Titanic Machine Learning Project

Jaleel Savoy, 11/2016

Explanation of My Process

- I took into consideration the social norms of the time period
- The initial assumption was that Sex, Class, and Age were the most important explanatory variables to determine the response variable of Survival
- I chose to use a recursive partitioning analysis method and create a decision/regression tree model
    - The regression tree model was chosen due to its easy digestibility for readers
    - The models were created to be simple and efficient to avoid overfitting the model
    - The models were cross-validated before submission for scoring

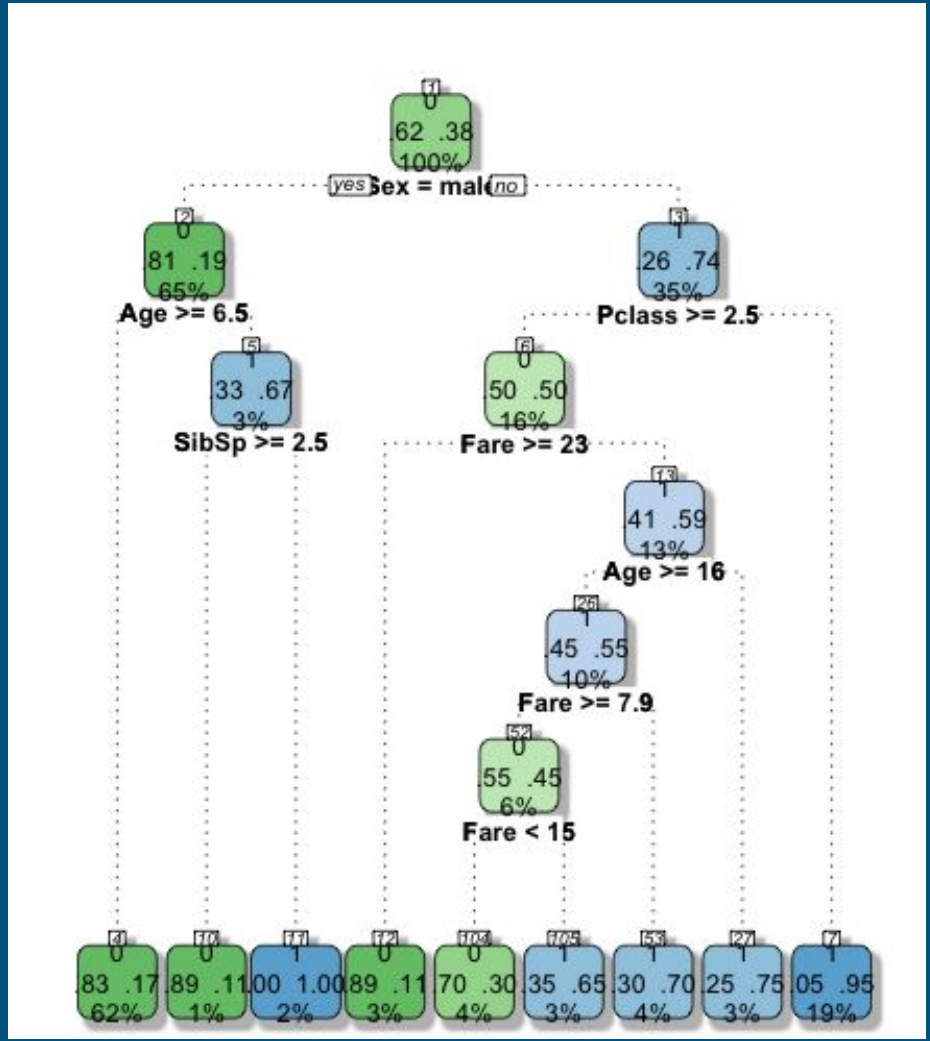
Summary of Analysis and Results

- The 1st model had a prediction accuracy of 76%
  - Explanatory variables: Sex, Age, Fare, Pclass, and SibSp (# of siblings and spouses)

- The 2nd model had a prediction accuracy of ~77.512%
  - Explanatory variables: Sex, Fare (ticket price), and Pclass (Socioeconomic class)
  - Originally also had Age as an explanatory variable, but was removed for more accuracy
    - Very insightful that removing age slightly improved the model

- Additional questions to now consider would be why passengers of certain fares survived and others did not
  - The splits for fare are very interesting

- The shortfalls or limitations of the work include:
  - Relatively quick creation of the model
  - Limited amount of cross-validation performed
  - Possibility of choosing an overly simple model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Age >= 6.5
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35%
Pclass >= 2.5
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SibSp >= 2.5
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.50 .50
16%
Fare >= 23
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.41 .59
13%
Age >= 16
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.45 .55
10%
Fare >= 7.9
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Fare < 15
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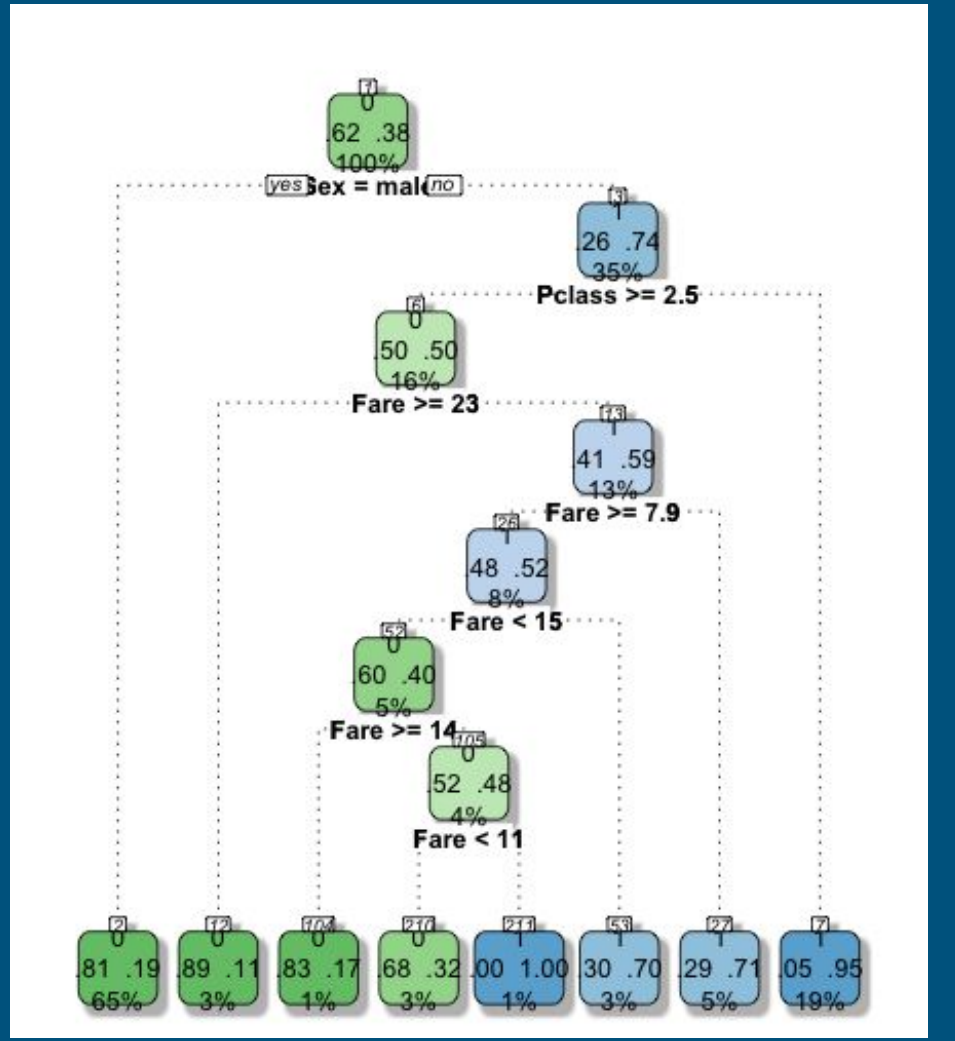
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