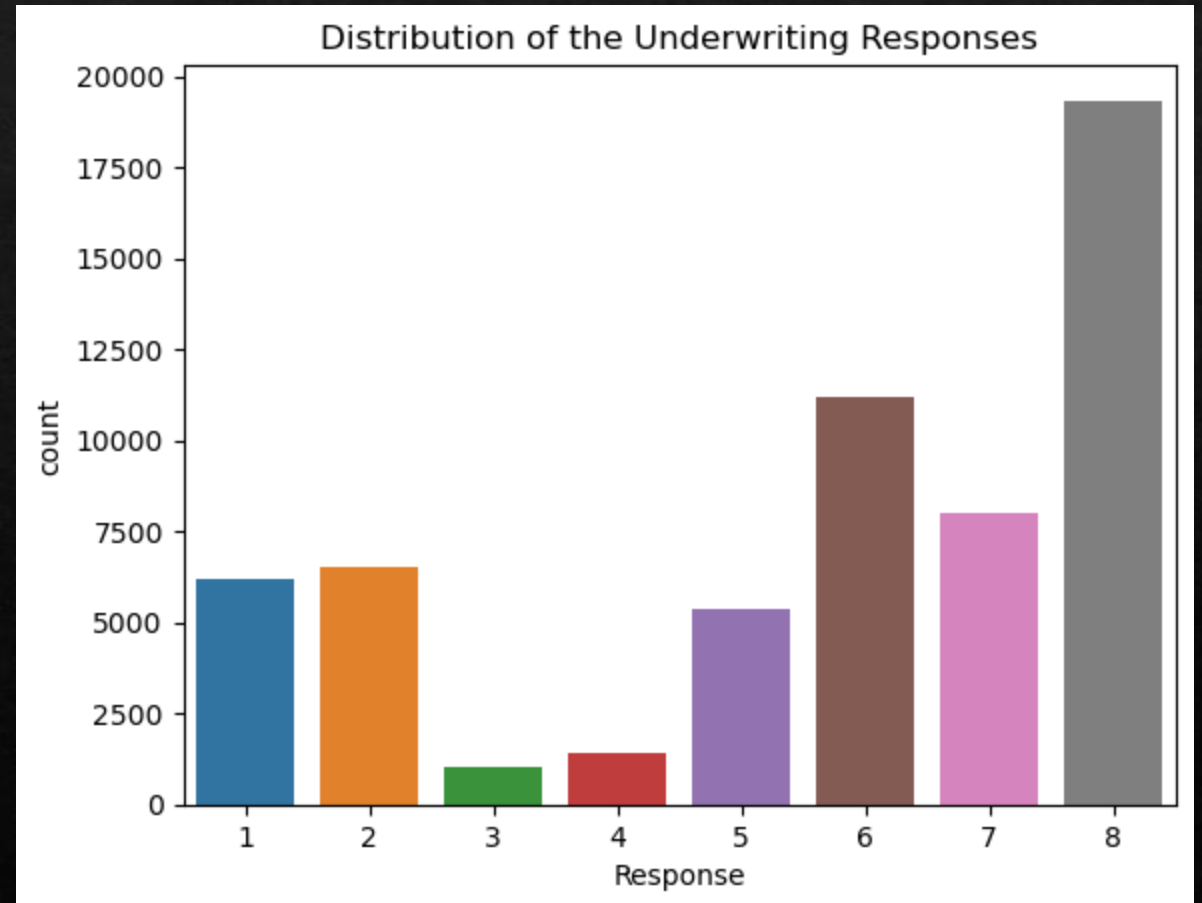
# Exploratory: Age Distribution

- ❑ Health & Age Effect Policy Premium
- ❑ Explanation: Numerical Values are normalized
- ❑ Kaggle Competition



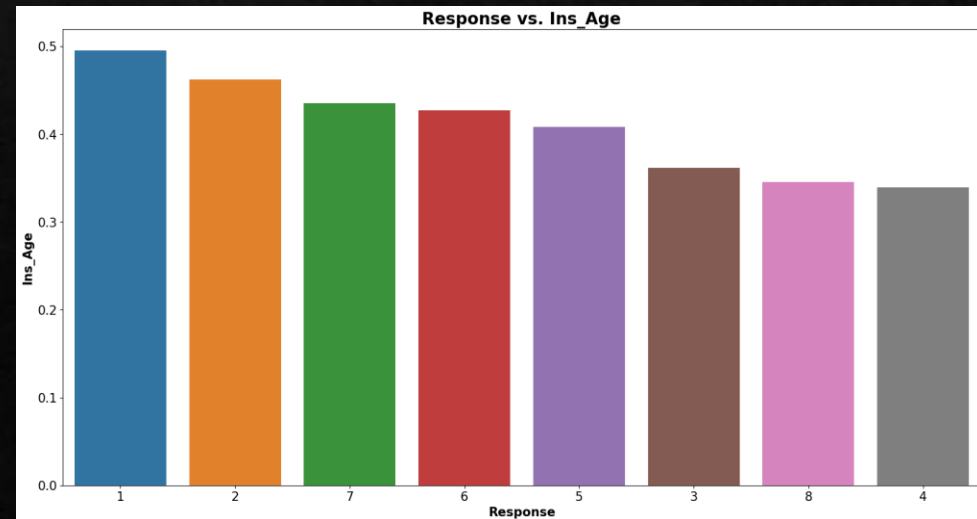
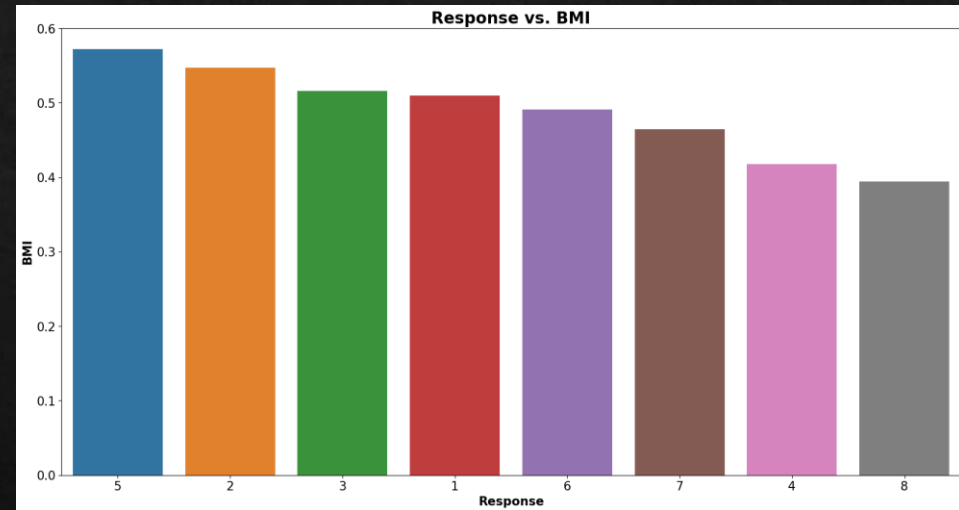
# Exploratory: Underwriting Responses

- ◇ Large distribution of Responses
- ◇ Some Responses had fewer counts



# Explanatory

- ◇ Relationships between BMI and Age
- ◇ Underwriting responses depend both on BMI and Age



# The Numbers

## ◆ Random Forest Models:

- Untuned, No Feature Engineering
  - Test Accuracy Score : 0.46084072294049955
  - Time to evaluate: 14.4 sec
- Untuned, with Feature Engineering
  - Test Accuracy Score : 0.46084072294049955
  - Time to evaluate: 15.5 sec
- Tuned, No Feature Engineering
  - Test Accuracy Score : 0.39010356731875717
  - Time to evaluate: 1 min 31.1 sec
- Tuned, with Feature Engineering
  - Test Accuracy Score : 0.39010356731875717
  - Time to evaluate: 1 min 31.3 sec

## ◆ Decision Tree Models:

- Untuned, No Feature Engineering
  - Test Accuracy Score : 0.3389291274622622
  - Time to evaluate: 2.5 sec
- Untuned, with Feature Engineering
  - Test Accuracy Score : 0.3389291274622622
  - Time to evaluate: 2.5 sec
- Tuned, No Feature Engineering
  - Test Accuracy Score : 0.4546131456034658
  - Time to evaluate: 1 min 42.7 secs
- Tuned, with Feature Engineering
  - Test Accuracy Score : 0.4546131456034658
  - Time to evaluate: 1 min 39.2 seconds



Better Model?



No!

# Summary

- ◆ **Key Insights**

- ◆ **Age vs. BMI**

- ◆ **Final Recommendation**

- ◆ **Should we use these models?**

- ◆ **Reflection**

- ◆ **What are we going to do next?**