I'm Feeling LoCo: A Location Based Context Aware Recommendation System

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Recommendation Systems

User Model
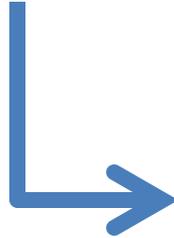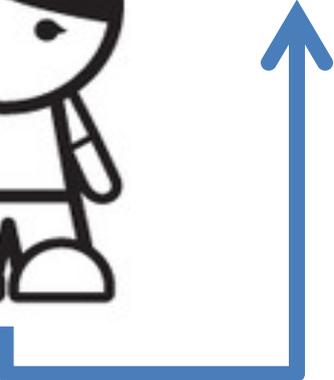
Make Recommendations!

Recommendation Systems: Content Based Approach

User Model

Place Model

Place Model

Make Recommendations!

Recommendation Systems: Content Based Approach

User Model

Place Model

Place Model

Generally requires User to complete extensive surveys
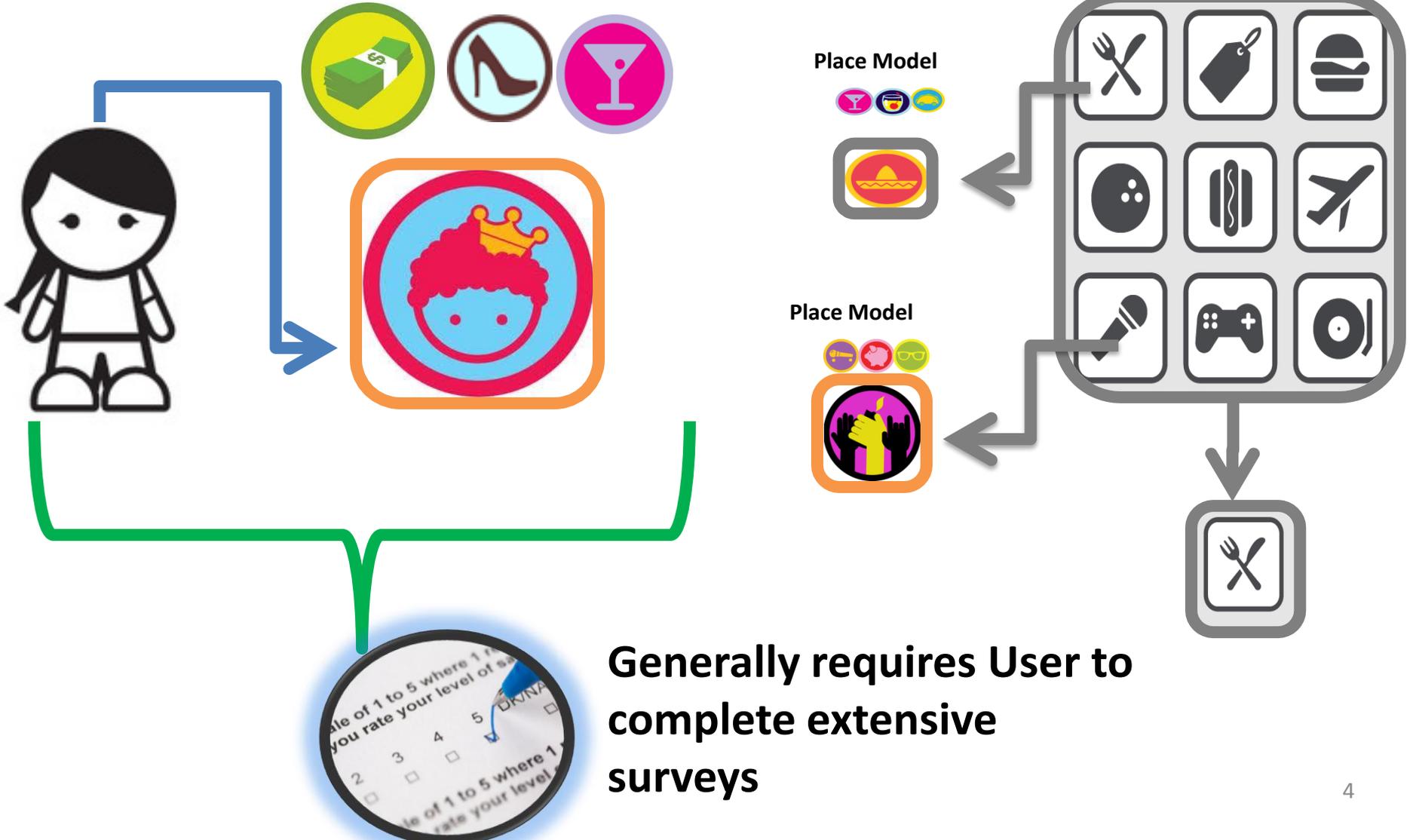
Recommendation Systems: Collaborative Filtering Approach

Places visited by Users
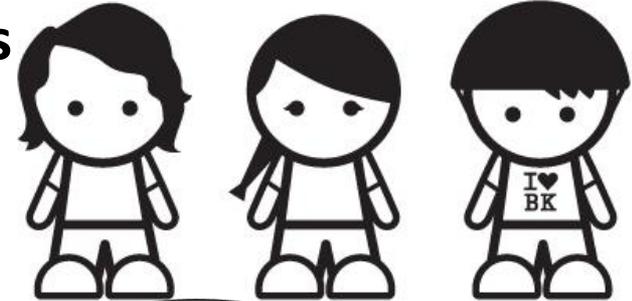
Places visited by User
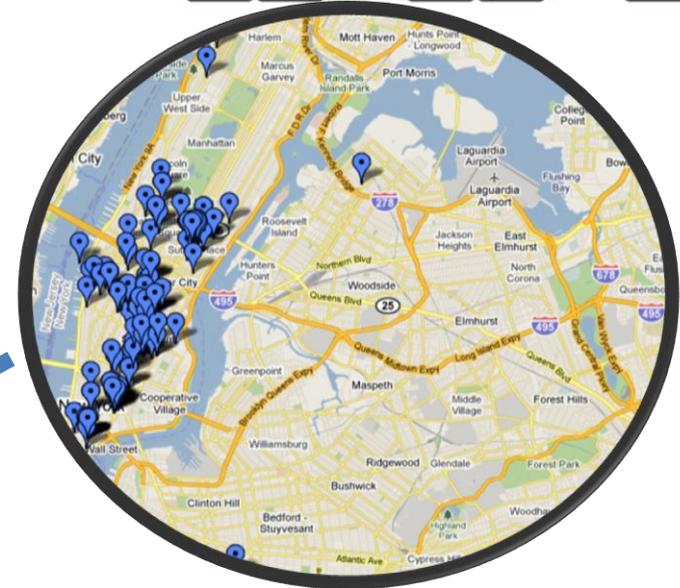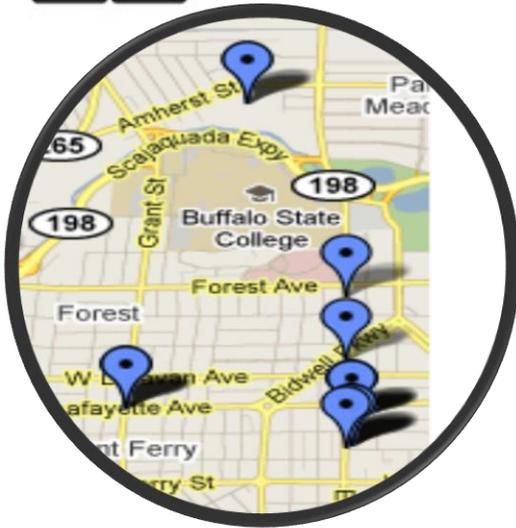
Recommendation Systems: Collaborative Filtering Approach
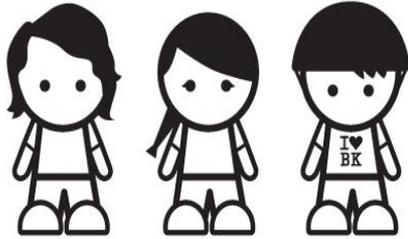
I'm Feeling Loco Recommendation System

User Model

User's Context

Data Mining Techniques

I'm Feeling Loco Recommendation System

User Model

User's Context

Place Model

User's Mood

Recommend Places!
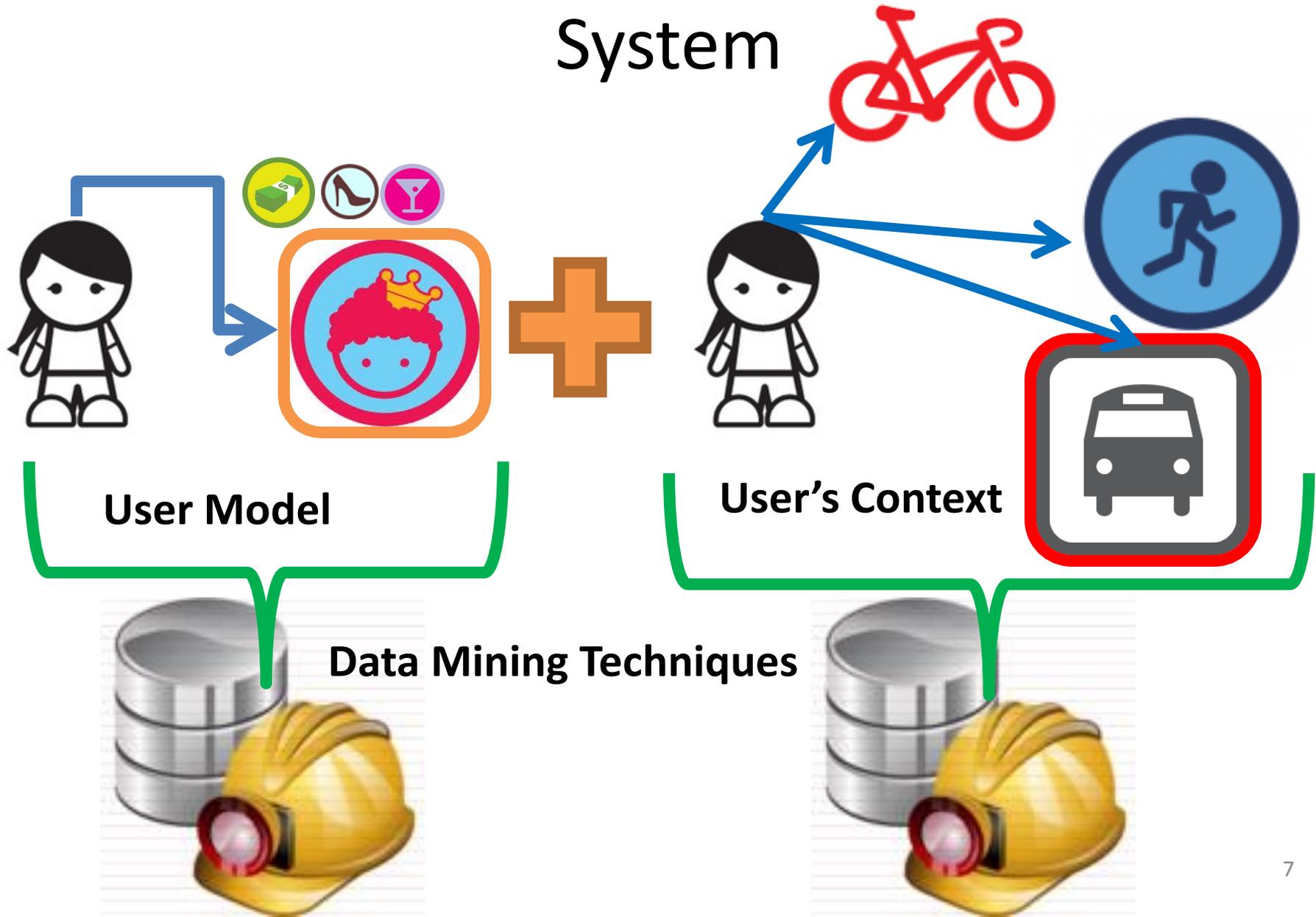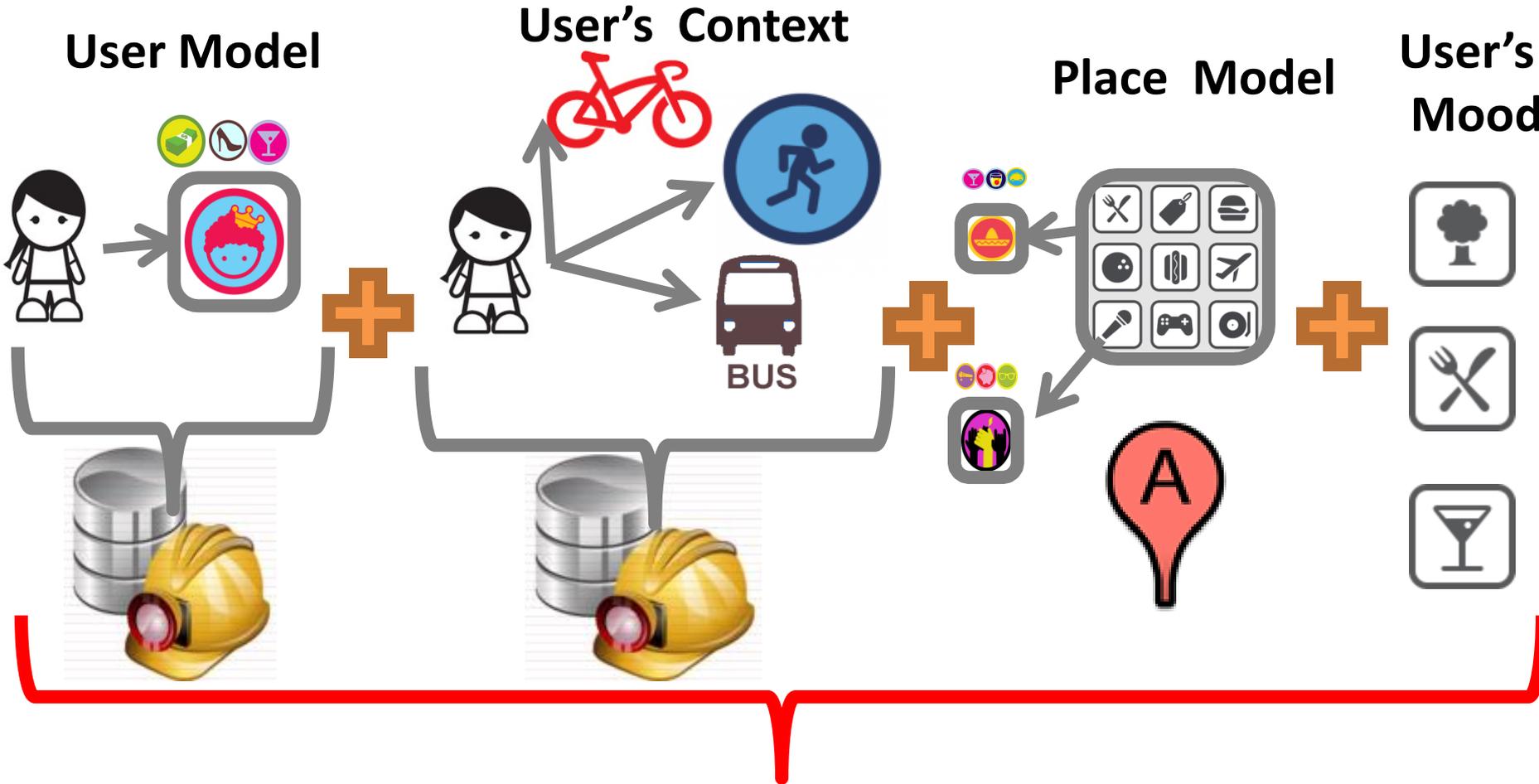
I'm Feeling LoCo System Overview
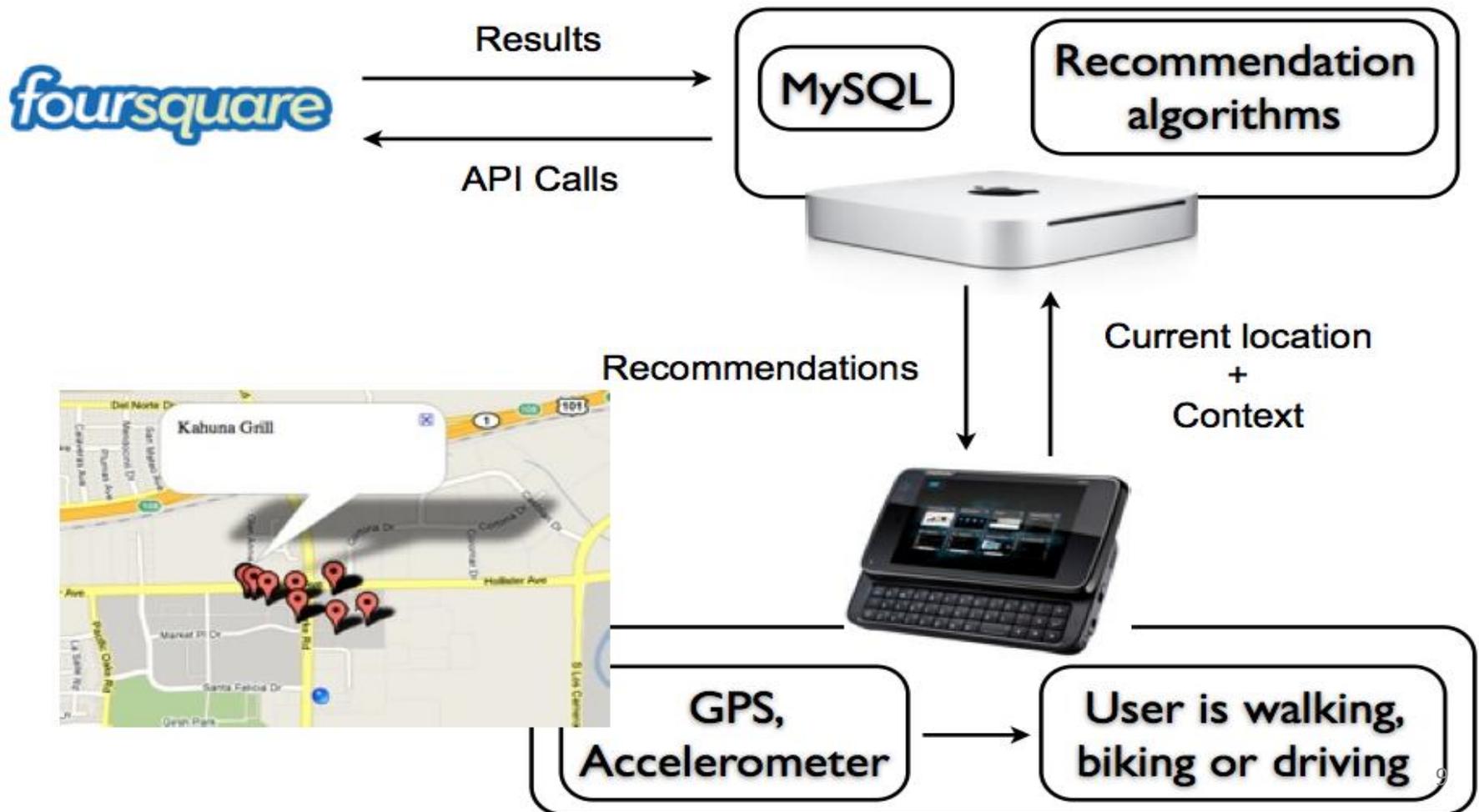
# Outline

- Details of System's Components

 Recommendation Algorithm:

  User Spatiotemporal Constraints Detection

  Inference of User Preferences

- Usability Inspection

- Conclusions

- Questions

Recommendation Algorithm
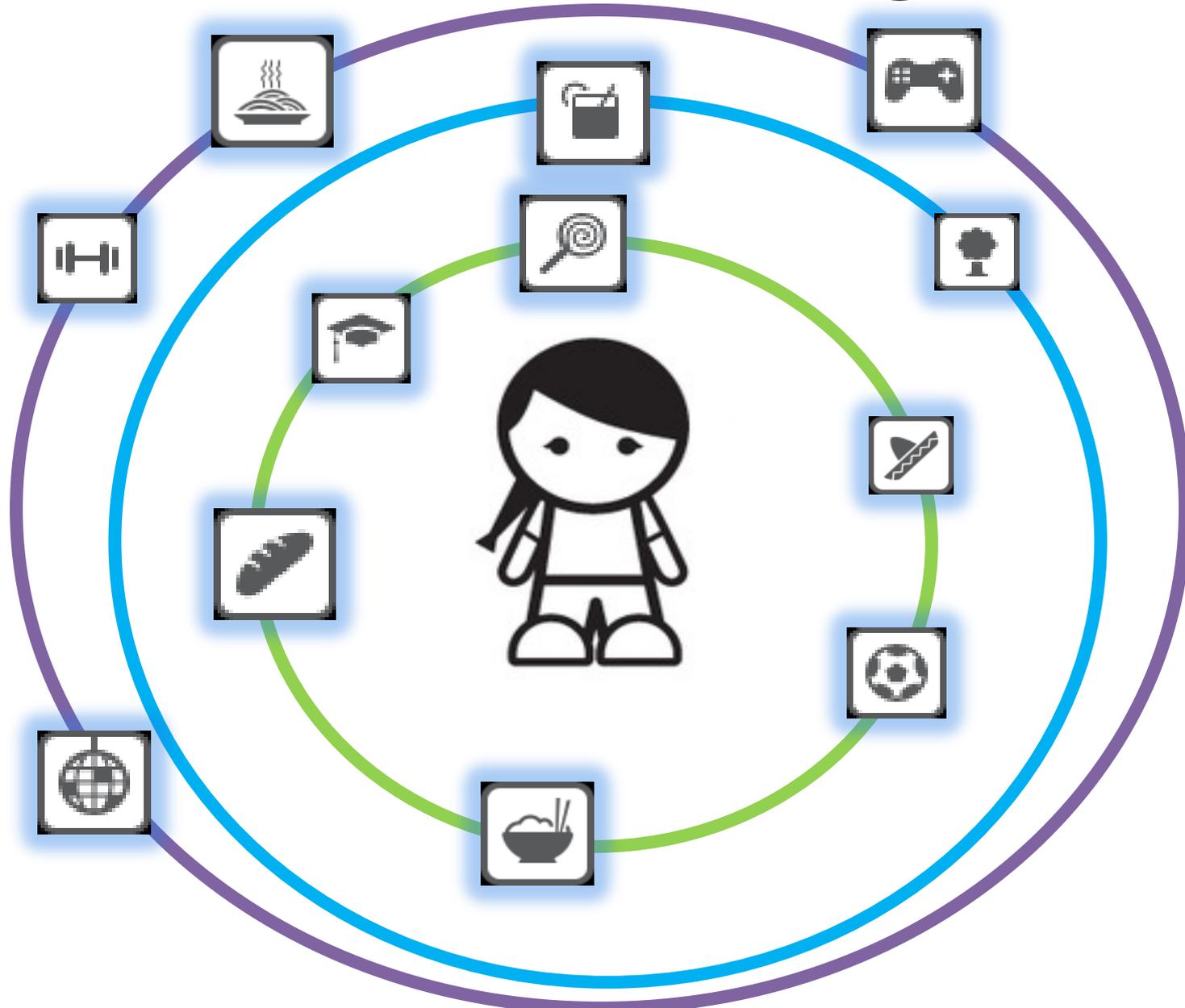
Recommendation Algorithm

User's Transportation Mode delimits places considered.
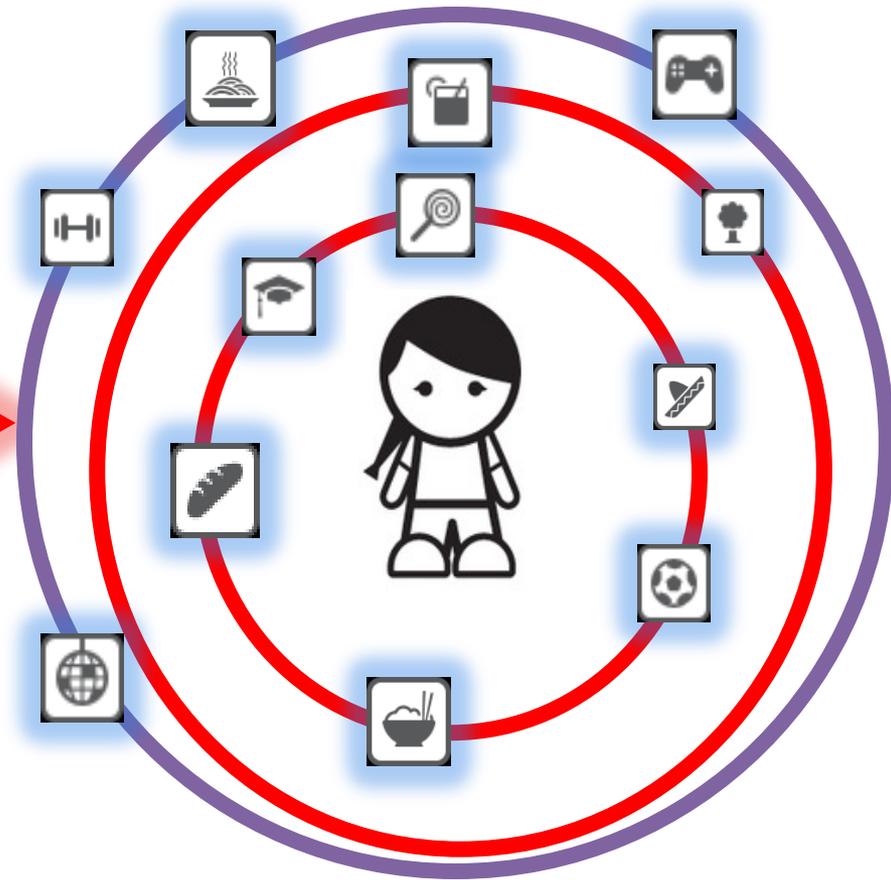
Inference of User's Spatiotemporal Constraints

Recommendation Algorithm

User's Mood delimits places considered.

Recommendation Algorithm

I'm: **walking**

& feeling:

Artsy · Loco · Nerdy · Hungry
Outdoorsy · Workaholic · PartyAnimal · Shopaholic

User's Mood delimits places considered.

Serendipidity

Recommendation Algorithm

Compare each place's characteristics with the characteristics of the places visited by the user.

Automatic Recollection of User Preferences

# Automatic Recollection of Type of Places Visited by User

Text from Places visited by User

beer, delicious, authentic Mexican, foodies, cash only, Taco Place, Mexican Restaurant, burritos, nachos, college students, partiers, frat boys, taco, hipsters, shopping, clothes, Clothing Store, beer, shopping , food, wine, furniture, Beverage, Food, Furniture, Home goods, Textiles, Grocery or Supermarkets, Design Studio, Furniture or Home Store, Thrift or Vintage Store, Sandwich Place, social stardom

User Model

Recommendation Algorithm
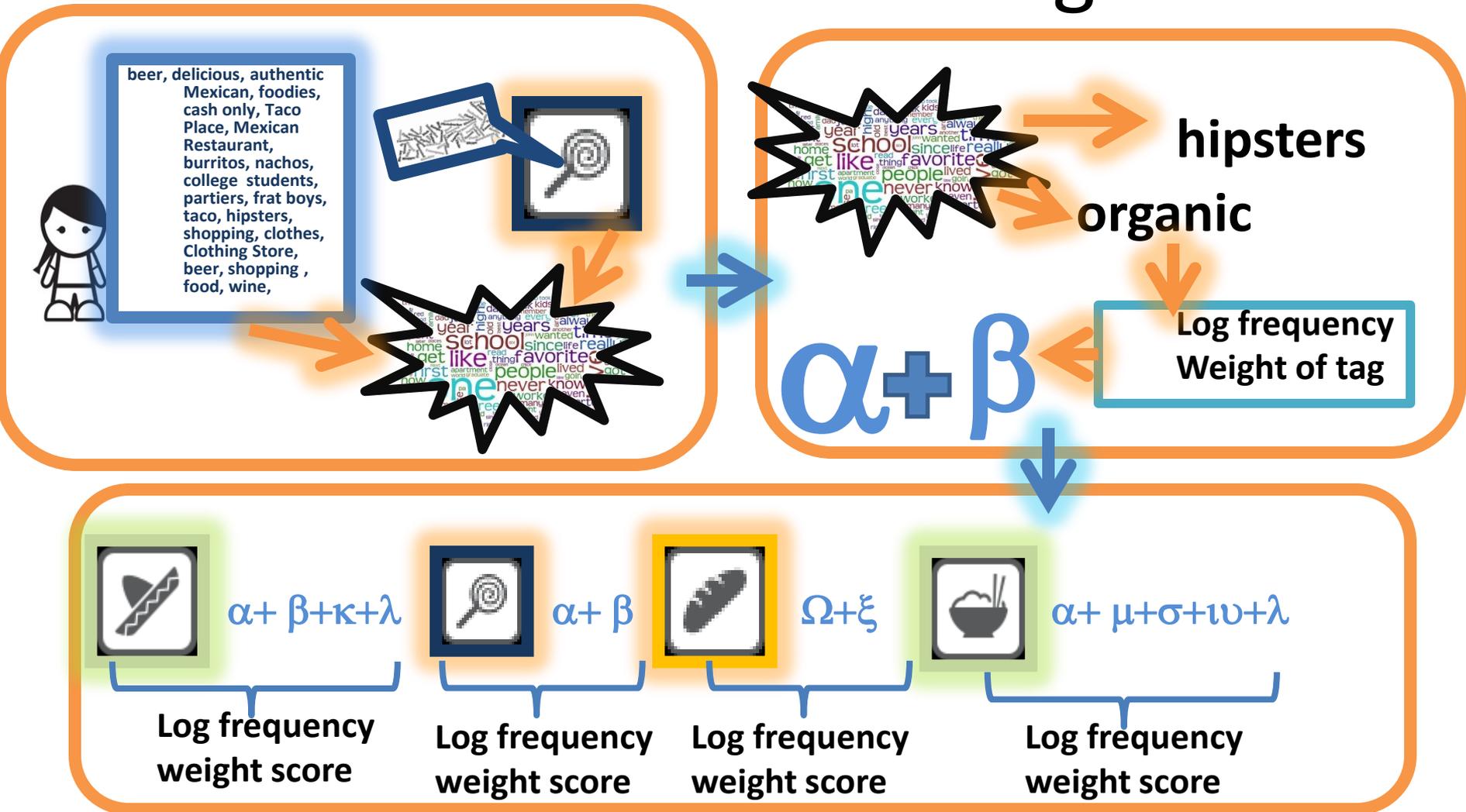
$$\alpha + \beta$$

hipsters

organic

Log frequency Weight of tag

beer, delicious, authentic Mexican, foodies, cash only, Taco Place, Mexican Restaurant, burritos, nachos, college students, partiers, frat boys, taco, hipsters, shopping, clothes, Clothing Store, beer, shopping , food, wine,

$\alpha + \beta + \kappa + \lambda$ **Log frequency weight score**

$\alpha + \beta$ **Log frequency weight score**

$\Omega + \xi$ **Log frequency weight score**

$\alpha + \mu + \sigma + \upsilon + \lambda$ **Log frequency weight score**

Compare each place's characteristics with the characteristics of the places visited by the user.

Recommendation Algorithm
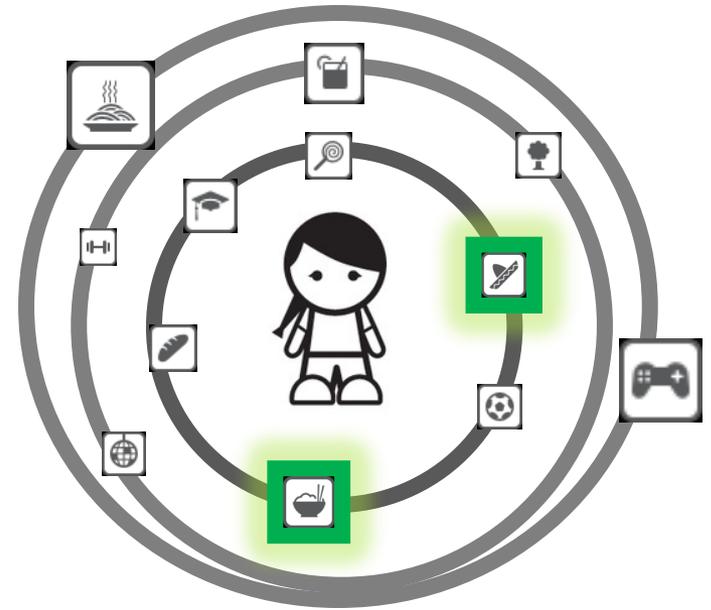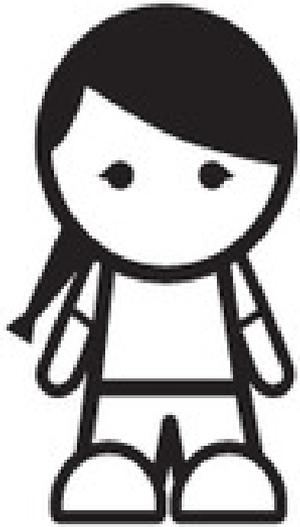
Recommend the K places with the highest similarity to the places visited by the User

Overcoming Cold Start Problem

Wikitravel
The Free Travel Guide

Mine from WikiTravel the landmarks of the city the user is. Use Google places API to obtain the street address of the landmark and distance from the User

Google places

Usability Inspection of "I'm Feeling LoCo"
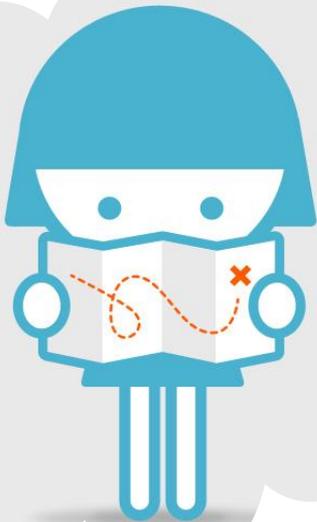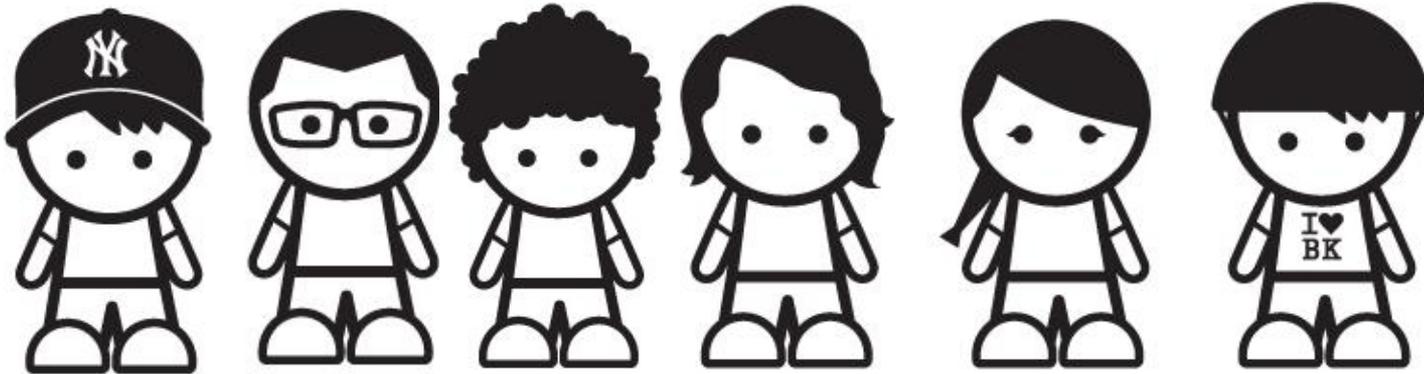
- **Methodology:** Thinking aloud & Cognitive Walkthrough
- **Users:** 8 foursquare users living in two different locations: Portland & Santa Barbara. All had utilized a navigation assistant before. Two had used a personalized travel guide. Most used friends and Yelp for Place suggestion.

Usability Inspection of "I'm Feeling LoCo"
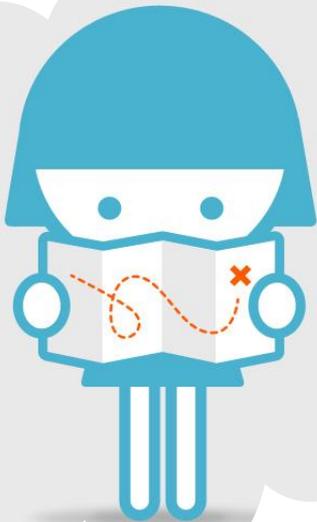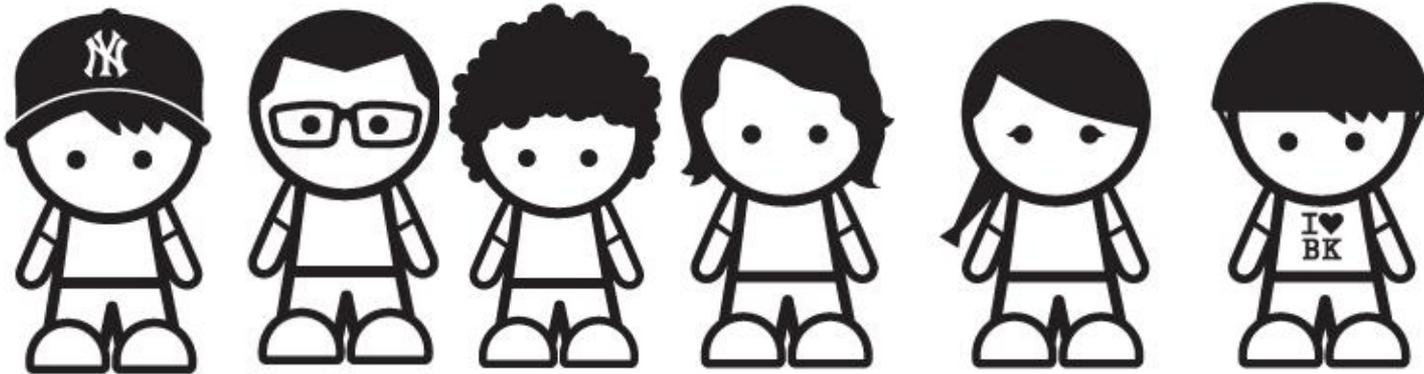
Tasks:
- Find a place to eat while walking in downtown Santa Barbara or Portland.
- Find a place for celebrating with friends while being a passenger and navigator in a car near Santa Barbara and Portland.
- Find a place for studying while biking in Goleta, CA.

Results of the Usability Inspection of "I'm Feeling LoCo"

- **Mobile Map**

User showed satisfaction with recommendation results.

Difficult to obtain personalized search results in small US towns.
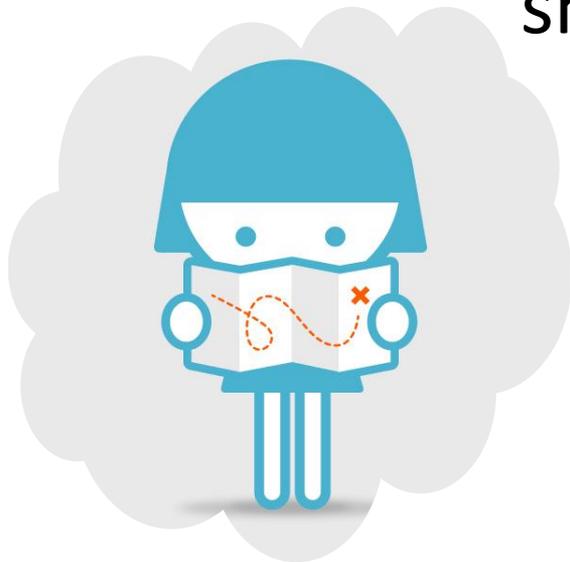
Incremented foursquare usage.

Expose all users to important landmarks.

Improve serendipity.

Results of the Usability Inspection of "I'm Feeling LoCo"

- **Mobile Map**

Users enjoyed recommendations changing according to mode of transportation.

Need to better map interface offering explicit routes to destination, specific maps for activities.

Need to offer Eyes Free interaction.

Overall obtained positive reactions from participants.
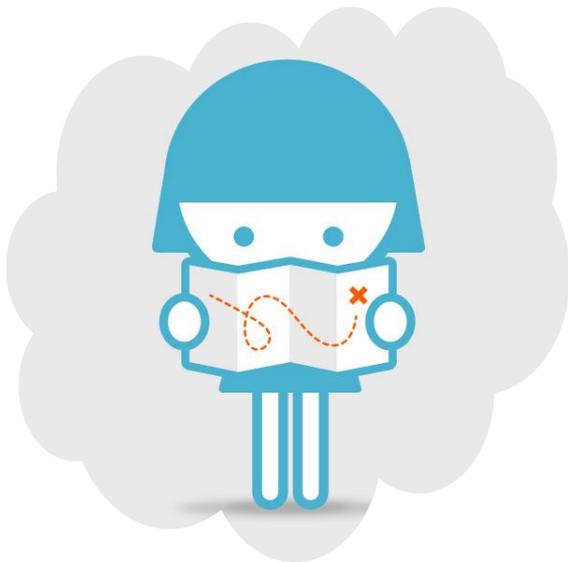
Conclusions

- Our system provides an outlook on future developments in personalized LBSs, where the data utilized for generating the recommendations is automatically collected from different information sources.