MVP Summary project 5

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Domain:

The aim of this project is to create a recommendation system using the Kaggle Expedia dataset (https://www.kaggle.com/c/expedia-personalized-sort).
I learnt recommendation system from the course and really would like to explore the best ranking of hotels for specific users with the best integration of price competitiveness given an online travel agency the best change of winning the sale.

Data:

Expedia has provided a dataset that includes shopping and purchase data as well as information on price competitiveness.
The training dataset contains information as below.

Column Name	Data Type	Description
srch_id	Integer	The ID of the search
date_time	Date/time	Date and time of the search
site_id	Integer	ID of the Expedia point of sale (i.e. Expedia.com, Expedia.co.uk, Expedia.co.jp, ..)
visitor_location_country_id	Integer	The ID of the country the customer is located
visitor_hist_starrating	Float	The mean star rating of hotels the customer has previously purchased; null signifies there is no purchase history on the customer
visitor_hist_adr_usd	Float	The mean price per night (in US$) of the hotels the customer has previously purchased; null signifies there is no purchase history on the customer
prop_country_id	Integer	The ID of the country the hotel is located in
prop_id	Integer	The ID of the hotel
prop_starrating	Integer	The star rating of the hotel, from 1 to 5, in increments of 1. A 0 indicates the property has no stars, the star rating is not known or cannot be publicized.
prop_review_score	Float	The mean customer review score for the hotel on a scale out of 5, rounded to 0.5 increments. A 0 means there have been no reviews, null that the information is not available.
prop_brand_bool	Integer	+1 if the hotel is part of a major hotel chain; 0 if it is an independent hotel
prop_location_score1	Float	A (first) score outlining the desirability of a hotel's location
prop_location_score2	Float	A (second) score outlining the desirability of the hotel's location
prop_log_historical_price position	Float	The logarithm of the mean price of the hotel over the last trading period. A 0 will occur if

	Integer	the hotel was not sold in that period. Hotel position on Expedia's search results page. This is only provided for the training data, but not the test data.
price_usd	Float	Displayed price of the hotel for the given search. Note that different countries have different conventions regarding displaying taxes and fees and the value may be per night or for the whole stay
promotion_flag	Integer	+1 if the hotel had a sale price promotion specifically displayed
gross_booking_usd	Float	Total value of the transaction. This can differ from the price_usd due to taxes, fees, conventions on multiple day bookings and purchase of a room type other than the one shown in the search
srch_destination_id	Integer	ID of the destination where the hotel search was performed
srch_length_of_stay	Integer	Number of nights stay that was searched
srch_booking_window	Integer	Number of days in the future the hotel stay started from the search date
srch_adults_count	Integer	The number of adults specified in the hotel room
srch_children_count	Integer	The number of (extra occupancy) children specified in the hotel room
srch_room_count	Integer	Number of hotel rooms specified in the search
srch_saturday_night_bool	Boolean	+1 if the stay includes a Saturday night, starts from Thursday with a length of stay is less than or equal to 4 nights (i.e. weekend); otherwise 0
srch_query_affinity_score	Float	The log of the probability a hotel will be clicked on in Internet searches (hence the values are negative) A null signifies there are no data (i.e. hotel did not register in any searches)
orig_destination_distance	Float	Physical distance between the hotel and the customer at the time of search. A null means the distance could not be calculated.
random_bool	Boolean	+1 when the displayed sort was random, 0 when the normal sort order was displayed
comp1_rate	Integer	+1 if Expedia has a lower price than competitor 1 for the hotel; 0 if the same; -1 if Expedia's price is higher than competitor 1; null signifies there is no competitive data
comp1_inv	Integer	+1 if competitor 1 does not have availability in the hotel; 0 if both Expedia and competitor 1 have availability; null signifies there is no competitive data
comp1_rate_percent_diff	Float	The absolute percentage difference (if one exists) between Expedia and competitor 1's price (Expedia's price the denominator); null signifies there is no competitive data
comp2_rate		
comp2_inv		(same, for competitor 2 through 8)

Known unknowns

- **Recommendation system (know a bit)**: I learnt the concept in class, but will need to dive a bit deeper. I'm reading a book chapter from Stanford, hopefully will get the basic understanding of recommendation system. (http://infolab.stanford.edu/~ullman/mmds/ch9.pdf)
- **The flask page (unknown):** for the final delivery, would like to present the results in an interactive way. Need to learn how to do this. (~2 days)

- **Don’t know how much time it will cost to write a recommendation system and flask page, need help with the time management.**