Bilkent University

Department of Computer Engineering

Senior Design Project

Snatch

Project Specifications Report

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This report is submitted to the Department of Computer Engineering of Bilkent University in partial fulfillment of the requirements of the Senior Design Project course CS491/2.

1. Introduction

There are many people who want to be a member of the social groups and to improve themselves by meeting different people and join different organizations. However, it can be hard to find a proper community for an individual's interests, especially in a reachable area.

Furthermore, people who are members of a group have to use many different platforms such as WhatsApp[1] to organize and plan some meetings and to chat with each other, Google Drive[2] to share some documents, and websites to make announcements and promote their groups/clubs. These tools are dispersed and cause some people to miss some announcements/news. Another hardship for social clubs is organizing an event [3]. Finding main components of an event such as a sponsorship, a co-organizator club if organization is too expensive for one social club, audience for event, a place might be very problematic.

In our project, on the individual user part , we help people who want to be active in a social group by recommending the appropriate group in his/her around. Also, their events desirably better promoted by recommending them to target audience. For example, if one is interested in computer science, events about computer science are offered with its location which is also another important point. On the social clubs part, we make it easier to communicate, to share, to plan organizations and to make promotions for social groups. With Snatch, social groups no longer need to use different platforms to be in touch, they can use Snatch for communication, storage and file sharing, voting for topics related with group, organizing events and gaining members for them. It will also allow communities to find vital components of an event like sponsorships for their events or help companies to see events they can support by recommending them accordingly. If there are many organizator social clubs, they can also keep in contact with each other. Thus, it diminishes the possibility of misunderstandings about the event. Snatch combines all these features in itself to help social groups to operate, organize and grow better.

This report will introduce a detailed project description and several constraints that the system and our team will follow. Also, it includes a section about the professional and ethical

issues and their solutions. Then, functional and non-functional requirements will be described.

1.1. Description

Snatch is a platform that enables people to organize their social activities according to their locations and also groups that they want to participate in. Since it is a location based program, location is specified after the completion of registering process. To join a group such as FRP clubs, one need to specify interests for that. After that, available groups will become visible to them and they can send a request to group that they want to participate in. Only group admins have ability to confirm or reject the requests. A group can be selected whether it is an announcement group where only admins can write something or ordinary chat. In this way, one way or another, all the members of a specific group can be kept in touch. People could take different roles at different groups in Snatch. Groups will have an environment in which they can chat, send documents, make checklists, make promotion, organize meetings and open voting. Group administrators will be able to get company recommendations which may sponsor their events or be partner for a specific event. These company recommendations will be done according to companies' budgets for an event, companies' field of studies and locations of the companies and events. Communities may also express that they might provide sponsorships and look for proper events.

1.2. Constraints

1.2.1. Technical Constraints

In order to provide chat and file sharing, we need to provide cloud storage which will be available 24/7. Backups have to be kept in order to prevent any data loss. Users will have to have internet connection and GPS must be activated to access the system and share their location in order to get community recommendations according to their locations.

1.2.2. Social Constraints

Snatch will be a social platform that provides social interactions among the users. Users should be able to do interactive tasks such as having a chat, sharing documents, organizing events, open voting etc. Also, users should be able to send requests to groups which will be confirmed or rejected by admins who are also Snatch users. Furthermore, groups will be able to communicate for events which they want to conduct with collaboration. This can be done via the group admins. Final but vital point is convincing social clubs and users to use Snatch. In order to do that, we need to highlight Snatch's exclusive features such as event helper feature if compare it with similar platforms [4].

1.2.3. Implementation Constraints

Snatch will be implemented in 2 platforms; web and mobile. For web implementation, we will use Node.js[5] for web back-end development and HTML, CSS, JavaScript for front-end development. For mobile application, we will use React Native[6] to release our application on both Android and iOS devices. They both use a MongoDB[7] database to store data. We selected these technologies to develop our project since we believe that they are the most suitable ones in terms of performance and quality. In addition, recommendations are based on machine learning.

1.2.4. Sustainability Constraints

Sustainability is one of the most important issues while developing that kind of applications, scalability of the applications should be organized really well. We will try to consider the effect of number of users on application performance and we will try to optimize its performance during development process. Also providing storage area for more groups compel us to increase the capabilities of our servers when it is not enough. Therefore, we need to consider all of these constraints to provide a sustainable application to users.

1.2.5. Economic Constraints

We have to rent a cloud service in order to store our data. Also we need a domain name and hosting besides IOS and Android developer accounts in order to publish the platform and applications.

1.2.6. Security Constraints

Snatch contains chat and storage features, so security of the data of social groups are important for us. Firstly, since people will only use their accounts in the Snatch while using it, we do not have the problems of using WhatsApp and Facebook; people's phone numbers and social media accounts cannot be seen by other users in Snatch. Secondly, we will try to develop our application in a way that almost all of the possible security issues will be avoided. Detailed tests will be applied to both web and mobile applications to avoid security related problems.

1.3. Professional and Ethical Issues

Since our application allows chats and sharing documents for users, it requires sensitive protection for the users' data. It is an important ethical issue. Thus, we will give a priority for protecting user's personal data such as emails, passwords, sharing's and group chats. We will make sure that these data will not be shared with third parties without the user's permissions.

As professional issues, we will make the distribution of tasks fairly and equally. We will make sure that every group member completes his/her task properly. We will be respectful to each other's opinions and try to consider them objectively. We will arrange group meetings regularly to be ensure that the project will progress smoothly. We will help and learn from each other according to our professions. This also will help to improve our individual progresses.

2. Requirements

2.1. Functional Requirements

- Users can create a group
- Users can have a chat in the groups
- Users can share files in the groups
- Location of the user can be determined by the system
- Users are recommended for groups according to their current locations, their interests and their memberships
- Users can send a request for membership for any group
- Group admins can confirm/reject the membership requests
- Group admins can make announcements
- Group admins can store data and share that data with members
- Group members can organize events and meetings
- Group members can start voting about any subject related with group Group members can make checklists in which each member can indicate completion for some task
- Groups are recommended each other for partnerships
- Events are recommended to profit based associations for sponsorship
- Profit based associations are recommended to groups for events

2.2. Non-Functional Requirements

2.2.1. Usability

- Application should be easy to use and to understand for all type of users with different ages
- Application should have a user-friendly interface

2.2.2. Scalability

- As the number of users and groups increments, application should meet the all the demands
- System should be powerful to meet all the functional requirements

2.2.3. Security

- The system should protect the personal information of the user
- The system should protect the shared files and chats in the groups

3. References

[1] WhatsApp [Online] Available: https://www.whatsapp.com/. Accessed: Feb 24th 2019.

[2] Google Drive: Free Cloud Storage for Personal Use [Online] Available: https://www.google.com/drive/. Accessed: Feb 24th 2019.

[3] "Effective Student Organization/Problems that Student Organizations Face," *Development Cooperation Handbook/Guidelines/How to manage programmes for a learning organization that is projectized and employee empowering - Wikibooks, open books for an open world*. [Online]. Available: https://en.wikibooks.org/wiki/Effective_Student_Organization/Problems_that_Student_Organizations_Face. Accessed: 25-Feb-2019.

[4] A. Alex, S. Banerjee, S. Kapale, B. Sarkar, S. Banerjee, B. Sarkar, M. Dutta, and M. Dutta, "4 Challenges and constraints of social media marketing," *TechGenYZ*, 22-Jan-2019. [Online]. Available: https://www.techgenyz.com/2018/07/02/challenges-of-social-media-marketing/. [Accessed: 25-Feb-2019].

[5] Node.js [Online] Available: https://nodejs.org/en/. Accessed: Feb 25th 2019.

[6] React Native: A framework for building native apps using React. [Online] Available: https://facebook.github.io/react-native/. Accessed: Feb 25th 2019.

[7] Open Source Document Database | MongoDB. [Online] Available: https://www.mongodb.com/. Accessed: Feb 25th 2019.