Micro City - Case Study Analysis

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Introduction

This document has the purpose of mapping the *Micro City*'s concepts into the amusement park's case study. This allows to reach a common starting point for different future works. Specifically, amusement parks will be analyzed defining a ubiquitous language of their domain. This language will be useful to give a formal definition of the domain's elements. Moreover, it will explain logic and semantic relationships among the elements of the domain.

1 The Case Study

As mentioned in the introduction, the case study of the *Micro City* analyzed in this document is the one of amusement parks. Amusement parks are considered to be a large business all around the world and attract people of every age and culture. They satisfy the *Micro City*'s spatial and temporal characteristics as most of them develop in a bounded spatial area and are open daily for a limited amount of hours. Usually, they are not as wide as a city and grant access to visitors in the daylight hours.

Inside, they offer a large set of attractions that may vary depending on the type of amusement park. For instance, they may be roller-coasters, carousels, water slides and many others. Attractions correspond to *services* in the current case study, as they offer experiences to *guests*. On the other hand, shows correspond to *events*, as they take place at a specific time. Usually, attractions are static, that is, they do not move. Moreover, they satisfy a certain amount of guests within a limited duration: this time span is identified by the attraction's frequency, that is the rate at which the attraction starts a ride. In most of the cases, attractions have one or many workers that decide when a ride can start depending on a set of environmental factors, different for every type of attraction. The number of guests that are satisfied in a ride corresponds to the number of people that fit in the attraction.

Guests are embodied by visitors. They are highly interested in the activities offered by the amusement park. In fact, they attend the parks mainly for the attractions inside them. They may attend the parks as single individuals (for instance, buying a personal ticket) or in groups. It can be assumed that they own a personal wearable device used to receive information about attractions. Also, it can be assumed that a group of guests uses a single wearable device for the same purpose. An amusement park also presents internal operators, distinguished from guests, that do not benefit from attractions; instead, they manage the attractions and help visitors.

An amusement park may have its personal business model and could require to pay a fee just to get inside the park itself. Attractions inside the park can be free or could need a form of payment from visitors because they offer additional services or products, such as restaurants.

In this scenario, it could be useful to recommend the most suitable attraction to visitors depending on their physical location, tracked by their personal wearable device, or on their interests. The recommendations may concern the nearest attraction that suits the visitor's preferences or an attraction with a short queue (compared to the average queue of the attraction, or compared to the queues of other attractions). This mechanism could be referred as **situated**

recommendation. By accepting situated recommendations, visitors may receive a reward provided by the amusement park. For instance, the most straightforward reward is the reduction of the waiting time in order to benefit from an attraction.

2 Ubiquitous Language

The following table shows the ubiquitous language of the analyzed case study.

Term	**Micro City's Term**	**Definition**
Amusement Park	**Micro City**	A large outdoor area with fairground rides, shows, and other entertainments.
Visitor	**Guest**	A person attending the amusement park.
Group of Visitors	**Group of Guests**	A set of visitors attending the amusement park.
Attraction	**Service**	Type of activity offered to visitors. An attraction is continuously available during the amusement park's lifetime and allows visitors to benefit from it at any time. They can be rides, roller coasters, water slides, but also restaurants or shops.
Show	**Event**	Type of activity offered to visitors. A show takes place in a specific moment and is carried out only once; when it terminates, it won't be available anymore.
Satisfy	**Satisfy**	The action of an attraction or a show of providing visitors with an experience or a product.
Benefit From/Attend	**Benefit From/Attend**	The act of a visitor of exploiting an attraction or a show and being satisfied by it.
Time Period	**Time Period**	An attraction's operation time span. It is defined by a start and an end.
Duration	**Duration**	The time taken by an attraction or a show to satisfy one or more visitors.

Waiting Time	**Waiting Time**	Amount of time that visitors wait before benefiting from an attraction or a show.
Queue	**Queue**	Set of aligned visitors due to long waiting time.
Wearable	**Wearable**	Device owned by each visitor (or group of visitors) that allows them to interact with the amusement park.
Recommendation	**Recommendation**	A proposal to benefit from a specific attraction or show in exchange for a reward.
Recommend	**Recommend**	The action of sending a recommendation to the visitors.
Reward	**Reward**	The recompense received by the visitors that accept a recommendation.

Table 1: Ubiquitous language of the amusement park's case study.

3 Scenarios

Amusement parks surely represent a popular form of entertainment for people of all ages and with different interests. This is one of the reasons why, specially during holiday times, these parks attract a considerable amount of visitors and tend to be significantly crowded. Although this is greatly profitable for the parks themselves, unfortunately it is not the ideal situation for the visitors as chances are that they will have to spend most of their time waiting in a queue. This situation becomes even more unattractive for large groups of visitors, such as families with children, or under unpleasant weather conditions, such as rain or summer heat. In order to improve the overall visitors' experience, the **situated recommendation system** could suggest the most suitable attractions for them.

In addiction, such system could be also convenient for amusement parks' managers. In fact, visitors would be more attracted to the parks providing such facilities, meaning that the attendance of visitors would increase. Also, it is important mentioning that not all attractions inside the parks are rides or roller coasters. In fact, parks can also contain restaurants or shops. A situated recommendation regarding these kinds of attraction may involve marketing strategies that would make visitors willing to go there. Given all the advantages that a service like that could provide to the visitors, managers could also decide to supply it as an additional "premium" service.

4 Requirements

The **situated recommendation system** must satisfy the following business requirements in order to be appealing to amusement parks:

1. The ability to make recommendations based on certain criteria. Thus, it should be able to access information about the park in order to elaborate an as desirable as possible recommendation for the visitors. It is not important to focus on the way the recommendation is generated. Instead, it should be able to define different strategies and use the most suitable one. For instance, some strategies may be based on the length of queues or on visitors' interests.

2. The ability to keep track of the state of every attraction inside the park. In such way, it would be possible to provide not only static recommendations (for instance based on the visitors' preferences), but also dynamic ones. The latter may be based on attractions' information such as their current queue, their duration, their capacity, etc.

3. The ability to keep track of the state of every visitor (or group of visitors) inside the park. In this way, it would be possible to provide them with recommendations based on their interests and their physical location. Thus, visitors would be more satisfied as they would benefit from attractions they surely enjoy. Moreover, it could be possible to suggest attractions near to them in order to minimize the walking time.

4. The possibility to memorize the information collected during the amusement park's lifetime. This allows the parks' managers to analyze trends and visitors' preferences in order to make improvements on their attractions or promote others. Moreover, this could help them develop new recommendation strategies that might be more effective.