**Integrated Development Environment for Social Network Analysis**

**Software Requirements Specification**

Version 0.1

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**Revision History**

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**1. Introduction**

**1.1 Purpose**

The purpose of this SRS document is to provide a meticulous conspectus of our software product, its criterion and goals.This document provides a detailed description of Integrated Development Environment for Social Network Analysis. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system..In short,The purpose of the this SRS document is to aggregate and analyze all the miscellaneous ideas that have come up towards the successful completion of the project.

**1.2 Scope**

The scope of the project is limited to a social network whose data policies allow the user to access data as well as store them for analysis purpose as that of a social network built using elgg. “Integrated Development Environment for Social Network Analysis” only provides the environment and application programming interface for the end user who want to develop/implement their own algorithms on a selected social network which falls in the above mentioned criteria.This IDE will allow the end user to analyse any social network on his own terms.

**System/Subsystem:**

In this subsystem we are concerned with the use of IDE such as fetching details about a user’s folksonomy from social networks. There are also many other things, which are needed for proper analysis of social networking such as activities of different users on network over a period of time.This is how we define the system of the IDE.

**End Users:**

The end user’s of this system are the people who use this

system for analyzing the activities on social network.

The objective of building this system is to help users concentrate only on the part of data from social network in which they are interested to analyze upon. By using this system, users can gauge the activities on Social network by their own perspective rather than settling into a fixed method of analysis.

**1.3 Objectives and Success criteria of the Project**

The aim of doing this project is to provide a generic Integrated Development Environment along with the API’s to which facilitates the analysis on any Social Network which is built on Elgg platform. Using the IDE an end user can retrieve the information related to the social network in context and further analyse the network according to his wish. The success of the project depends upon the fact that an end user can customize the use of the IDE to retrieve and analyze a particular subset of information or information which will have varied entry criterion.

**1.4 Definitions, Acronyms and Abbreviations:**

|  |  |
| --- | --- |
| **OUSN** | Ordell Ugo Social Network ( A Social Network built using Elgg ) |
| **System** | Integrated Development Environment for Social Network Analysis |
| **Admin** | The person(s) who is(are) in actual control of the social network as a whole |
| **User/Developer** | One who uses the IDE for analyzing specific data according to his requirements |
| **Authenticated User** | The user who has logged in by providing necessary credentials |
| **Software Requirements Specification** | A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document |
| **Stakeholder** | Any person with an interest in the project |

**1.5 Overview :**

The SRS document consists of a general description of our project from a product perspective explaining the various functionalities,constraints and general assumptions involved in the design of the product .Also describes the various interface,functional and nonfunctional requirements of the product along with the design constraints involved. Also describes the various analysis models involved and the change management process.

The SRS document is divided into various subsections with each section describing  
specific topic.The sections and their contents are ordered for better traceability.

* Section-2 contains a general description of our product.This further contains  
  description about product perspective,product functionalities,user characteristics,  
  general constraints,assumptions and dependencies associated with the product.
* Section-3 explains the specific requirements of our product.This is subdivided into  
  different sections which describe the various interface,functional,non-functional and  
  logical database requirements of the system.The various use cases,class/objects and  
  design constraints are also explored in this section.
* Section-4 deals with the various references referred for writing this document.

# 2. General Description

## 2.1 Product Perspective

The IDE for Social Network Analysis under development will come out as an independent and totally self-contained software which can be installed and used to solve similar requirements relating to analyzing different kind of activities on a social network.

The model and implementation will be kept generic to be installed easily in various environments.It provides the core functionalities which are essentially required to do any kind of analysis on social networks and builds on to provide better and more user-friendly features.

**2.2 Current System**

Different proprietary social networking engines such as Facebook, Twitter etc leverage data to understand their products and growth and identify opportunities for impact. They use expert-level knowledge and algorithms to answer questions, generate reports, and do analysis across thousands of domains.

But the users who would like to analyze data present in these social networks on their own terms will have to abide by different kind of rules and regulations imposed by corresponding network engines regarding collection and presentation of data.

A commonly overlooked privacy problem is use of one’s own accounts — and associated friends' — to collect data that participants believe is limited to their "friends" network. Even though the data they are trying to access and analyse is actually generated by them directly or indirectly on such social networks, the users have a limitation they cannot store all the data locally. Even with participants' permission, however, you can still run into trouble if you gather data from their friends and networks — people who have not given permission to be studied. Also the fact that automated data collection is not allowed by networks such as Facebook, hinders users to analyze on real time data. The downside of all these factors is that users do not get to choose what data they would want to analyze upon. This highlights the importance of having a separate system which supports users to analyze data from their own social network at their own wish without any terms and conditions detrimental for research.

**3. Specific Requirements**

This section presents the requirements of the system - both functional and nonfunctional in detail.

## 3.1 External Interface Requirements

### 3.1.1 User Interfaces

* IDE- Integrated Development Environment

### 3.1.2 Hardware Interfaces

* Processor: Pentium 3.0 GHz or higher
* RAM: 256 Mb or more
* Hard Drive: 10 GB or more
* Web Browser: A latest version of any modern browser.

### 3.1.3 Software Interfaces

* Neo4j: an open-source graph database.
* Elgg: an open source social networking engine.

### 3.1.4 Communications Interface

* Network (Inter / Intra)

## 3.2 Functional Requirements

### 3.2.1 Authentication of users

* Description: The system shall authenticate all users regardless of their privileges.
* Inputs: User ID and password for user’s account on social network.
* Processing : Verifying the combination of User ID and password against all the ids

stored in the database of social network.

* Output : On successful login the system shall display the user account

information including user ID, last and first name, and user status.

* Error Handling : The system shall display the appropriate error message for

invalid combination of user id and password.

**3.2.2 Data Store : Graph DataBase**

* Description:The system shall use a private data store for storing and maintaining all necessary information to execute its tasks.
* Inputs: The system provides the necessary data to store. The user also provides the specific data which he wants to access will also be stored appropriately.
* Processing : The system will store the data efficiently so as to facilitate fast access when queried.
* Output :A graph database will be generated in the system and accessed when user uses API’s to get data.
* Error Handling :The system shall display the appropriate error message if there is some problem with permissions or any other such kind of errors.

**3.2.3 Generation of customized graph database instance for users project with specific data**

* Description: The system shall generate customized graph database pertaining to different activities of a particular user.
* Inputs: User Id and password of an user who is interested in using the IDE to analyze social networking activities.
* Processing : From the generated graph of entire social networks, only the graph corresponding to user’s activities and connections is filtered.
* Output : A graph depicting all the actions of a user, his connection on social networks and so on which will be used for further querying.
* Error Handling :The system shall display the appropriate error message.

**3.2.4 Accessing of complete graph database instance locally upon Admin approval**

* Description:The system upon obtaining necessary permissions from the admin will provide the whole graph database to the user for his local offline analysis.
* Inputs: The user has to request the system for granting access to the entire graph of data.
* Processing : Data from the data store will be transferred over the network to the local machine.
* Output : The data store created initially will be now made available locally
* Error Handling :The system shall display the appropriate error message.

**3.2.5 Output for different forms of queries in the form of apis from the graphdb**

* Description: The system shall return appropriate results for different user queries depending upon query parameters.
* Inputs: User querying for details of different entities from social network.
* Processing : The system shall look into the generated graph db and process the user queries against the entities connected in the graph db.
* Output : All the details about queried entities are fetched from database and given to user.
* Error Handling : The system shall display the appropriate error message.

**3.3 Non-Functional Requirements**

### 3.3.1 Reliability

* The system shall be recovered within 1 hour if it is down.
* The system shall be recovered without intervention at user terminal if it is down.
* The system shall show appropriate messages at terminal when system is down.
* The system shall have 100% reliability.
* The system shall generate error messages when the user attempts to enter invalid data.

### 3.3.2 Availability

* The system should be available for use 24 hours per day, 365 days per year.
* The system should be accessible by appropriate users at any time(except when down for maintenance).
* The system shall allow the users to access the system from the Internet using HTML or its derivative technologies. The system uses a web browser as an interface.

### 3.3.3 Security

* The System will use secure database
* System will have different types of users and every user has access constraints.
* Access to the system is permitted to users only after authorization procedures.
* The account management system shall only be used by administrator.
* The user information report shall be available only to administrator and concerned user.
* The system should provide databases’ modification only for admin and system administrator after authorization procedures.

### 3.3.4 Performance

* The system shall accommodate activities of different users without any fault.
* Any interface between a user and system should have a maximum response time of 5 seconds.
* The response should be fast enough to avoid users response collisions.

**3.3.5 Portability**

* The software can be deployed at any machine having the required software.
* The system should work on any system with a modern web browsers.

**3.3.6 Supportability**

* The ability to change the system with minimal efforts to add more functionalities and

to ﬁx defects.

* The ability for the system to support systems with lower hardware, to reach a bigger

audience

**3.3.7 Inverse Requirements**

* The end user must be an active user on OUSN.

## 

## 3.4 Other Requirements

* The system should comply with quality assurance standards.
* Ergonomic and clear interface.
* The system shall comply with the TCP/IP protocol standards and shall be designed accordingly.

**4. References**

IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.  
IEEE Computer Society, 1998.

# Using social media in your research - Experts explore the practicalities of observing human behavior through Facebook and Twitter. <http://www.apa.org/gradpsych/2011/11/social-media.aspx>