Personalized Travel Recommendation Platform - 2roam.today

Bamboo Lab d.o.o.
Boris Rauš
contact@bamboolab.eu

2017
International Conference on Smart Systems and Technologies

bamboo LAB

1. INTRODUCTION

2roam.today is a city based web platform which has two main purposes:

- To recommend a personalized route to a user, which will help the user to focus on the attractions in your city that matter to them.

- To serve as a showcase of your city.

Although the main vision for 2Roam.today was to create a web platform for individual tourists and travelers, we didn't want to eliminate the traditional list of city's attractions. The platform shows sights, events, historical events, famous people and sports grounds in a city, as well as providing general information important for the user. The platform currently presents:
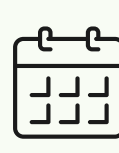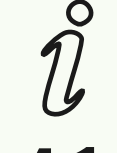
30 sights	**34** current events	**25** historical events
7 sport grounds	**6** famous people	**41** info items

The smart recommendation system provides a perfect route for the user, based on his/hers preferences on travel patterns and behavior. The system detects 1024 (4^5) different travel patterns based on the expert system questionnaire.

2. MOTIVATION

Technological advancement has fundamentally changed the way people travel. It has never been easier or cheaper to travel anywhere in the world. However, our fast-paced always-connected lifestyles can often cause information overload. Paradoxically, while traveling has never been this easy, choosing where to focus your limited attention has become a bigger hindrance than before. The sheer amount of attractions available to tourists can be overwhelming.

Fortunately, data mining technologies have enabled creating personalized recommendation systems for tourists. Such systems can improve over time, based on user interaction, and recommend places to visit and things to try based on user's own preferences - and help in discovering hidden gems around the world.

3. PROBLEM

How to quickly and accurately calculate relevant recommendations while requiring little mental effort from your users as possible?

Utilizing users' intuitive, unconscious preferences in simple visual scenarios enables the gathering of users' preferences in quick and efficient manner; without requiring a lot of time or mental effort from users.

4. METHOD

Initial user preferences are obtained with a simple visual questionnaire consisting of five questions. Each question offers four answers represented with images. The goal is to activate the user's visual intuition about their preferences. Also, each answer consists of four parameters that correlate an answer with a certain category.

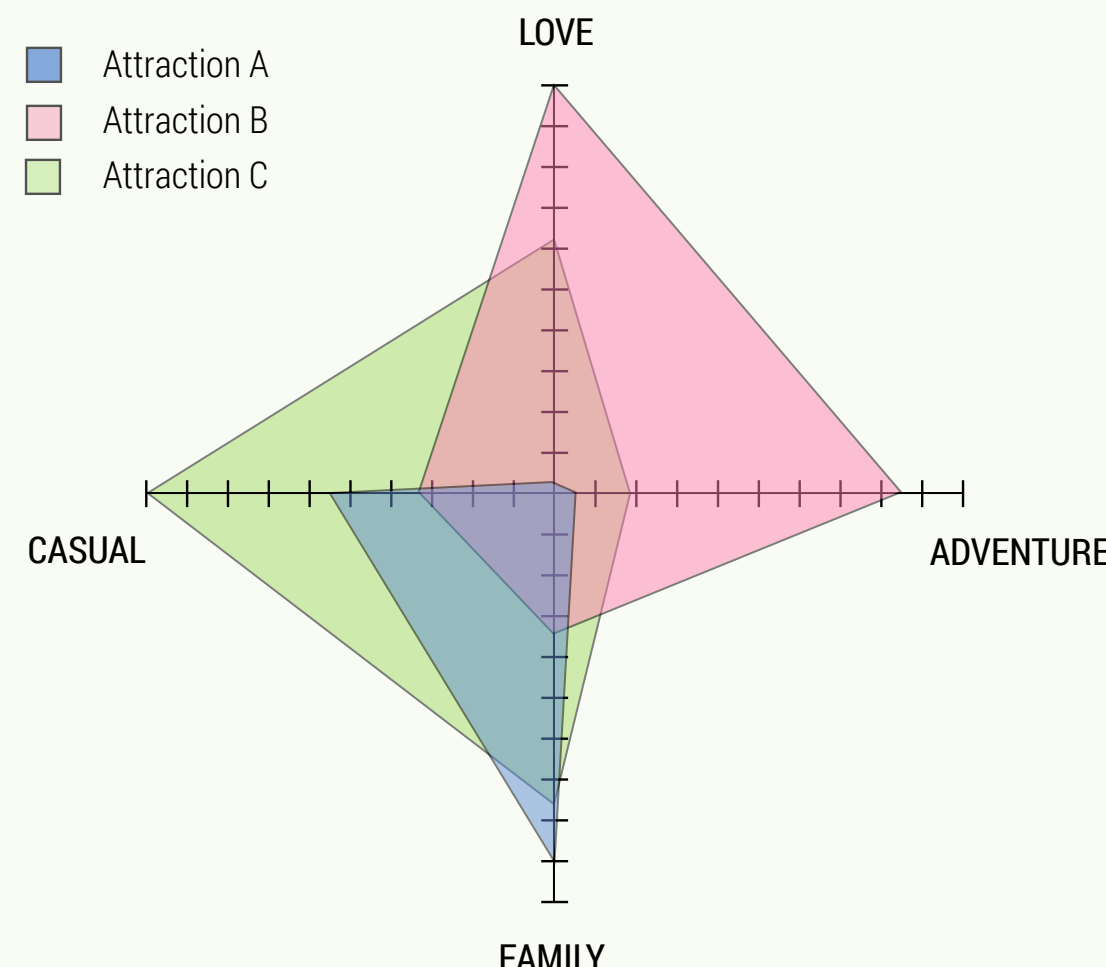### CATEGORIES

LOVE category FAMILY category CASUAL category ADVENTURE category

In cooperation with the experts from City's Tourist Board, the similar parameters are defined for each Attraction, and tested with a random audience, observing the attraction description and images.

- Attraction A
- Attraction B
- Attraction C

LOVE · CASUAL · ADVENTURE · FAMILY

The algorithm calculates the list of attractions (the Route) according to the user's answers.

Algorithm calculates category weights which quantify categories' importance to the user. Parameter ranges are iteratively increased according to calculated weights and attractions whose parameters are now, within the range, added to the route.

The process repeats until the Route is optimally populated. Afterwards the Route is presented to the user. At any time, the user can take the questionnaire again and try to get a different result.

5. FINE TUNING

Parameters initially assigned to attractions and answers can have small errors. The Route calculated with initial parameters can be slightly incorrect, meaning that the calculated route is not completely relevant to the user. Parameter fine-tuning is continually performed to correct such errors. After users complete the questionnaire, data about their interaction with the application is logged and analyzed.

Our algorithm analyzes collected data and performs fine tuning of parameters. Deviation from expected time spent on each attraction is fed forward to fine-tuning. Algorithm modifies initial parameters over time which makes results more relevant to the user's questionnaire answers.

6. FUTURE DEVELOPMENT

Facebook interests will be used to train a machine learning algorithm. Algorithm will create the category profile for the user, without making the user go through the expert system.

Manual review system will allow the user to rate the Route. The feedback will be used to adjust the category results to the best interest of the user.

More cities and more attractions are planned to be added to the platform in the next year.

Intercity routes will allow the user to get the Route for more than one city and get a Route that can span more cities, regions, and countries. This will provide the user with the intercultural experience of exploring more attractions