Project Architecture

group7

November 2015

1 Project Idea

Cinema Chatter offers Göteborg's cinephiles information regarding the change over time in popularity and rating of the movies currently displayed in the theaters of the city. This information is available on a website and combined with other useful data, such as movies' plot and trailer, gathered from different sources.

2 Stakeholders

"The term stakeholder is used to refer to any person or group who will be affected by the system, directly or indirectly. Stakeholders include end-users who interact with the system and everyone else in an organisation that may be affected by its installation. Other system stakeholders may be engineers who are developing or maintaining related systems, business managers, domain experts, and trade union representatives." (Sommerville, 2007).

2.1 Users

The users of the system are cinephiles who wish to receive more information regarding the current films, in order to make a more informed choice when deciding which film to watch in the cinema. Since the movies featured on Cinema Chatter are the ones currently on display in cinemas of Göteborg, it is expected that mainly users from this city will visit the website. However, it is not excluded that people from other cities or countries might also find the information on Cinema Chatter interesting.

2.2 Other Stakeholders

Users are not the only stakeholders of the system.

Developers. Developers (us, the Group7) are responsible to develop and maintain the system. We have a great influence on the outcome as we have

a good degree of freedom regarding software architecture choices. On the other hand, we are also influenced by the product as we will be evaluated based on it.

Product owner. Our supervisor for the project, Simeon, also acts as our product owner. He has great influence over the system as he request and prioritize features. As supervisor, he also influences the system because he directs us towards certain tools or solutions in cases when we need guidance.

Teacher. This being a project for a university course, the course responsible, Imed, plays an important role. He monitors the team's efforts and provides some points of reflection and guidance. He is the one who imposes some functional requirements at the start of the project and who will grade the fnal product.

Twitter. Tweets are accessed and collected by the system through Twitter's API and a Twitter miner application. The use of Twitter's data has to respect their terms and conditions.

IMDB. Films' information on IMDB is accessed and collected by the system through a web-scrapping tool and an external API. The use of IMDB's data has to respect their terms and conditions.

SF Bio. Information regarding films currently on display is fetched from SF Bio website through a web-scrapping tool. The use of SF's data has to respect their terms and conditions.

3 Requirements

3.1 Functional requirements

We define the functional requirements following the MoSCoW Method.

Must Have

- *The system must be available on a website.*
- *The system must display the titles of the movies currently on display in Göteborg's cinemas.*
- *The system's website must, for each movie, display its IMDb rating and its Twitter popularity.*
  Twitter popularity is defined by the number of Tweets containing the movie's hashtag.

Should Have

- *The system's website should, for each movie, display its title, poster, trailer, plot.*
- *The system's website layout should be accordion-style.*
- *The IMDb rating and the Twitter popularity displayed should be updated on regular basis (at least weekly).*
- *The system's website could, for each movie, display a graph showing the change of IMDb rating and Twitter popularity over time.*

Could Have

- *The system's website could give the possibility to sort movies by title (alphabetically), rating and popularity.*

Won't Have This Time

- *The system's website won't implement some comment module.*
  Users could leave comments or reviews of movies.

3.2 Quality Attributes

As a result of an open and detailed group discussion, we concluded that the following quality attributes are fitting our product: usability and availability.

Usability As the product is aimed at a general audience and needs to attract new users, usability is very important. We want to achieve a website that is easy to navigate, appealing and intuitive.

Availability & Reliability Also in the light of user satisfaction, availability (which includes also the concept of reliability) is important because having a system that is often inaccessible brings to frustration and therefore loss of users.

We have discussed other possible quality attributes as well. **Security** is clearly not relevant for our system: there is no log-in component and we do not handle any private data. Also **performance** we believe is negligible, as data collection is not done in real time it does not pose an issue to the user if the process is slower than what it could be.
Quality attributes are further discussed in

3.3 Constraints

Given that this is a university project, most of our constraints are set by the responsible (Imed) who designed the course. Other constraints are given by our level of knowledge, time that we can dedicate to the project and funds.

- *The product must be a social computing application.*
- *The product must analyse social network data and other sources.*
- *The product must aggregate and present users with useful information or predictions.*
- *The data loader must be implemented in Erlang.*
- *The data query manager must be implemented in Erlang.*
- *The team must follow a SCRUM process, spanning over 7 sprints of the duration of 2 weeks each.*
- The project (product and documentation) must be delivered by the 18th of December.
- *The maximum budget for the project in terms of finance is 0SEK.*
  This means only free tools can be used.
- *The maximum budget for the project in term of man hours is 1500 hours.*
  Calculated as 15 h/week per team member (7 members) per 14 weeks.

4 Architectural Drivers

4.1 Drivers from quality attributes

4.1.1 Usability

- The screen layout and color should be appealing to at least 80% of users.
- A new user should be able to find information about a specific movie within 2 minutes.

4.1.2 Availability

- The website should be up 90% of the time.
- Data from the database should be available at least 90% of the time.

4.2 Utility Tree

4.3 Quality scenarios

5 Architectural Tactics

6 Design Patterns

7 References

Sommerville, Ian. Software Engineering. Harlow, England: Addison-Wesley, 2007.