The Personalized Airbnb Experience | Project Proposal
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The Problem:

Today's world is more connected than ever. With increasingly long nonstop flights, spontaneous translation apps, and social media friendships spawning worldwide, it's easier than ever to be a global citizen. One company catalyzing connections is Airbnb, which provides a service that allows property owners to rent their houses, apartments, or rooms in their hometowns, offering tourists a unique way to lodge in a new city - one that is arguably more authentic than lounging at a luxury resort.

By creating these home-away-from-homes, Airbnb has skyrocketed in popularity for those looking to live like locals and be more culturally connected to their destination. Therefore, user experience is at the center of Airbnb's business, and it should always be a priority to craft an ideal trip for each particular user. Right now, the company does a great job of offering a massive volume of listings and experiences in thousands of global locations. **But what if we could make those offerings more personal?** By incorporating the content of a certain user's past reviews and bookings on Airbnb, we can inform the user's best next step. On the other side of the transaction, a property owner who can get more customized information about their guests' preferences may be able to gain better reviews from these insights, in turn using those positive reviews as leverage to charge higher booking prices in the future. Further down the business pipeline, personalized travel experiences will increase Airbnb's overall revenue.

The Inquiry:

How can we use the individual Airbnb users' reviews and past bookings to preferences to:
    a. Recommend the next place they should go
    b. Inform future airbnb 'landlords' how they can best serve whichever particular users books their property

The Client:

Our client is Airbnb. Airbnb will be able to use this data-driven product to provide insights into its users on both sides of their transactions. Consider a hypothetical scenario with Sue, who is renting her apartment through Airbnb, and Sally, who is looking for her next destination. If Sally has previously stayed in many other apartments that are similar to Sue's and has left them positive reviews, this product would suggest that Sue's listing would be a great place to stay on her next trip. When Sally books Sue's apartment, Sue will receive insights into what she can do to make Sally's stay the best it can be. For example, if Sally has previously expressed her appreciation for continental breakfast, Sue can make sure to keep bagels and fruit in the fridge for her guest. Not only will Sally love this added feature, but Sue will benefit from Sally's positive review, adding integrity to her apartment listing. **The ultimate result is increased customer satisfaction, more bookings, and more revenue for Airbnb.**

The Data:

I will be using data from Inside Airbnb (http://insideairbnb.com/get-the-data.html), an independent, non-commercial project that collects public data from the travel and accomodations company Airbnb. Data is collected monthly from major cities and metropolitan regions around the world, and includes information about that city's listings, reviews, and calendar data. I will be focusing on data about Airbnb listings and the reviews for those listings.

The Method:

1. Collect user review data and listing data from the website listed in the previous section of this report. Clean and preprocess the data to leave select features.
2. Segment the review data by user ID, and perform sentiment analysis on the review text to extract positive and negative reviews for certain listings.
3. Pair positive/negative reviews for each user to each listing, and include choice aspects of the listing (location, apartment/room/house, price, amenities, etc.)
4. Use machine learning to create an algorithm that predicts what types of Airbnb listing a certain kind of user would like, and why they would like that listing.
   a. Wide, deep models: https://github.com/tensorflow/models/tree/master/official/wide_deep
5. Create an interface that provides suggestions for destinations to potential guests and information about booked guests to those that own those listings.

The Deliverables:

This project will definitely include the code on Github, a report outlining the business case, the methods, and the results, as well as a slide deck for presentations. I would also like to explore creative visualizations for this project that could add to the reader's overall understanding.