Surviving the Titanic

Mike Dean

Overview

- Background
- Data
- Methods
- Results

Background

- Maiden Voyage from Southampton, UK to New York, NY on April 10, 1912.
- 1,317 passengers onboard.
- Manned by a crew of 885.
- Struck an iceberg on April 14, 1912 at 11:40 PM.
- 1,504 people died with a survival rate of approximately 31.70%

Evacuation

- As was (and still is) common, the evacuation took a “Women and Children first” policy.
- The ship took 2 hours and 40 minutes to sink.
- Twenty two lifeboats were onboard which could hold a total of 1,178 people.

Data

- Obtained from kaggle
- Divided into a training set of 891 passengers and a test set of 418 passengers.
- Contained identifying information for each passenger

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171	7.25		S
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599	71.2833	C85	C
3	1	3	Heikkinen, Miss. Laina	female	26	0	0	STON/O2. 3101282	7.925		S
4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35	1	0	113803	53.1	C123	S
5	0	3	Allen, Mr. William Henry	male	35	0	0	373450	8.05		S
6	0	3	Moran, Mr. James	male		0	0	330877	8.4583		Q

Methods

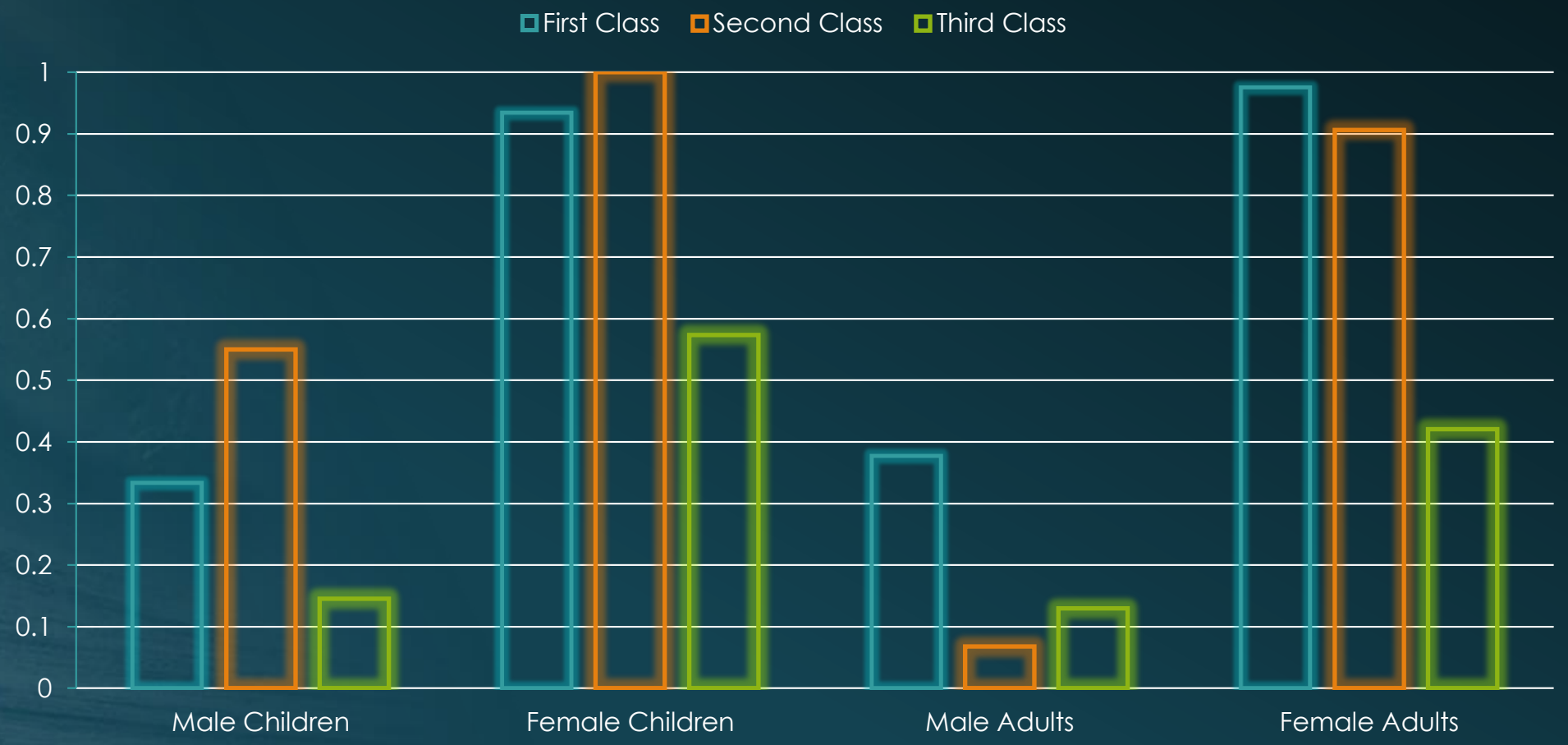
Excel

Python – Random Forest

R – Decision Tree & Random Forest

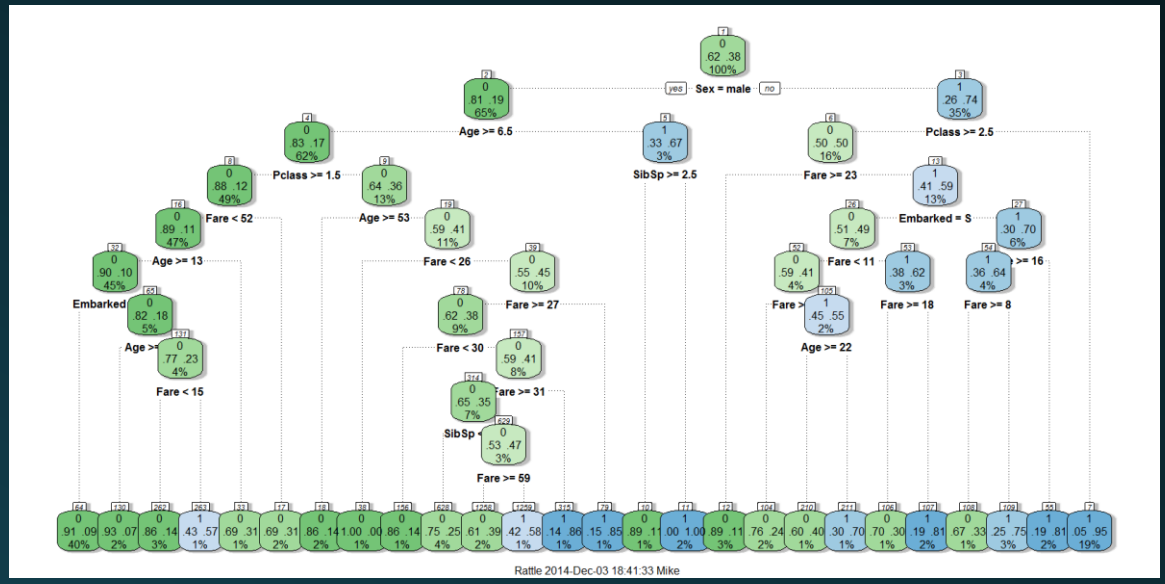
Results

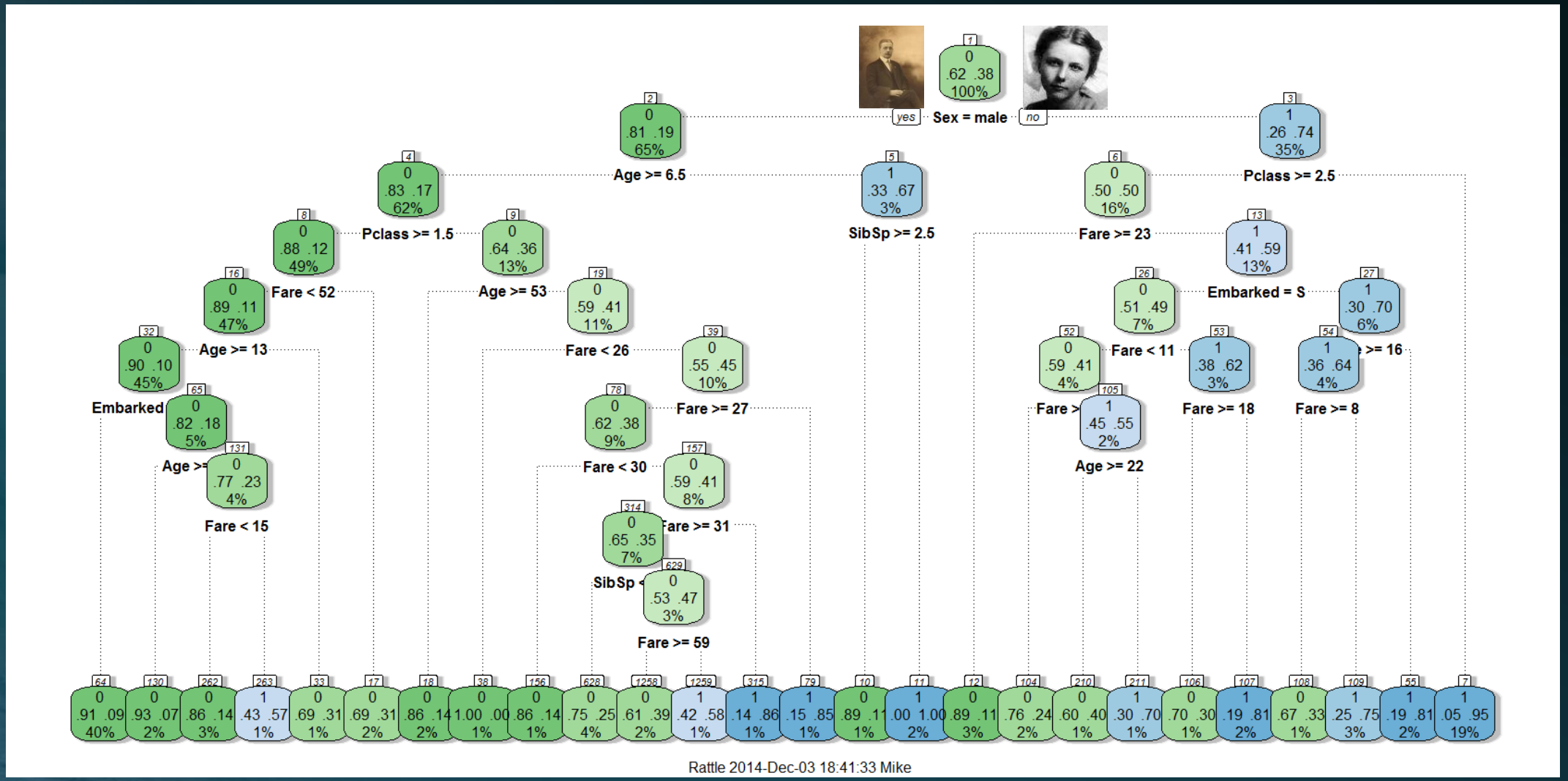
Survival Rates by Age, Sex, and Class
(Child < 18 Years Old)



Decision Trees

- A decision tree is a simple classification method.
- Data point starts at the top (root) node and works through the tree until classified.



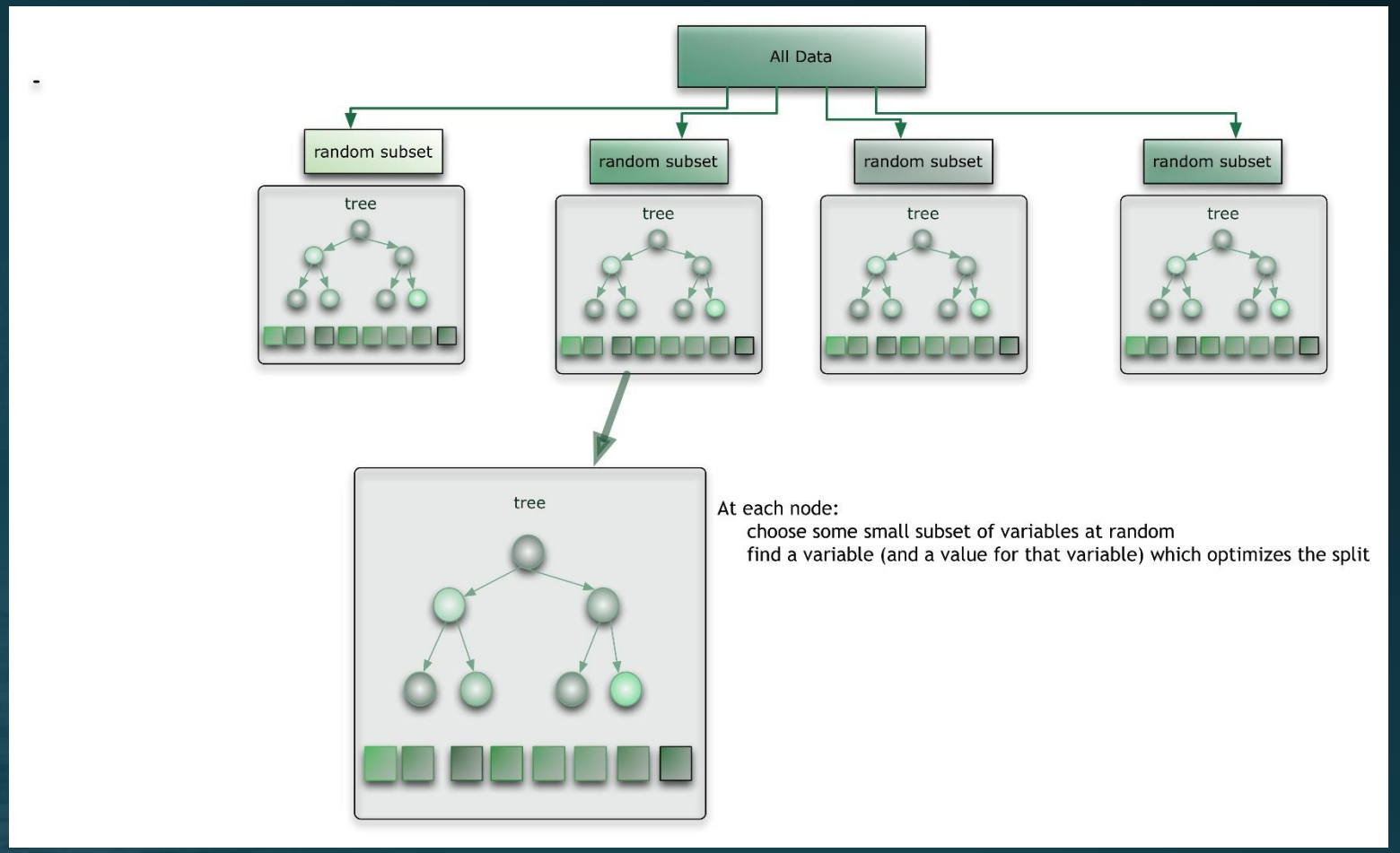


Rattle 2014-Dec-03 18:41:33 Mike

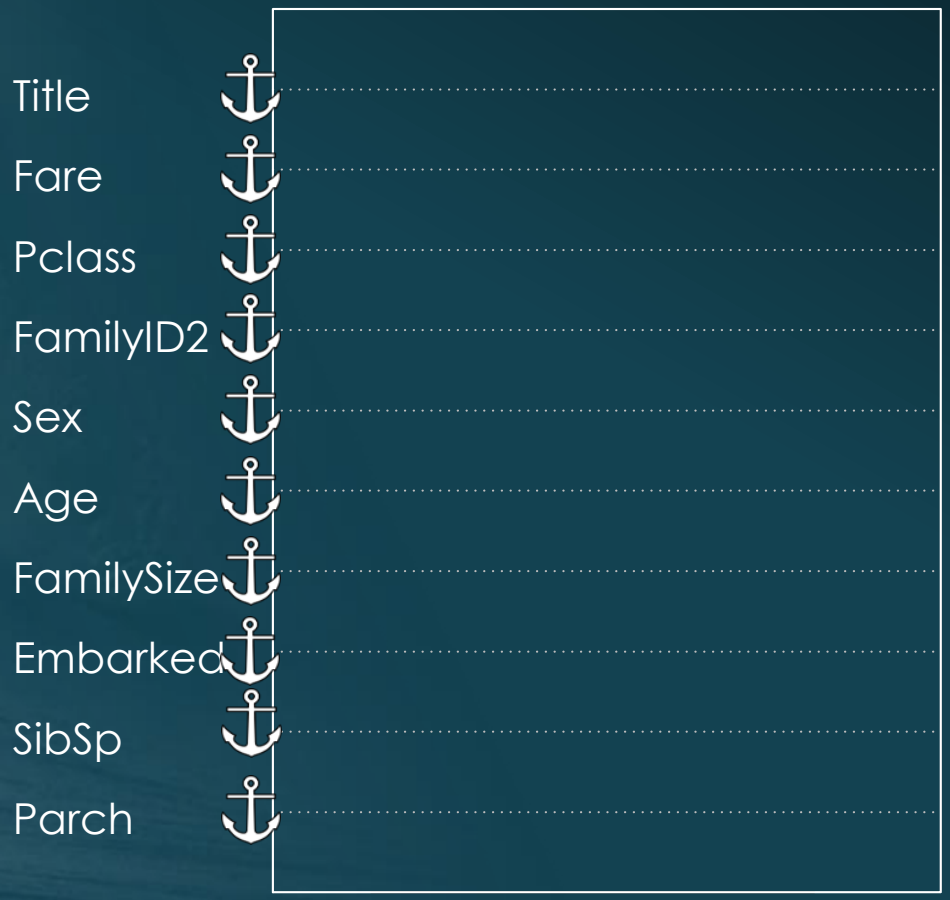
PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Fare	Embarked	Child
7	0	1	McCarthy, Mr. Timothy J	male	54	0	0	51.86	S	0
23	1	3	McGowan, Miss. Anna "Annie"	female	15	0	0	8.02	Q	1

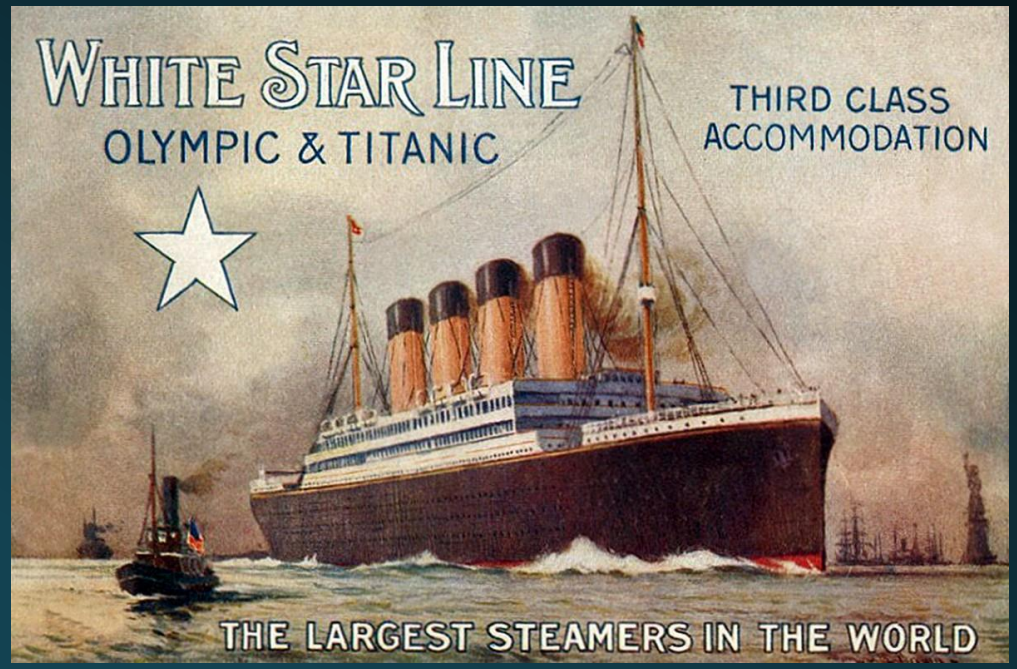
Random Forest

- A "forest" of decision trees in which each tree gets a "vote"



Variable Importance





261	↓11	**Mike Dean**	0.81340	13	Tue, 25 Nov 2014 02:35:33
262	↓11	AnaCostilla	0.81340	25	Thu, 27 Nov 2014 00:02:09 (-35.1h)
263	↑631	shar3	0.81340	7	Tue, 25 Nov 2014 17:07:45
264	↑301	MLF26	0.81340	12	Tue, 25 Nov 2014 20:48:12
265	new	asteroth2	0.81340	1	Wed, 26 Nov 2014 00:09:06