**Goal & Requirements**

**Goal:**
Provide a scalable hotel recommender system for TripRebel, a new online booking portal aiming to make hotel bookings easier and fairer.

**Requirements:**
Our recommender system should be able to recommend similar hotel alternatives based on different content attributes and location information, and further provide personalized hotel recommendations through exploiting implicit user-hotel interaction data. The main requirements are:

- **Req1** It should be possible to filter the recommended hotels (e.g., by hotel attributes, like city or hotel location).
- **Req2** It should be possible for the user to combine and weight the various recommendation approaches (e.g., Collaborative Filtering and Content-Based Filtering) in the form of a hybrid.
- **Req3** Hotel data updates and new user-hotel interactions (i.e., implicit data) should be immediately taken into account for the calculation of recommendations.
- **Req4** Recommendations should be provided at large-scale and in (near) real-time.

**System Architecture**
Core modules used in the hotel recommender for the TripRebel portal.

**References & Framework**


**Preliminary Online Evaluation**

<table>
<thead>
<tr>
<th>Approach</th>
<th>Number of Recommendations</th>
<th>User Interactions related to Recommendations</th>
<th>Liked</th>
<th>Booked</th>
<th>Conversion Rate</th>
<th>Duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF_{u,h}</td>
<td>582</td>
<td>130</td>
<td>57</td>
<td>25</td>
<td>4.29%</td>
<td>17</td>
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<td>CF_{u}</td>
<td>401</td>
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<td>17</td>
</tr>
<tr>
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<td>169</td>
<td>72</td>
<td>35</td>
<td>3.56%</td>
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</table>

Current online evaluation on user acceptance of the two Collaborative Filtering approaches. The $CF_{u}$ approach uses the whole user history, whereas the $CF_{u,h}$ considers the user context in form of the hotel that is currently looked at.