

# How to Escape from Bates Motel

## Summary:

This project aims to build a user oriented hotel recommender.

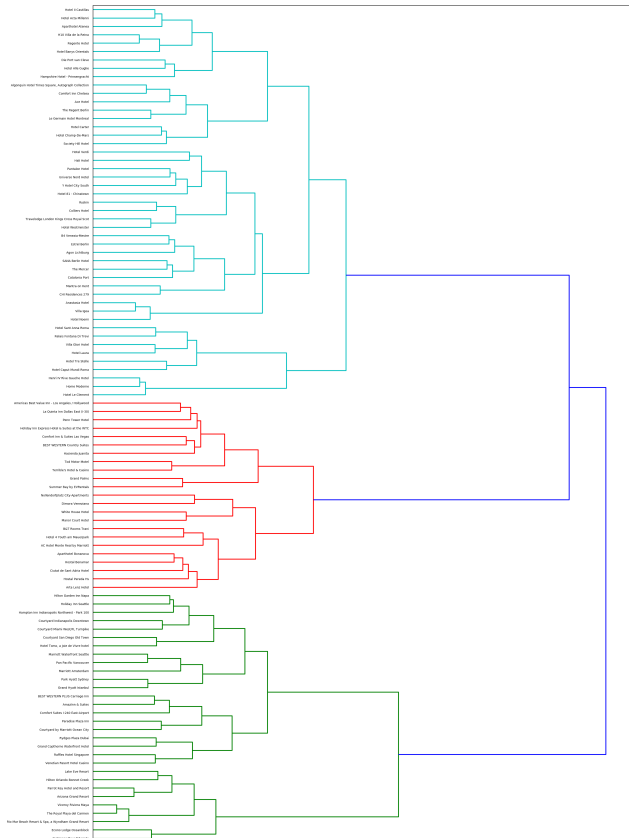
## Steps:

1. Uncovered the latent features using k-Means and hierarchical clustering.
2. Built a collaborative filtering recommender using kNN with a KD tree structure.
3. Evaluated assorted matrix factorization models by RMSE, precision and recall score, and FCP (fraction of concordant pairs).

## Key features:

- Visualized latent structures of travelers' reviews using NLP.
- Customized a k-dimensional tree that reduced runtime from 5 hours to 5  $\mu$ s.
- Demonstrated that the CoClustering model performs best in building top-N recommenders.

I'm now working on building a recommender app using Django and the above models.



Model Comparison

	RMSE	PRECISION	RECALL	FCP
<b>Baseline</b>	1.0453	91.65%	<b>70.73%</b>	52.53%
<b>SVD</b>	<b>0.0547</b>	91.71%	70.49%	51.93%
<b>NMF</b>	1.2654	94.86%	41.78%	51.53%
<b>SlopeOne</b>	1.2829	93.66%	43.98%	50.61%
<b>CoClustering</b>	1.2466	<b>95.00%</b>	42.98%	<b>54.46%</b>

## Project links:

<https://github.com/mathilda0902/howtoescapefrombatesmotel>