Understanding Group Event Scheduling via the OutWithFriendz Mobile Application

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1. OutWithFriendz Mobile Application

- Invitation Title: Friday dinner
- Time Voting:
  - Fri, 05-20-2016 18:00: 0
  - Fri, 05-20-2016 18:30: final 2
  - Fri, 05-13-2016 17:30: 1

- Race Voting:
  - Golden Sun Chinese: 0
  - Asian Seafood Market: final 1

- Participants:

2. The Architecture and Data Collection

- Architecture:
  - Google Map API
  - Google Cloud Messaging Server
  - OutWithFriendz Data Collection Server

- Database Collections:
  - User Collection
  - Invitation Collection
  - Place Collection
  - Date Collection
  - Location Trace Collection
  - Place Vote Collection
  - Date Vote Collection

3. Impact of User Mobility

- Table: The correlation of user mobility and voting availability
<table>
<thead>
<tr>
<th></th>
<th>Corr</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>User mobility and date availability</td>
<td>0.276</td>
<td>7.12e-05</td>
</tr>
<tr>
<td>User mobility and location availability</td>
<td>0.281</td>
<td>2.92e-06</td>
</tr>
</tbody>
</table>

- Observation 1: Users with higher mobility are more active in attending social events.

- Table: The correlation of group mobility and urban density
<table>
<thead>
<tr>
<th></th>
<th>Corr</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group mobility and population density</td>
<td>0.183</td>
<td>0.013</td>
</tr>
<tr>
<td>Group mobility and housing unites</td>
<td>0.157</td>
<td>0.018</td>
</tr>
</tbody>
</table>

- Observation 2: Group mobility has a positive correlation with an area's urban density.

4. Impact of Individual Preference

- Figure: The CDF of travel distances among voted locations and non-voted locations for each participant.

- Observation 3: Most users would like to vote for event venues near their frequented locations.

5. Impact of Host Preference

- Table: The probability of final event option voted by host
<table>
<thead>
<tr>
<th></th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final event date voted by host</td>
<td>0.71</td>
</tr>
<tr>
<td>Final event date voted by participant</td>
<td>0.36</td>
</tr>
<tr>
<td>Final event location voted by host</td>
<td>0.72</td>
</tr>
<tr>
<td>Final event location voted by participant</td>
<td>0.34</td>
</tr>
</tbody>
</table>

- Observation 5: The final meeting location is closer to a host’s frequented place than other participants.

- Table: The correlation between whether host comply voting results and the event attendance rate
<table>
<thead>
<tr>
<th></th>
<th>Corr</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host comply location voting result and event attendance rate</td>
<td>0.48</td>
<td>&lt;10e-10</td>
</tr>
<tr>
<td>Host comply date voting result And event attendance rate</td>
<td>0.47</td>
<td>&lt;10e-10</td>
</tr>
</tbody>
</table>

- Observation 6: The host choose not to use the consensus result as the final decision would have negative influence on the event attendance rate

6. Impact of Voting Process

- Figure left: The relationship between average voting availability and voter position.

- Figure right: The relationship between average voting coincidence and voter position.

- Observation 7: Early voters tend to vote for a wide variety of options, while later coming voters are more likely to report limited availability.

- Observation 8: Late voters tend to vote for options align with existing voting results and are mutually agreeable.

- Observation 4: People like to attend social events after work on weekdays, while on weekends, events are distributed relatively evenly.

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