UDACITY

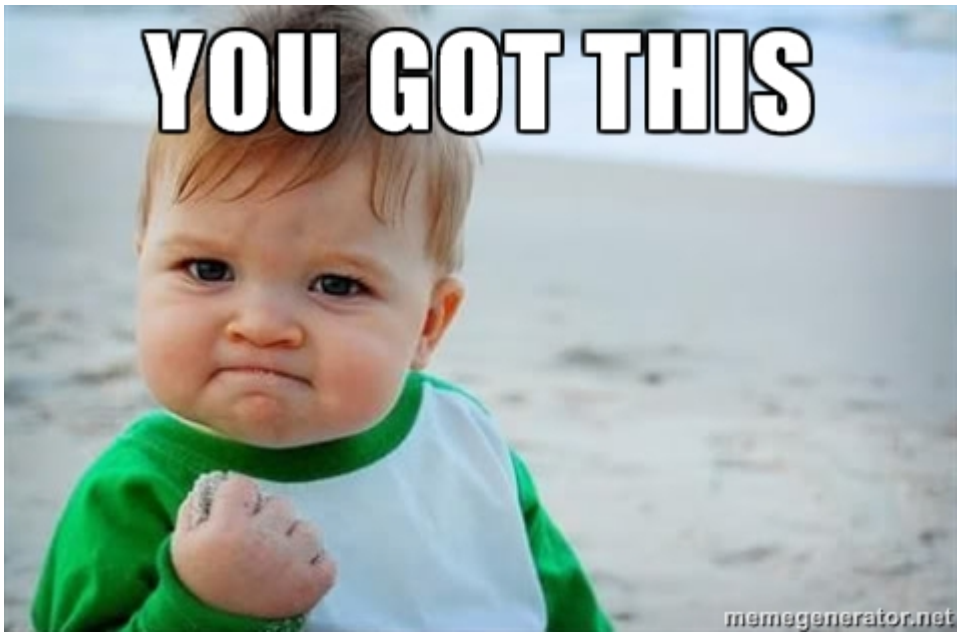
Return to "Business Analyst" in the classroom

# Creditworthiness

REVIEW

HISTORY

## Meets Specifications




Congratulations! You passed in this project!

### Business and Data Understanding

**The section is written clearly and is concise. The section is written in less than 250 words.**

**All following questions have been answered:**

1. **What decisions need to be made?**
2. **What data is needed to inform those decisions?**
3. **What kind of model (Continuous, Binary, Non-Binary, Time-Series) do we need to use to help make these decisions?**

## Awesome

All your answers in Step 1 are correct! Great job!

### Building the Training Set

**The section is written clearly and is concise. The section is written in less than 100 words.**

**The following question has been answered:**

**1.In your cleanup process, which field(s) did you impute or remove?**

**Please justify why you imputed or removed these fields. Visualizations are encouraged.**

**The correct fields are removed or imputed.**

## Awesome

All necessary variables were correctly removed and the best value to impute the Age field was used. Well done!

## Reading suggestion

If you'd like to better understand - in a very intuitive way - why the median is a good value to impute the missing values in Age field, check this site out: https://statistics.laerd.com/statistical-guides/measures-central-tendency-mean-mode-median.php
Basically, it is because the distribution of the Age field is skewed, and much of its values are on the left part of the distribution. In cases like this, the median better represents the central tendency of the distribution. That is, if we pick someone at random, it is most likely they will have an age close to the median. The average value better represents the center of a distribution when it is bell-shaped. If we use the average here, the values will be a bit less accurate than they could be otherwise, but there are cases in real life that the difference between using the median and the average will have much more of an impact.

## Train your Classification Models

The section is written clearly and is concise. The section is written in less than 500 words.

All questions have been answered for each of the four models built: Logistic, Decision Tree, Forest Model, Boosted Model

1. Which predictor variables are significant or the most important? Please show the p-values or variable importance charts for all of your predictor variables.
2. Validate your model against the Validation set. What was the overall percent accuracy? Show the confusion matrix. Are there any bias seen in the model's predictions?

There should be 4 sets of questions answered.

# Awesome

All p-values and importance plots are correct! Moreover,all accuracies and confusion matrices are correct as well. You have also correctly identified the bias in each model!

# Comment

The fact that there are more correctly predicted creditworthy individuals over correctly predicted non-creditworthy individuals reflects the high number of actual creditworthy individuals in the dataset. That way, the models are exposed to much more examples of creditworthy individuals and will be able to better identify them. This blog post shows how people deal - in general - with those class imbalances (one class that happens much more frequently than the others) in a high-level approach:
https://www.analyticsvidhya.com/blog/2017/03/imbalanced-classification-problem/

## Writeup

The section is written clearly and is concise. The section is written in less than 250 words.

All questions have been answered:

1. Which model did you choose to use? Please justify your decision using all of the following techniques. Please only use these techniques to justify your decision:
    - Overall Accuracy against your Validation set

- Accuracies within “Creditworthy” and “Non-Creditworthy” segments
- ROC graph
- Bias in the Confusion Matrices

**Note: Your manager only cares about how accurate you can identify people who qualify and do not qualify for loans for this problem.**

1. **How many individuals are creditworthy?**

## Awesome

Excellent work! Indeed, Boosted and Forest models are the best ones for this dataset and configuration.

## Comment

Forest's F1 is also the highest among all four models, and this points out that this model is the best one as well. This quantity is not seen in this course, but if you want to learn more about it, take a look at this link: https://www.quora.com/What-is-an-intuitive-explanation-of-F-score.

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