



Is your song a Banger or is it a Dud?

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Last Updated : July 15th 2020

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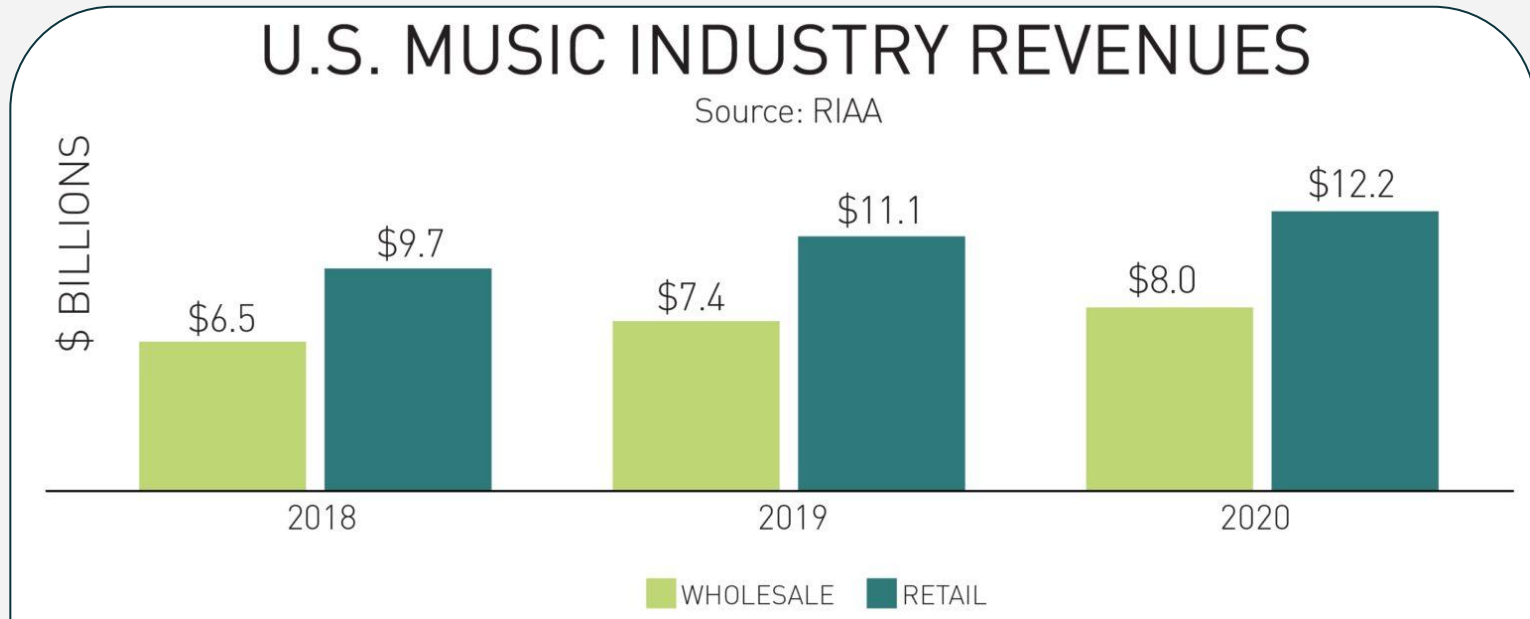
Conclusion

Understanding the Motivation



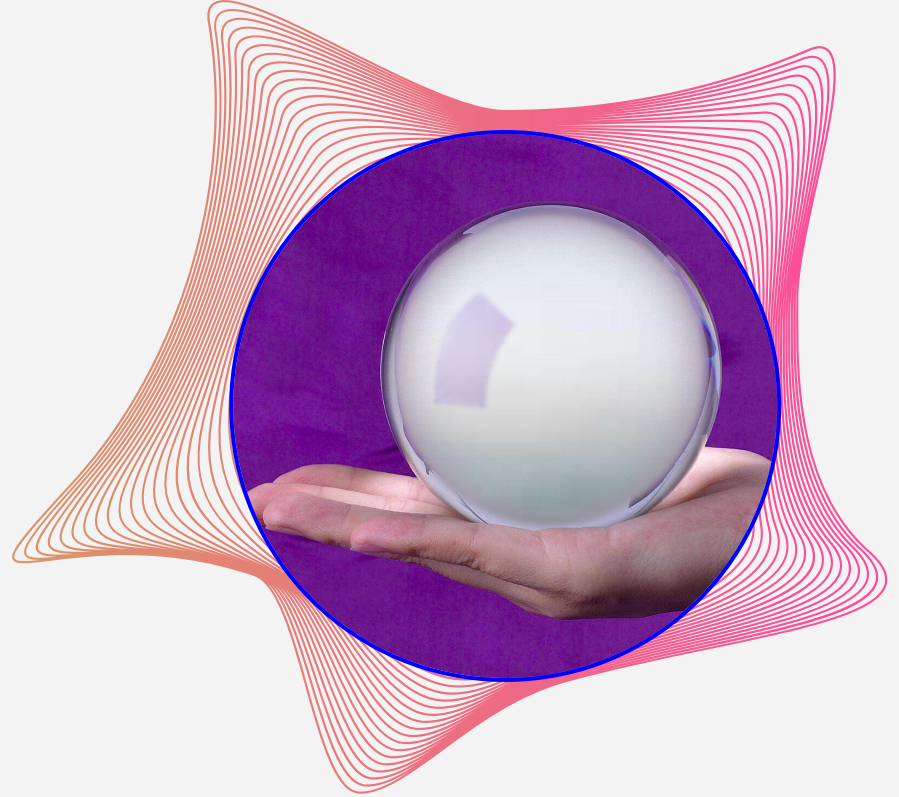
Understanding the Motivation

Make Money More Efficiently & Stop Wasting Money



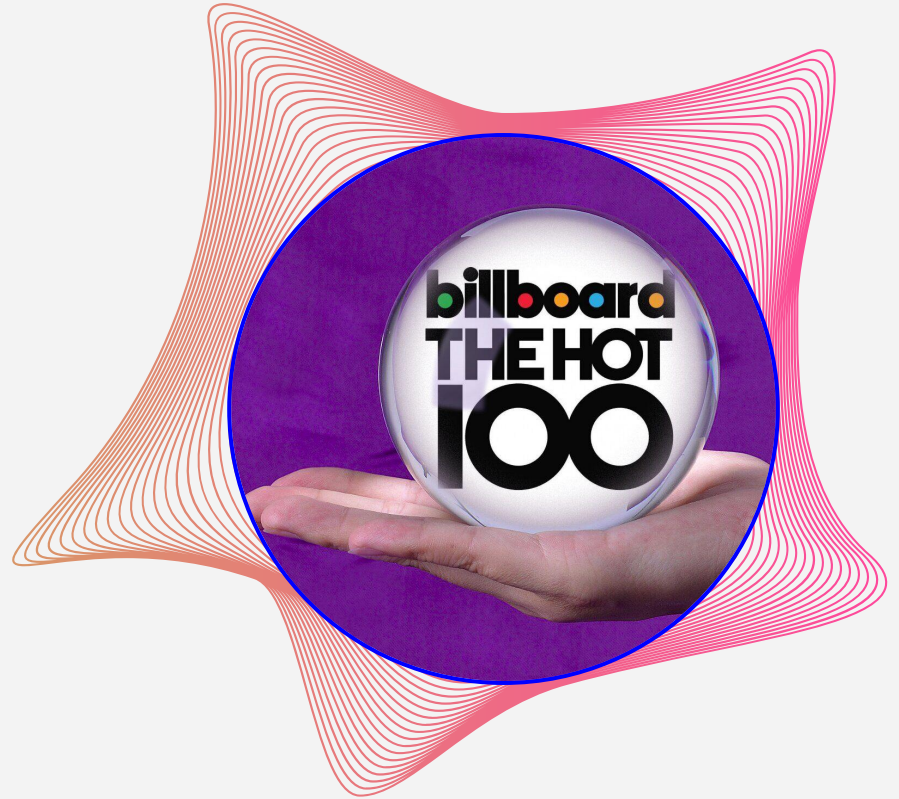
Proposed Solution

Use Machine Learning to make a model that can predict success of music.

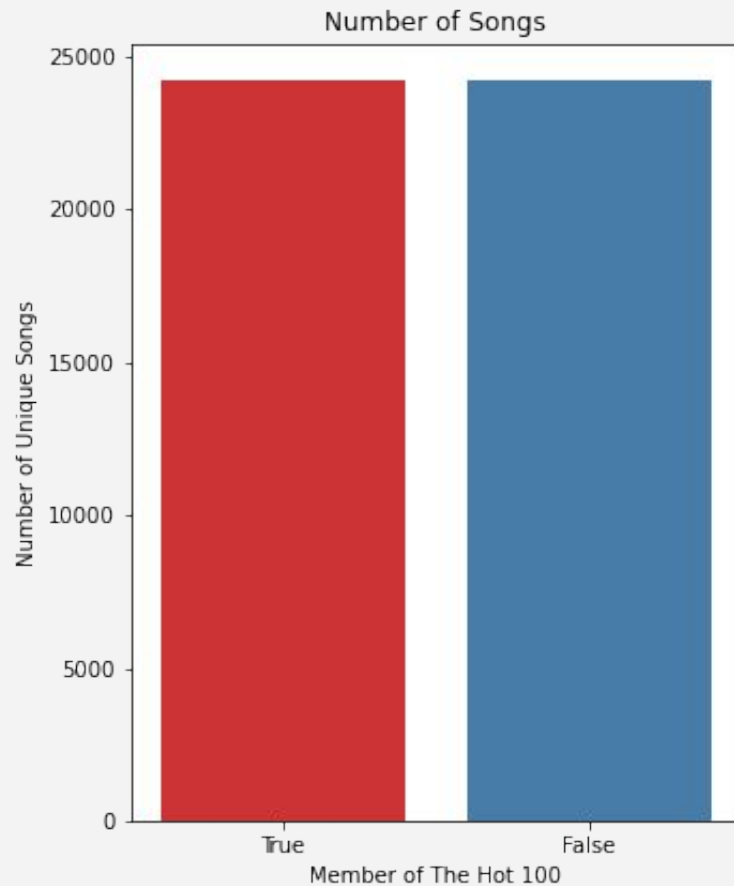
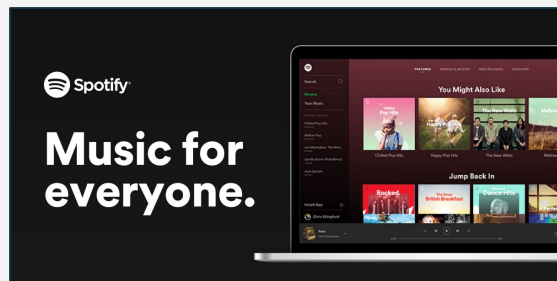
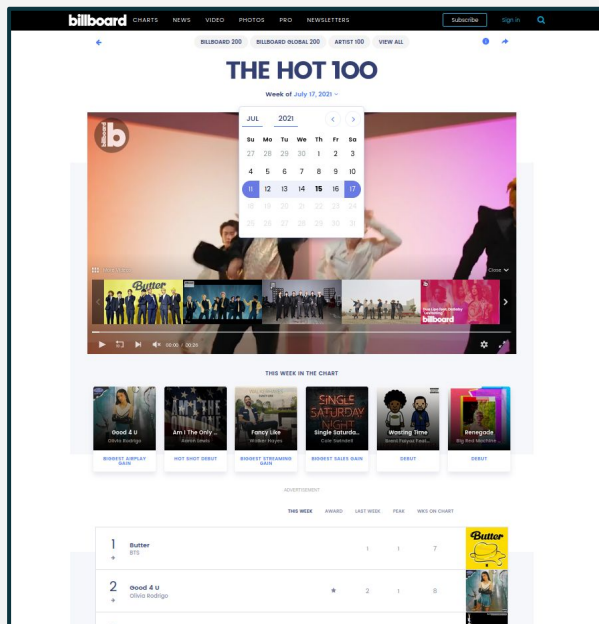


Proposed Solution

Use Machine Learning to make a model that can predict success of music.



Data



Data

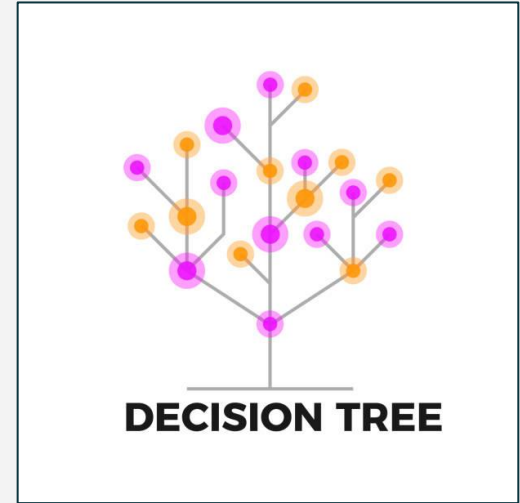
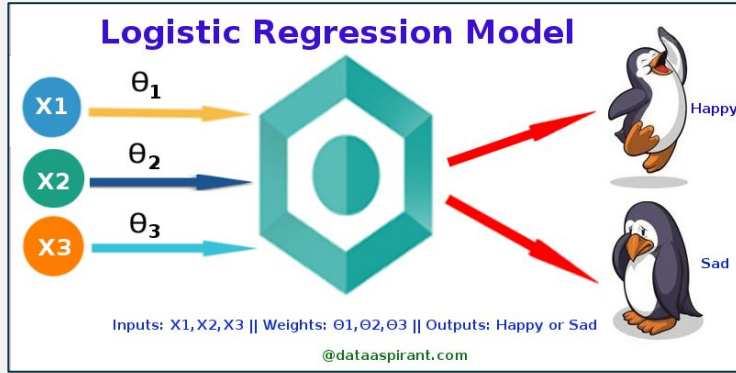
| title | artist | top genre | year | added | bpm | nrgy | dnce | dB | live | val | dur | acous | spch | pop |
|-----------|---------------|---------------|------|------------|-----|------|------|-----|------|-----|-----|-------|------|-----|
| One Night | Elvis Presley | rock-and-roll | 1959 | 2021-07-08 | 121 | 53 | 69 | -10 | 32 | 79 | 152 | 77 | 4 | 47 |

The Track Properties

Organize Your Music can help you slice and dice your music collection by a wide range of properties:

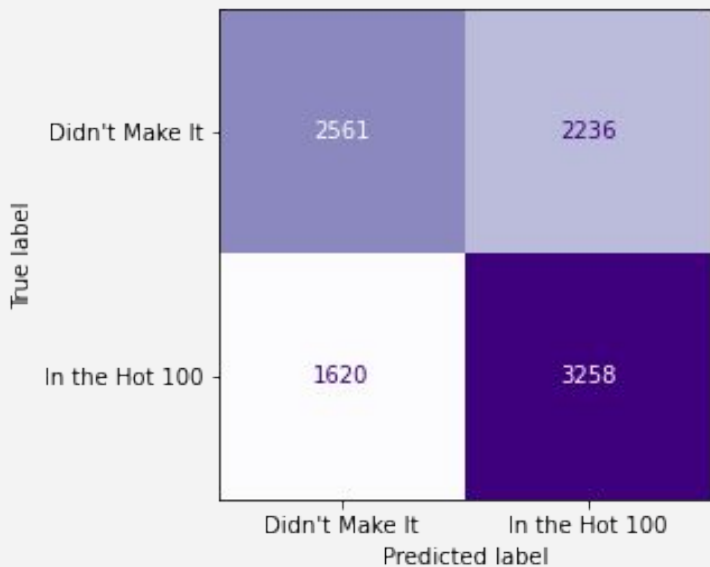
1. **Genre** - the genre of the track
2. **Year** - the release year of the recording. Note that due to vagaries of releases, re-releases, re-issues and general madness, sometimes the release years are not what you'd expect.
3. **Added** - the earliest date you added the track to your collection.
4. **Beats Per Minute (BPM)** - The tempo of the song.
5. **Energy** - The energy of a song - the higher the value, the more energetic song.
6. **Danceability** - The higher the value, the easier it is to dance to this song.
7. **Loudness (dB)** - The higher the value, the louder the song.
8. **Liveness** - The higher the value, the more likely the song is a live recording.
9. **Valence** - The higher the value, the more positive mood for the song.
10. **Length** - The duration of the song.
11. **Acousticness** - The higher the value the more acoustic the song is.
12. **Speechiness** - The higher the value the more spoken word the song contains.
13. **Popularity** - The higher the value the more popular the song is.
14. **Duration** - The length of the song.

The Models

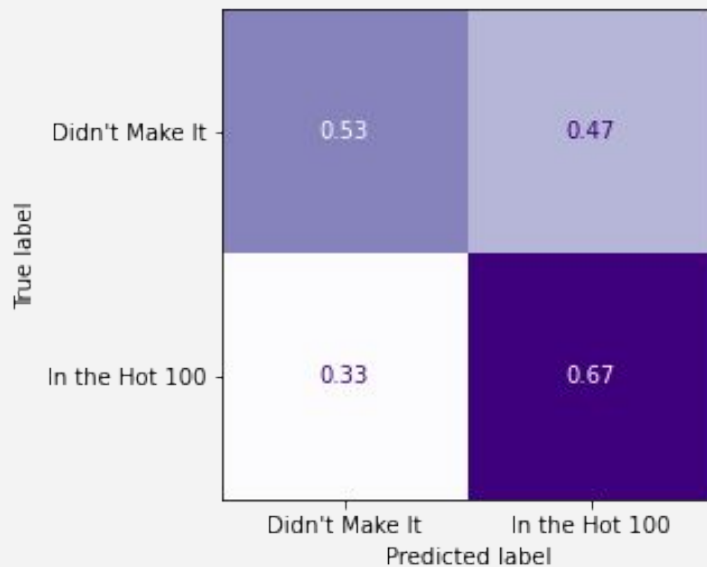


Logistic Regression

LR Confusion Matrix



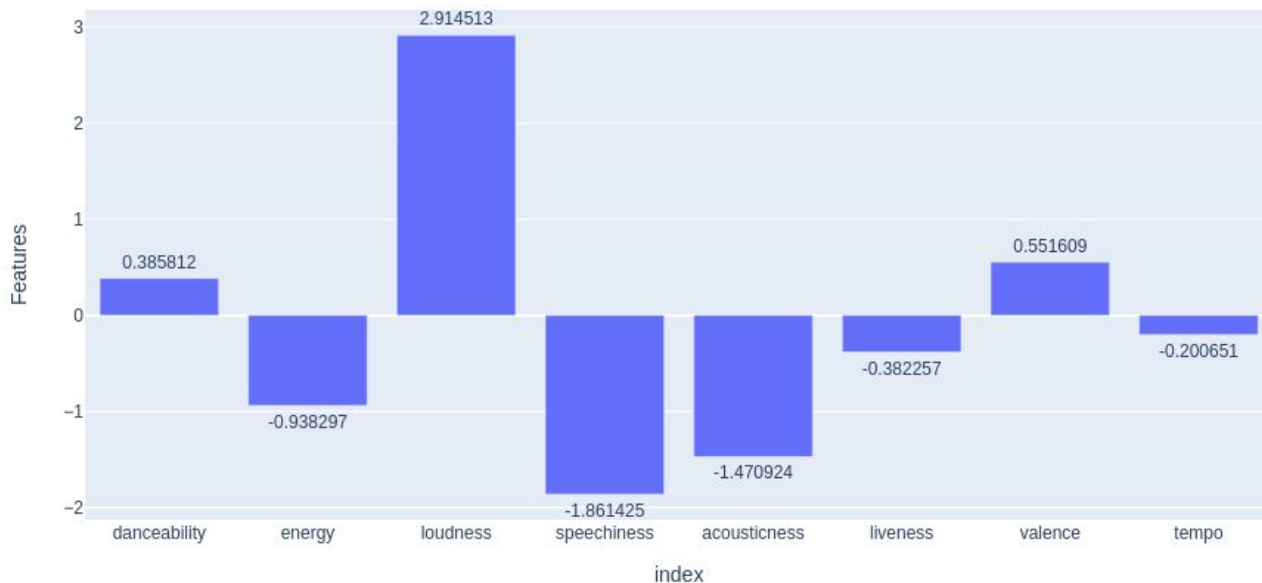
LR Normalized Confusion Matrix



| | Accuracy | Precision | Recall |
|---------------------|----------|-----------|--------|
| Logistic Regression | 0.601 | 0.668 | 0.593 |

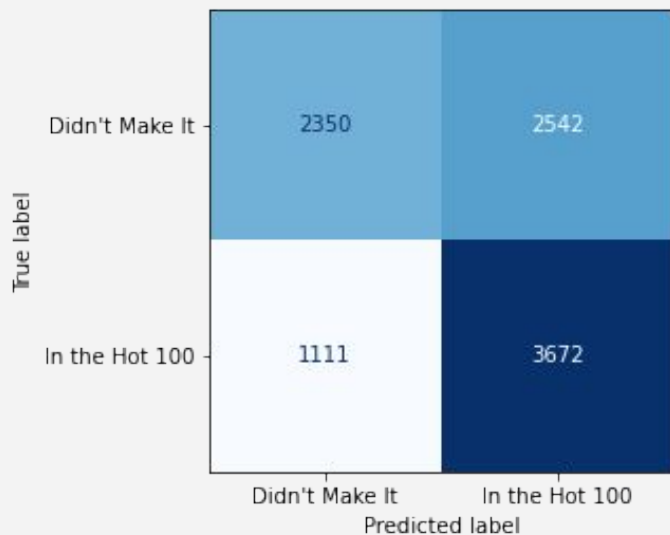
Logistic Regression

Logistic Regression Best Model Coefficients

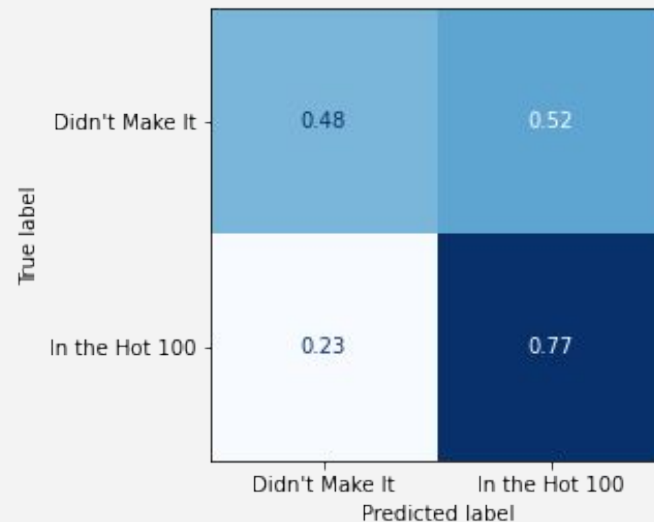


Decision Tree

DT Confusion Matrix



DT Normalized Confusion Matrix



Accuracy

Precision

Recall

Decision Tree

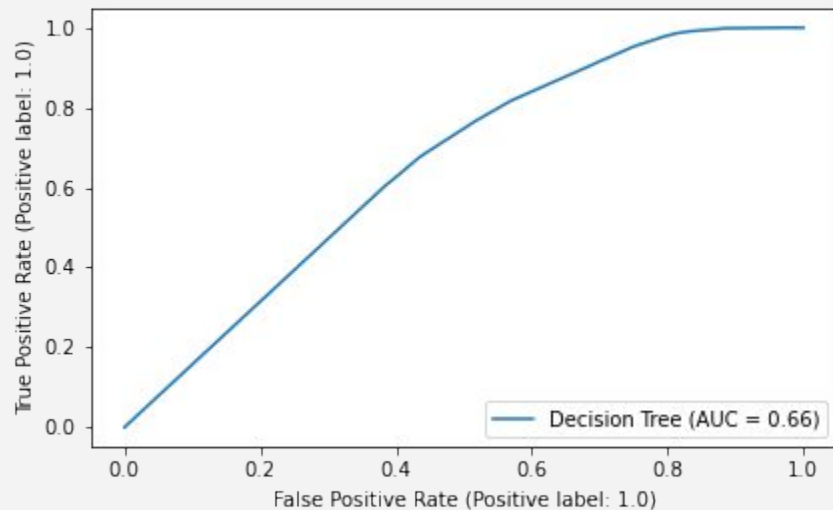
0.622

0.768

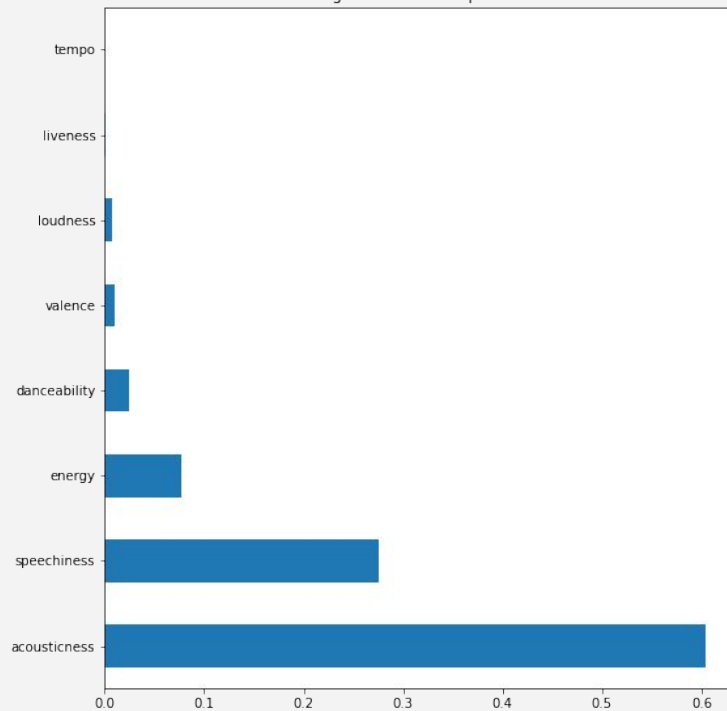
0.591

Decision Tree

Decision Tree ROC Curve



Song Permutation Importance



Accuracy

Precision

Recall

Decision Tree

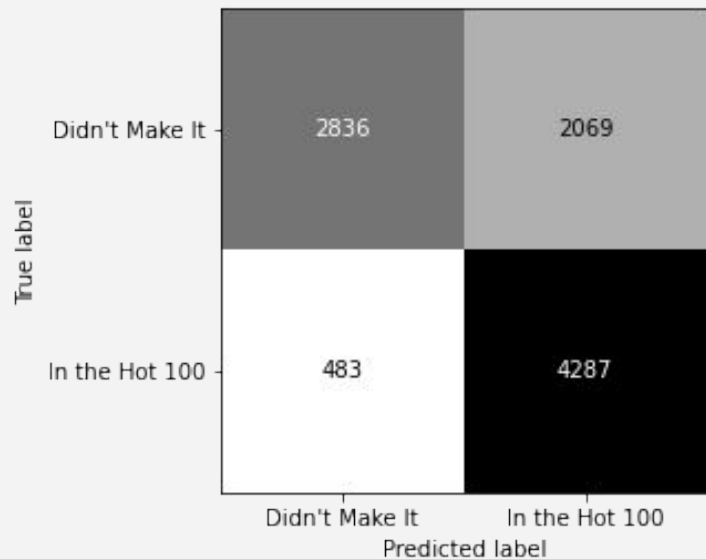
0.622

0.768

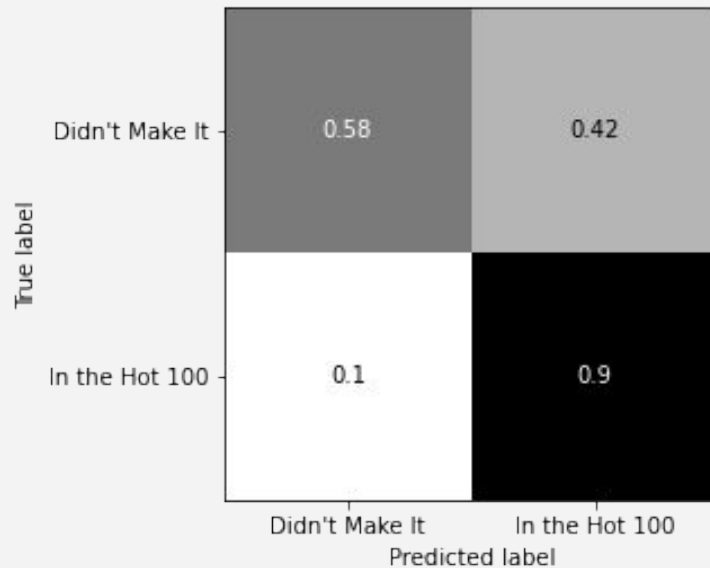
0.591

Random Forest

Random Forest Confusion Matrix

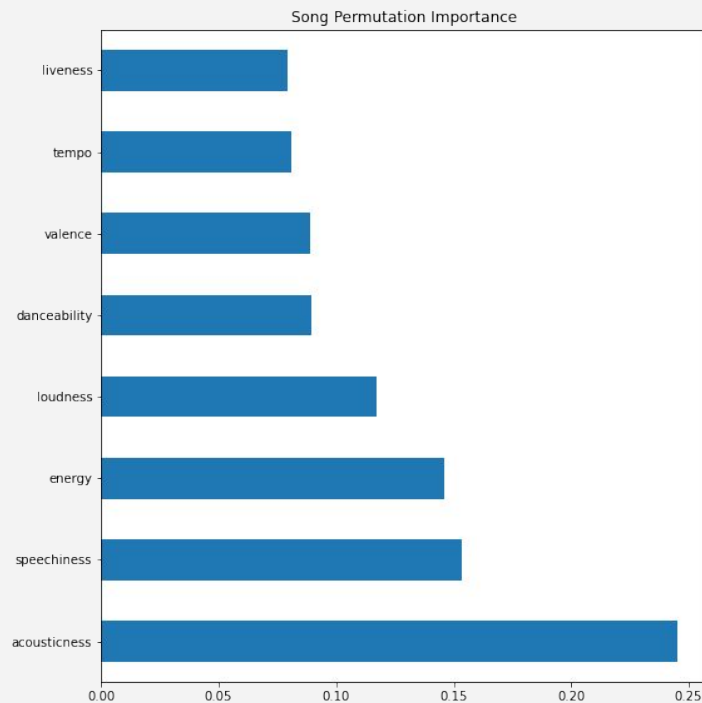
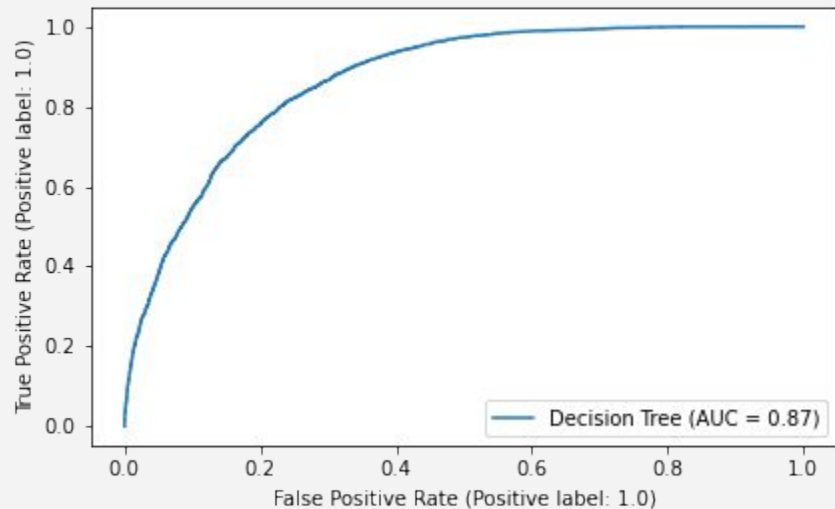


RF Normalized Confusion Matrix



| | Accuracy | Precision | Recall |
|---------------|----------|-----------|--------|
| Random Forest | 0.736 | 0.899 | 0.674 |

Random Forest



Accuracy

Precision

Recall

Random Forest

0.736

0.899

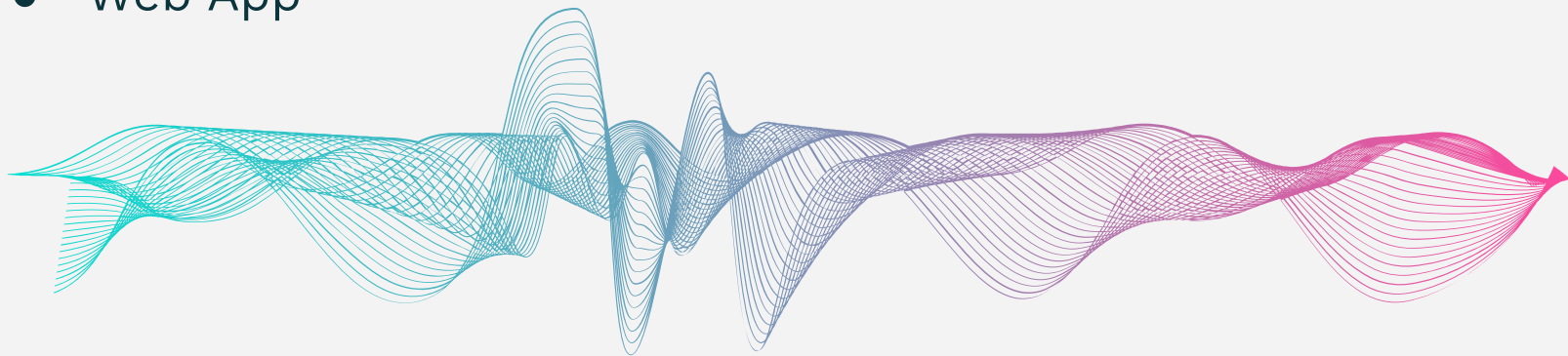
0.674

Results

| | Accuracy | Precision | Recall |
|---------------------|----------|-----------|--------|
| Logistic Regression | 0.601 | 0.668 | 0.593 |
| Decision Tree | 0.622 | 0.768 | 0.591 |
| Random Forest | 0.736 | 0.899 | 0.674 |

Going Further . . .

- Robustness
- Web App



Desktop Software

Can Your Song Make the Top 100?

| | | | |
|--|---------|--------------|---------------|
| Tempo (bpm) | Energy | Danceability | Loudness (dB) |
| Liveness | Valence | Acousticness | Speechiness |
| <input type="button" value="Predict"/> | | | |

Thanks!

Do you have any questions?



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