W-eXpert

FREELANCERS

REQUIREMENT ANALYSIS REPORT

1394659 Serhat ALYURT

1395508 Ahmet Kutlu ŞAHİN

1448869 Caner KAVAKOĞLU

1448851 Yağız KARGIN

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1.0 INTRODUCTION

This report aims to provide information about the analysis of the problem. First of all, problem definition and the scope of the project are discussed. Secondly, market research results are reviewed and evaluated. Moreover, project requirements are presented and features to be developed according to the analysis' results are explained in detail. Data Flow Diagrams are used to visualize our design to be more understandable. There is also a risk management plan and a "Gantt Chart" included in the end of the report.

1.1Project Title

Our project is called *W-eXpert*.

1.2 Problem Definition

In this information era where we are living today, reaching information is getting more and more important. In this point, getting people who demand and supply information together, is the main problem. Our aim is to take humanity one step forward to the future through our philosophy of information sharing in this common platform. Even more we will take this service and insert it into a social environment.

Past life is nostalgia for people. Especially finding old friends, teachers, family who had lost contact with you, surprises you and brings back memories. To contact with these people, learning their conditions and their life is something charming. Even sharing life makes it unavoidable to join into this environment.

Everybody is fed up from lots of pages in result of search engines. We read and read lots of documents. Most searches will probably come out with new searches even about unrelated topics. Time is everything and getting information from a search engine will spend

our precious time with garbage information. Forums are also something people do not one to use because of detailed registration. Sometimes we really get lost in web pages reading to find our answer. There is no database or artificial intelligence that can give our specific answer other than human mind/knowledge. On the other hand, there will be questions which require human experience to be answered appropriately. Unless one to one conversation with a person is managed, we cannot find our answers with most details.

1.3 Project Scope and Goals

Our goal in this project is to find solution to the problems defined above. We will create a social environment with a human-to-human information delivering system, which saves time.

This will be an application that will come to your rescue in times when you seek for an expert that you may ask any information which you can't reach through search engines. On the other hand you can create your social environment or join an existing one. We will provide written communication by using technologies such as Jabber, Ajax, XMPP.

2.0 Process

In this part of report we will show the team organization and the Process Model that we will use in project. And also the tools we will use are included in this part of the report.

2.1 Team Organization

In our project group, Serhat ALYURT, Ahmet Kutlu ŞAHİN, Yağız KARGIN, Caner KAVAKOĞLU, we will adopt in Democratic Decentralized principle. For the task distribution and scheduling, see Gantt Chart at Appendix 9.2.

2.2 Process Model

In this project we will use Spiral Process model. Our topic is very wide and as new modules are added, model will be revised and it will be easy to proceed.

2.3 Tools We Will Use

To implement our project we will use certain tools:

- Dreamweaver: For the design of the GUI.
- MySql: To establish and maintain databases.
- Eclipse: JSP Tool.
- TomCat Apache Server: Server.

3.0 Researches

In this part we will show what we have done for our project in three parts: articles written about this topic, existing services in market and customer ideas.

3.1 Literature Survey

Our mission related technologies are explained at this part.

3.1.1 JSP articles

JSP is a Java technology that allows software developers to dynamically generate HTML, XML or other types of documents in response to a Web client request (Wikipedia).

In its short history, the Worldwide Web has evolved from a network of simple static information displays to a mechanism. Static HTML is fine for displaying relatively static

content. People have been creating interactive web-based applications, in which the content is based on a user request or system status, not the text that is pre-defined.

An early solution to this problem was the CGI-BIN interface. This solution has significant problems: Each new CGI request starts a new process on the server. If multiple users access the program concurrently, they consume the server's all available resources and the performance slows. Then individual web server vendors have tried to simplify web application development providing plug-ins for their servers. These solutions are web-server specific. For example, Microsoft's Active Server Pages™ (ASP) technology makes it easier to create dynamic content on a web page, however only works with Microsoft IIS or Personal Web Server. People write servlets that take an HTTP request from the web browser, generate the response dynamically and then send a response containing an HTML or XML document to the browser. Using this approach, if a developer or web master wanted to change the appearance of the page, they would have to edit and recompile the Java Servlet, even if the logic were already working. With this approach, generating pages with dynamic content still requires application development expertise. What is needed, clearly, is an industry-wide solution for creating pages with dynamically generated content. This solution should address the limitations of current alternatives by:

- Working on any web or application server
- Separating the application logic from the appearance of the page
- Allowing fast development and testing
- Simplifying the process of developing interactive web-based applications

The JavaServer Pages (JSP) technology was designed to fit this need. JSP technology provides an easy and good way to create dynamic web pages and simplify building web applications. It works with a variety of web servers, browsers and development tools, application servers and keeps content generation separate from business logic. JSP pages are automatically compiled when needed; web authors can make changes to presentation code without recompiling application logic. As part of the Java platform, JSP shares the Write Once, Run Anywhere™ characteristics of the Java programming language.

While JSP pages mainly provide a higher-level method of creating servlets, they bring other benefits as well. There are plenty advantages to using JSP:

- JSP pages easily combine static templates, including HTML or XML fragments, with code that generates dynamic content.
- JSP pages are compiled dynamically into servlets when requested, so page authors can easily make updates to presentation code. JSP pages can also be precompiled if desired.
- JSP tags for invoking JavaBeans components manage these components completely, shielding the page author from the complexity of application logic.
- Developers can offer customized JSP tag libraries that page authors access using an XML-like syntax.
- Web authors can change and edit the fixed template portions of pages without affecting the application logic. Similarly, developers can make logic changes at the component level without editing the individual pages that use the logic.

The Table below compares CGI, Perl and JSP. It shows why we don't choose CGI or Perl.

Feature	CGI/Perl	mod_perl	JSP/Servlet
Portable across Web servers	Yes	No	Yes
Portable across hardware/OS platforms	No	No	Yes
Runs multiple concurrent sessions with-out spawning separate processes for each	No	Yes	Yes
Protects against memory leaks	Yes	No	Yes
Scripting language	C, Perl	Perl	Java
Type safety	Loosely typed	Loosely typed	Strongly typed; all values treated individually
Maintains state between requests	No	No	Yes
Maintains persistent database connections	No	Yes	Yes
Portable database interfaces	Ad hoc	Ad hoc	Yes, JDBC
Runs entrusted code safely	No	No	Yes

Ability to limit program capabilities	Limited (OS level)	Limited (OS level)	Extensive with Java 2 SDK, Standard Edition v1.2 on a per-Servlet basis
Team development	Difficult	Difficult	Easy
Ongoing maintenance	Difficult	Difficult	Easy
Deployment	Cumbersome	Cumbersome	Easy with .war files (Java Servlet 2.2)
IDE support	No	No	Yes

After eliminating CGI and Perl, we had to consider two alternatives PHP and JSP. Although PHP is also a good web application development tool and cooperate with MySQL, considering the performance, JSP is far better than PHP. JSP has a powerful Java Database Connectivity (JDBC) API supported, but PHP does not provide a uniform database connective interface. Our survey leads us to find the difference between PHP and JSP and to choose JSP:

PHP is an open-source page scripting/templating system that is very similar to JSP and ASP. It defines its own scripting language, which looks and feels a lot like Perl.

PHP is very popular and powerful. However in the long run, JSP and Java provide a more powerful system. Here is a list of reasons why JSP is better than PHP:

- Anything you can do with PHP, you can do with JSP; the reverse is not true.
- JSP is much more powerful, since it has access to all the Java libraries. PHP only has access to PHP libraries
- JSP is Object-Oriented, so is easier to debug, maintain, and improve. (PHP also allows objects, but the object model is more primitive, and most scripted pages ignore PHP objects and just use normal variables.)
- In PHP separation between content and logic is partial, however it is fully separated in JSP. So the target user of PHP is programmer while JSP's is a web developer and page author.
- Java programmers appreciate the importance of a clean language with complex OO data structures and strong typing.
- With JSP, if the code inside a page gets too large, or if you want to use it elsewhere, you can cut it out, make it into a Java class, and call it from anywhere

in your application (even not from a page). With PHP, you're stuck inside the HTML box.

- JSP's concept of state management and persistence is more explicit and powerful than PHP's. With JSP, you can specify whether a variable persists for the page, the request, the session, or the application (or if it's just local to the function). The JSP engine automatically does the right thing with cookies so you have access to the variable on later requests. With PHP, you just have "global" and "not global", you don't have automatic session management, and have to do your state thing manually with cookies or hidden variables.

3.1.2 Jabber (XMPP) articles

After having a general idea about JSP now we will look at XMPP (Extensible Messaging and Presence Protocol) and Jabber.

Summary of XMPP

The Extensible Messaging and Presence Protocol (XMPP) is the IETF's formalization of the base XML streaming protocols for instant messaging and presence developed within the Jabber open-source community in 1999.

As specified in RFC 3920, the core "transport" layer for XMPP is an XML streaming protocol that makes it possible to exchange fragments of XML between any two-network endpoints. Authentication and channel encryption happen at the XML streaming layer using the IETF-standard protocols for Simple Authentication and Security Layer (RFC 2222) and Transport Layer Security (RFC 2246). The normal architecture of XMPP is a pure client-server model, wherein clients connect to servers and (optionally) servers connect to each other for inter domain communications. XMPP addresses are fully internationalized, and are of the form <node@domain> for clients.

A wide variety of applications can be built on top of the core XML streaming layer. The first such application is instant messaging (IM) and presence. The basic IM and presence extensions specified in RFC 3921 address the requirements of RFC 2779, as well as the contact list functionality expected IM and presence systems. RFC 3921 also makes it possible

to separate the messaging and presence functionality if desired (although most deployments offer both).

The history of XMPP is that the protocols were initially developed within the Jabber open-source community. After several years of implementation and deployment experience, the base protocols were submitted to the Internet standards process by the Jabber Software Foundation (now XMPP Standards Foundation) in 2002. After appropriate formalization in the areas of security and internationalization, the base protocols were approved as IETF-approved instant messaging and presence technologies in October 2004.

In addition to the base protocols specified in RFC 3920 and RFC 3921, there exist many XMPP extensions for functionality that was not required by RFC 2779. These extensions are generally specified in the XEP series published by the XMPP Standards Foundation.

The following list describes the main XMPP protocol specifications and XMPP extensions that are in wide use today:

- RFC 3920 -- Extensible Messaging and Presence Protocol (XMPP): Core -- the core protocols for XML streaming, including strong authentication, channel encryption, and internationalized addressing.
- RFC 3921 -- Extensible Messaging and Presence Protocol (XMPP): Instant Messaging and Presence -- base XMPP extensions for instant messaging, contact lists, presence, and privacy blocking.
- RFC 3923 -- End-to-End Signing and Object Encryption for the Extensible Messaging and Presence Protocol (XMPP) -- an XMPP extension for end-to-end signing and encryption.
- XEP-0030 -- Service Discovery -- a robust protocol for determining the features supported by other entities on an XMPP network.
- XEP-0115 -- Entity Capabilities -- a real-time profile of XEP-0030 for advertising capability changes via presence.
- XEP-0004 -- Data Forms -- a flexible protocol for forms handling via XMPP mainly used in workflow applications and for dynamic configuration.
- XEP-0045 -- Multi-User Chat -- a set of protocols for participating in and administering multi-user chat rooms, similar to Internet Relay Chat but with stronger security.

- XEP-0096 -- File Transfer -- a protocol for transferring files from one XMPP entity to another.
- XEP-0071 -- XHTML-IM -- a W3C-reviewed protocol for exchanging XHTML-formatted messages between XMPP entities.
- XEP-0124 -- HTTP Binding -- a binding of XMPP to HTTP rather than TCP, mainly used for devices that cannot maintain persistent TCP connections to a server.
- XEP-0060 -- Publish-Subscribe -- a generalized framework for publish-subscribe functionality, mainly used to deploy content syndication, extended presence, and event notification services.

The XEP series also defines XMPP extensions for a wide range of additional features, including XML-RPC and SOAP bindings, in-band registration, extended presence, geolocation, and reliable message delivery.

XSF Mission

The mission of the XMPP Standards Foundation (XSF) is to build an open, standardized, secure, feature-rich, widely deployed, decentralized infrastructure for real-time communication and collaboration over the Internet.

They seek to achieve that goal by developing the world's best open protocols for instant messaging, presence, and other forms of near-real-time communication, based on the IETF's Extensible Messaging and Presence Protocol (XMPP). "Best" means simplest, most extensible, most powerful, most secure.

The XSF's product is protocols; the XSF's market is developers. They do not write code; instead, they make it possible for others to write code. They listen to developers, service providers, and end users regarding the kinds of problems they want to solve, and company work with them to create protocols that solve those problems. Their standards process is developer-friendly. They strenuously avoid design by committee and they place a premium on the values that built the Internet in the first place: rough consensus and running code.

They showcase the work of such developers, whether they are open-source or commercial. They document our protocols in a clear, accessible fashion, and they show

developers how their protocols can solve problems and help them innovate. But they do not market ready-made solutions to organizations or individuals: that is the job of the developers they serve.

They value freedom, openness, and good technical design. All of their work occurs in public forums (e.g., the extensions mailing list) among an open community of technical experts, led by the XMPP Council. The output of their work is both openly available (in the XEP Series) and freely usable (in accordance with our liberal IPR Policy). And they strive to ensure that their work always meets the highest standards of technical excellence.

Summary of JABBER

Eight years ago, Jeremie Miller released the first code for an open chat technology he called Jabber. Since the beginning, the logo they have associated with Jabber technologies has been the light bulb, indicating the importance of presence and availability information as a catalyst for communication. So we will consider the "state of the bulb".

The Jabber community has been growing ever since Jeremie made that first announcement on Slashdot. In November of 1999, a small team of developers had already created the core streaming XML protocol, but that technology was not well known; whereas now Jabber technology is on the way to becoming a true Internet standard, in large part because the IETF (the main standards body for the Internet) approved the core Jabber protocols in 2004 under the name XMPP. Here are some of the other changes Jabber accomplished in eight years:

- In 1999, there were only a few Jabber servers running on the Internet, but now there are tens of thousands of servers, including mission-critical deployments at most Wall Street investment banks, large companies throughout the world, the U.S. government, and huge consumer-oriented services like Google Talk, NTT, and LiveJournal Talk.
- In 1999 there were perhaps only a few thousand Jabber users in the world, but now there may be 40 or 50 million users.
- In 1999 there was only one code base for running a Jabber server, but now there are a dozen.

- In 1999 there are Jabber clients for Windows, Linux, and Macintosh, but now there are clients for just about every computing platform you've ever heard of.
- In 1999, Jabber was a small movement on the fringes of the open-source world, but now important hardware and software companies like IBM, Apple, Sun Microsystems, Nokia, Sony, Digium, Psion, and more are all supporting XMPP.
- Although the early developers knew that our streaming XML technology could be used for much more than instant messaging, now we know it for a fact, because that technology is being used to power systems as diverse as voice over the Internet, gaming, point of sale integration, network monitoring, inventory management, expert location, library integration, and geospatial alerts -- plus many other applications that companies don't want to talk about because they consider Jabber to be the "secret sauce" behind their success.

What is Jabber doing now? They are continually working to improve the security profile of Jabber/XMPP technologies, most recently by establishing an intermediate certification authority that makes it much easier for companies and service providers to offer secure connections to their Jabber servers. They are actively developing an end-to-end encryption technology that will give Jabber users the kind of privacy they would expect when having a chat in their living room or boardroom. Although the Jabber network has always been virtually spam-free, they are making sure that spam never ravages open instant messaging as it has already done to the world's email infrastructure. They are working to make Jabber technologies more scalable, more robust, more reliable, more powerful, and more fun. They are extending XMPP to enable voice chat, video chat, white boarding, and other real-time communication methods. In short, they want to make sure that Jabber/XMPP technologies provide a stable, secure platform for Internet communication.

3.1.3 AJAX (XML, JS) articles

Ajax: (*Asynchronous JavaScript and XML)*

Ajax is a method that creates interactive applications in the internet pages, by using JavaScript and XML. The most common usage area is to make changes in display without any reloading of the page. With using the XMLHttpRequest, we can make many independent operations.

The purpose of the Ajax is that; to create web pages that update the page faster by the small data transfers with the server. So the user will not think about refreshing the page continually, which means the increase of the interaction, speed, and usability of the page.

The Ajax technique uses the technologies below:

- HTML and CSS to visualize the data and make changes in display
- DOM which is accessed by a JavaScript or Jscript like scripting language, to dynamically update the data.
- XMLHttpRequest object which is used in exchanging data with the server.

Advantages of using Ajax are mainly: configuring the bandwidth and updates in user interface. In the process of generating the HTML in web browser, and using the JavaScript operations, the data coming from the server is smaller in size. So it can be observed that the Ajax based web pages are loaded faster. The most important claim of Ajax is updating in user interface.

JavaScript:

JavaScript which is developed with Netscape Navigator 2.0 and is a language interpreted in client-side. It is used to maintain dynamic content in web pages. JavaScript is used in millions of Web pages to improve the design, validate forms, detect browsers, create cookies, and much more. It is the most popular scripting language on the internet.

What is JavaScript?

- JavaScript is a scripting language
- JavaScript was designed to add interactivity to HTML pages
- A JavaScript is usually embedded directly into HTML pages
- JavaScript is an interpreted language (means that scripts execute without preliminary compilation)
- Everyone can use JavaScript without purchasing a license

What can a JavaScript Do?

- **JavaScript gives HTML designers a programming tool -** HTML authors are normally not programmers, but JavaScript is a scripting language with a very simple syntax! Almost anyone can put small "snippets" of code into their HTML pages
- **JavaScript can put dynamic text into an HTML page -** A JavaScript statement like this: document.write("<h1>" + name + "</h1>") can write a variable text into an HTML page
- **JavaScript can react to events -** A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element
- **JavaScript can read and write HTML elements -** A JavaScript can read and change the content of an HTML element
- **JavaScript can be used to validate data -** A JavaScript can be used to validate form data before it is submitted to a server. This saves the server from extra processing

- **JavaScript can be used to detect the visitor's browser** - A JavaScript can be used to detect the visitor's browser, and - depending on the browser - load another page specifically designed for that browser
- **JavaScript can be used to create cookies** - A JavaScript can be used to store and retrieve information on the visitor's computer

Beside these, JavaScript is an OOPL (object oriented programming language). So we can create and define our own objects.

XML:

XML refers to eXtensible Markup Language, which means that XML is extensible or changeable. HTML (Hypertext Markup Language), on the contrary, is a non-extensible language and is the default language that sits behind many of the web pages in your web browser, along with many other languages. HTML does not allow changes to web pages. HTML web pages are static and cannot be changed when viewed in a browser. XML can be considered an extensible form of HTML. This is because HTML is restrictive in terms of the tags it is allowed to use. Unlike HTML, XML is extensible and thus, it is capable of being extended or modified by changing or adding features. XML can have tags of its own created that are unique to every XML document created. An XML document when embedded into an HTML page needs the predefined tag that an HTML page does, such as <HTML> and <P>, but XML can also make up its own tags as it goes along.

What Is XML Capable Of?

So, XML is not limited to a predefined set of tags as HTML is, but allows the creation of customized tags. The advantages of using XML could loosely be stated as follows:

- **Flexibility with data:** Any information can be placed into an XML page. The XML page becomes the data rather than the definitional container for data.
- **Web page integration:** This becomes easier because building those web pages becomes more generic. Web pages are data driven (based on content in the web page) rather than relying on the definition of the tags (programming language–driven) and where the tags are placed.

- **Open standards:** XML is completely flexible. No single software company can control and define what tags are created, what each tag means, and where in a document tags should appear. XML is a little like a completely generic programming language.
- **Enhanced scalability and compression:** When sending web pages over the Internet, XML pages can contain just data. All the coded programming tags required for HTML are not needed.
- **Irrelevant order of data:** The order in which data appears in an XML page is unimportant because it is data. Data can have things applied to it at the client site (in a browser) to change it, if you use something like eXtensible Style Sheets (XSL).

3.2 Marketing Research

To obtain general ideas about our project first of all, we have to search for existing sites related to what we have mentioned about the problems and we tried to find some solution. In the project we will create there will be a social platform. Nowadays Facebook and MySpace are favorites for this purpose. Especially Facebook is very popular with its lots of services. So our market research starts with Facebook's properties and why it is superior from MySpace:

- Privacy

Facebook's success starts with it being a clean, secure, and stable environment. Basically, it is the opposite of MySpace. Facebook puts the user in control, allowing them to limit specific pieces of information they want to share within their various networks.

- News and Mini-Feeds

Facebook's News and Mini-Feeds show updates from a user's networks on his/her homepage: "Mike and Bill are now friends"; "Michelle posted a link." "April tagged Jen in a photo." etc. It is what keeps users logging in, expanding their networks (e.g., Mike sees that Bill became friends with Andy and knows Andy too, so then he connects with him), and more

generally being active on Facebook. Feeds keep Facebook fresh; their absence on MySpace makes it stale and boring.

- Status Updates

Facebook Status Updates are to share "what you are doing" with your friends. It is better then Twitter (another status sharing service: http://twitter.com) in the way to define who can see your status (limited profile & privacy).

- Mobile

Of course, Status Updates couldn't be compared to Twitter unless mobile updates were available. And they are. But in addition to updating your status, people can post links to their profile and get info about their friends - all via text message commands. There is also a very sleek mobile version of Facebook available at http://m.facebook.com. If we can do this to MySpace, it won't be good idea.

- Near Unlimited Photo Storage / Advanced Photo Editing

While MySpace is out buying Photobucket, Facebook allows near unlimited photo storage on its site. Each album is limited to 60 pictures but there is nothing indicating the maximum number of albums a user can have. Facebook also allows people to "tag" photos. See your friend Sally in a photo? Tag that portion of the photo and it will get associated with her. You can even view all photos tagged with "Sally" (users can remove the tags if they don't want them on the photos).

- Facebook Marketplace

Yes, it is true that MySpace has this sort of functionality (i.e., a classified section). But in Facebook, you leverage privacy and perhaps more importantly, benefit from targeted listings. Items are posted into networks, so it makes them easier to find and more relevant. Classifieds do not work as well unless they are geographically based.

- API

The Facebook Developer Platform allows interested parties to build on top of Facebook. Think Facebook as the "Salesforce.com" of the social networking world.

On the other end of the project, asking questions to some experts will make it more useful and educational. After some research on the internet we found some services that can come up with question answering parties. www.qunu.com and www.messagr.com are two sites that can support this service. Firstly we'll look for qunu:

Qunu is a really neat concept. As you can see on the alpha testing site, the service allows you to search for experts on technology topics and get instant answers to your questions. Qunu runs on a web-based Jabber IM client, but you can ask for help on the site itself. As an expert, you receive questions through your desktop Jabber client. There's no need to sign up, but if you do you can create a special "@qunu.com" Jabber ID - you can also log in with your existing Jabber account. In many ways, it's like a chat-based version of Fixya.

This is a smart idea for a number of reasons. Firstly, users are overwhelmed by the amount of content out there, and often just want a quick answer - the near exponential growth of Yahoo Answers is testament to that fact. Secondly, they've had the sense to focus on tech questions. This means that all the topic areas will quickly be filled by experts - they can expand to other areas once they've proved the core model.

But most of all - **there is huge, huge potential here.** While the real experts won't answer your questions for free, they will do so for a fee - Qunu could enable a marketplace for tech help, and users would be incentivized to give good advice in the free section so they could advance to the paid questions. Bloggers could even put a Qunu question box on their site and use it as a lightweight version of Ether. Additionally, Qunu could log all these conversations (with authorization from both parties, of course), and build up a huge knowledge base that saves everybody time. Qunu is a truly useful idea and I hope it succeeds.

Secondly we collect information about another question answering service by www.messagr.com. It is a little more complicated than Qunu. In this service you give your Skype (visual and vocal communication service) details and again you wait for people to contact you and answer them. Very few have the knowledge about this program. It has lots of

problems like users must have Skype accounts and people can disturb others with lots of unrelated conversations.

We realized both services as not enough for a question answering service, because they are not in a social environment and irrelevant things easy to come up. If we can put this service in a social platform with all its privacy and security requirements, it will be a great service that everybody uses for educational purposes and also for fun.

3.3 User Survey

We had conducted a questionnaire with 4 people who are Internet users.

We have asked some questions about their interest in social network sites, their thought about searching using search engines. Then we have explained how our project will be and asked them if they want to use such a system or not.

These are the questions asked in the questionnaire and users' answers:

1. Are you using Facebook or other sites like Facebook? What do you think of these sites?

- All users expect one are using Facebook. The one that is not using said that he does not like the concept of social network. All others think of these sites good and said that Facebook makes them encounter to their old friends with who they lost contact with.

We haven't asked questions 2 and 3 to the user who is not using Facebook.

2. What are your expectations from a social network system? Does Facebook fulfill your wishes?

Two of the expectations is that "to find a person who has the same enjoyment with me". One of the user said that "to find a person who has the same interest area with me".
They said Facebook fulfills their wishes but they thought the groups should be qualified.

3. Is there any property that should be removed from Facebook or should be added to Facebook?

One of them said: “Yes, I do not want to see what my 40 friends do. An instant messaging system will be useful”.

The others said “No”.

4. In general, do you want to get general information about a topic or learn the answer of a specific question related with the topic?

All of them said “to learn the answer of a specific question”.

5. While using the search engines how long it will take on the average to get the information that satisfies you?

The average of the all is approximately 20 minutes.

6. While using search engines, have you ever experienced you could not find the exact information that you are looking for?

Three of them said “%40 of all searches.”

One of them said “%30 of all searches.”

7. Have you ever said that “I want a person that knows this topic” while searching in the Internet?

All of them said “Yes of course. Always”

In this part of the questionnaire we explained them superficially our project.

8. This is our project, will you use it?

All of them said “Yes I will. However I think that you can not find enough experts and perhaps for some topics this will be useless.”

One of them said “Yes I will but only the expertise matching part. This option will be very useful when there are many members.”

9. Do you want to answer questions about topics you know well and be famous and well-known with the ratings from users?

Three of them said “I don’t think so.”

One of them said “I want to be an expert and make my rating increased.”

10. What do you think of a dictionary (or an encyclopedia) embedded in our site that includes the explanations and question-answer pairs about the topic you are looking for?

All of them said “Yes. It will be very good if I get the qualified information, not the unnecessary information from search engine results.”

We have done this questionnaire to see what we should add to the project and to compare our project with expectations of users. The users who have filled in our questionnaire are young people, especially students. Although target group of the project includes all Internet users, we believe that most of the users will be young people especially students.
We have got interesting answers to the questions and these answers tell us we are on the right way. Our first question-answer pair shows us %75 of the students/young people find social network sites like Facebook useful.

Our second question asks the expectations of the users. They expect to find people who have the same enjoyments and interest areas with them. Our project will provide these, because we have ‘groups’ feature which brings people with similar properties together. What we have learned from the answer of the third question is instant messaging feature of our project will be very useful.

Questions through 4-7 are related with searching using search engines. In question 4 we have understand that most of the people are using the search engines for learning the answer of a specific question rather than for getting general information. This answer supports the concept of our project.

Users who filled in the questionnaire are spending on the average 20 minutes for each search on the Internet. Most likely they will get answers to their questions in less than 20 minutes with our project.

We have taken out these results from the answers of questions 6 and 7: Approximately %38 of the queries to the search engines results with learning nothing. Users think that there

are some things which can only be explained by a person. At the end of the project we will provide this person to the users.

From questions 8 and 9 we have learned that our project will be very useful when it is completed. %25 or less of the users will want to be an expert about which topic she/he is interested in. This ratio is enough for us, because we know that everyone can not be an expert.

Answer of the question 10 tells us all users will want and use the dictionary feature because it provides them qualified information.

In conclusion the internet users need our project not for social issues, also for reaching information issues. Facebook and search engines seem enough for people but it is not, because people want more useful and less time consuming features (that can be obviously seen from the answers to the questions) and we will provide them these features.

4.0 Project Requirement

Our project has some ideal requirements in server side and client side. First of all we will describe functional requirements and behavior of the general options of our project. After that we will look for security, usability, platform independencies and privacy alike non-functional requirements. In the last part of this section we will show what users need to browse our service.

4.1 Functional Requirements

In this part, functions that will be used by W-eXpert are described. For use-cases see Appendix 9.1.

4.1.1 Log-in Menu

A login screen for our database is required. But we do not want them to get bored with lots of registration forms. So an e-mail address of the user and their mail password will be taken and a user profile will be created if there isn't one with that mail address already.

4.1.2 Editing Profile

A profile editing page is required to be more social in this environment. A profile picture and a general profile info creation must be included. A profile can always be edited by owner.

4.1.3 Searching Friends

User can search his friends in user database (name, mail address, education etc.). The main purpose is to make contact with his friends all over the world.

4.1.4 Sending Friend Request

Users can request to be friends via mail or message. User who receives the request confirms or ignores.

4.1.5 Searching in Dictionary

There will be a dictionary which users find answers to their questions. Dictionary will include entries that experts have written or questions that are already answered.

4.1.6 Searching for an Expert

Users can search for the experts who are able to help them in certain topics. This property is maintained after a search for a certain topic.

4.1.7 Sending dialog request to an expert

After finding an expert who the user thinks that he can be helpful for his topic, user sends him a request for a conversation. Expert who receives the request confirms or ignores.

4.1.8 Starting conversation with a friend

Users can start a conversation (instant messaging) with an online friend via their e-mail services that they have declared at log-in.

4.1.9 Joining to a group

Any user that sees himself sufficient to answer questions related to this group description, may join this group, accepting to be an expert and answering the questions asked in this group.

4.1.10 Creating a Group

Any user may create a group under a certain topic which he thinks that it is necessary to supply information about.

4.1.11 Sharing Files

Each user will have his own space which he can put and share his documents. The users in his friend list will be able to reach these documents according to his permission.

4.1.12 Using Application

Developers will be able to integrate applications to the system and users can use them by accepting the application invitation requests.

4.1.13 Writing to Dictionary

Only expert will have a right to add entries for a topic in dictionary. Or an expert will be able to create a topic.

4.1.14 Answering Questions

After a conversation request is accepted by an expert, he answers the questions asked to him. After the conversation, the expert will be graded by the user.

4.1.15 Redirecting the Request

After an expert gets a request from a user for a conversation, he will be able to redirect this request to a different expert.

4.1.16 Creating an Application

Developers can develop applications by using the API supplied by the system and integrate it to system.

4.2 Non-Functional Requirements

Our Project will provide services with certain non-functional requirements given below:

4.2.1 Privacy

Like Facebook, our social platform will ensure users privacy. If they want they can hide their profile from anyone they want. Expert privacy is another topic for this section; they should not be distributed too much with users and their questions if they do not want. They must feel free to answer/spend time. Their privacy is more important than other users, so if they want they can use nicknames other than their profile names. If they do not want their names/information will not be shown in dictionary or instant message service. There will be only friend-to-friend instant messaging and expert-to-friend instant messaging, so people unknown to you cannot disturb you.

4.2.2 Availability

Our project's target is a huge population, so we will make this project reachable by everyone. Our only requirement for client side will be Java Runtime Environment and a mail address.

4.2.3 Reliability

Our question answering system will be reliable (especially in future). We make the question answering system as people can rate experts. Another rating system will be held by our system (such as response time). In a huge populated environment a natural selection will be applied over users who want to be experts. So the experts' rating and their information, which is kept in our database, will be criteria for people to choose their experts. With this option we lead experts to be gentle and trustful to others. We will also create a triangle form for the experts according to their ratings and experience within the system. To walk up in the triangle form, experts will want to behave polite.

4.2.4 Usability

Our project will be a user-friendly service. First of all everything must be as simple as it can be. People do not deal with hardly understandable options. Search, ask, invite, create a group etc. should be very easy to comprehend.

4.3 User Side Requirements

-Any Web Browser
-JRE (Java Runtime Environment)
-Any Mail Account

5.0 Usage Scenario

Our scenario begins with entering the log-in page. In this page user gives the mail address and password of his mail account. The system checks this data via jabber server connecting to this given mail server. After the validation of these information user reaches the main page.

In main page; there will be areas of user profile, friend list, application in-use list, search panel and a menu bar.

-user profile: after entering the mail information the system checks whether this profile exists or not. If it does, it is loaded from the database otherwise a default and empty profile is created for this user. This profile can be edited.

-friend list: with the help of the "people search" any user can look for a friend and send them a request to be friend. If this person accepts this request, his profile will be added to the user's friend list. There will be status options (offline, online, busy, away, etc) for any user which will be seen by user's friends. For online friends the system will supply an instant messaging function. If the friend is offline written message will be sent to his mailbox.

Application in-use list: users can be invited for an application. If the user will accept it, this application will be added to his application in-use list.

Search panel: this panel will provide two options: search in dictionary and search for an expert. If the topic is searched in dictionary, the result will be displayed on the same page, the profile area will be replaced with the result. If the topic is searched in expert area the profile screen replaced with the related expert list and their groups. User can choose any of them and send a request to these experts with a question. If the request accepted by the expert a dialog screen will appear. The expert can ignore or redirect this request to another expert if it is so this information will be sent to the user. Within this dialog some document links can be sent by the expert or expert can also redirect this conversation to another expert. At the end of this conversation the user will rate the expert considering the performance of the expert.

-menu bar: inbox, documents, profile edit, groups, friends, option tabs will be included to this menu bar. For every document that is uploaded to this document space there will be two options: share or not share. This bar will be displayed on all pages.

When the groups tab selected the groups that you have a membership will be displayed. You can reach the group pages selecting them. Additionally there will be group search and create a group option.

To describe the group pages; there will be two main parts: First the recently added entries that are entered by the high level group members (experts), second, online group members to send a request for a conversation. There is a critical point that group member nick is different from the user name. The purpose is to provide privacy to the expert. Users can also join this group accepting to be an expert.

Any user can create a group for a certain topic writing a description for this group. Group members (experts) will be rated as they answer to the questions that are asked to them. When they reached to an adequate level they will be able to write entry to the dictionary and these entries will also be displayed in the group pages.

Describing the “option” tab in the menu bar; there will be some privacy configurations like profile detail sharing. Also expert can determine the maximum number of the user who asks his at the same time.

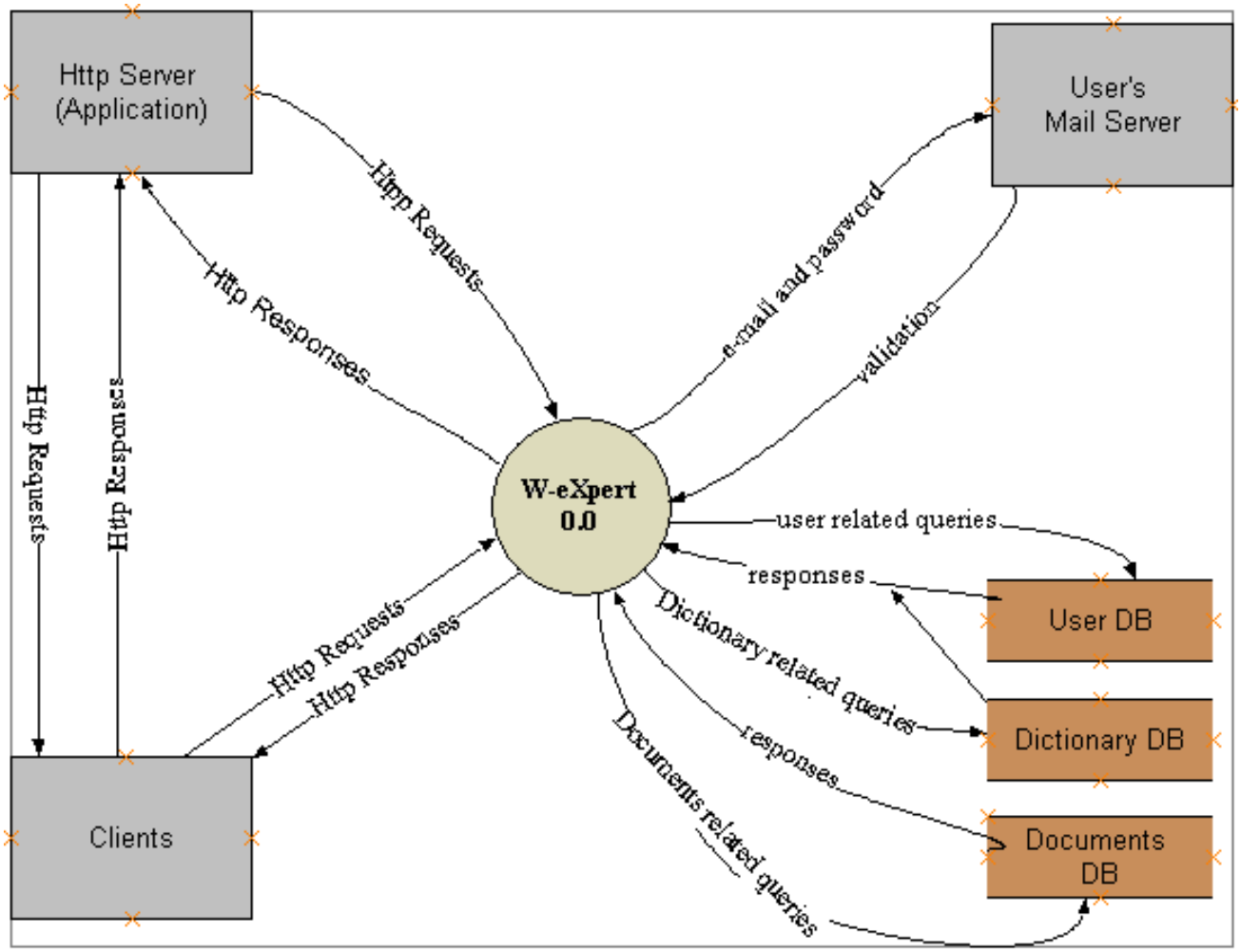
For the developers who want to add applications to the system will be directed to the specific API through a link on the main page. After developing an application, developer can integrate it to the system by sending this to his at least ten friends.

6.0 Data Modeling

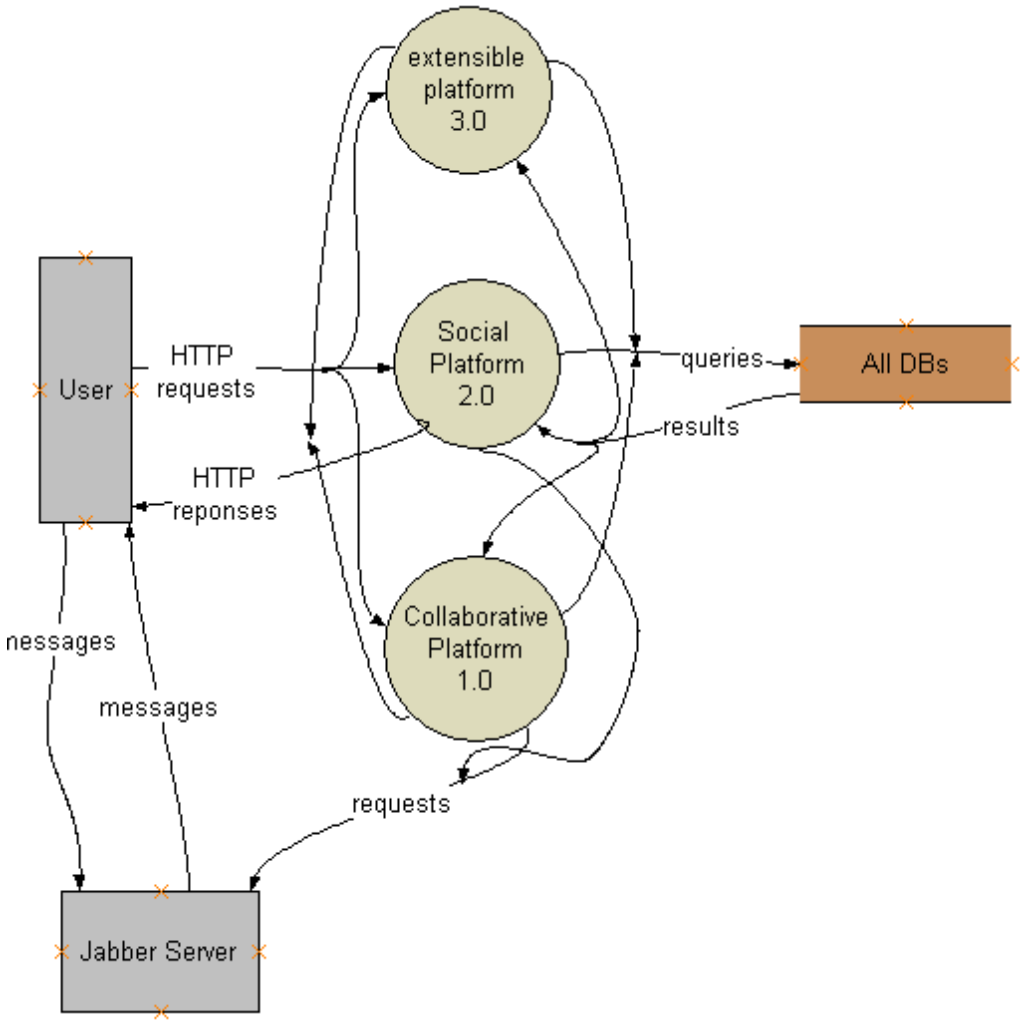
In this part, we will show how w-expert related data s behaves.

6.1 Data Flow Diagrams

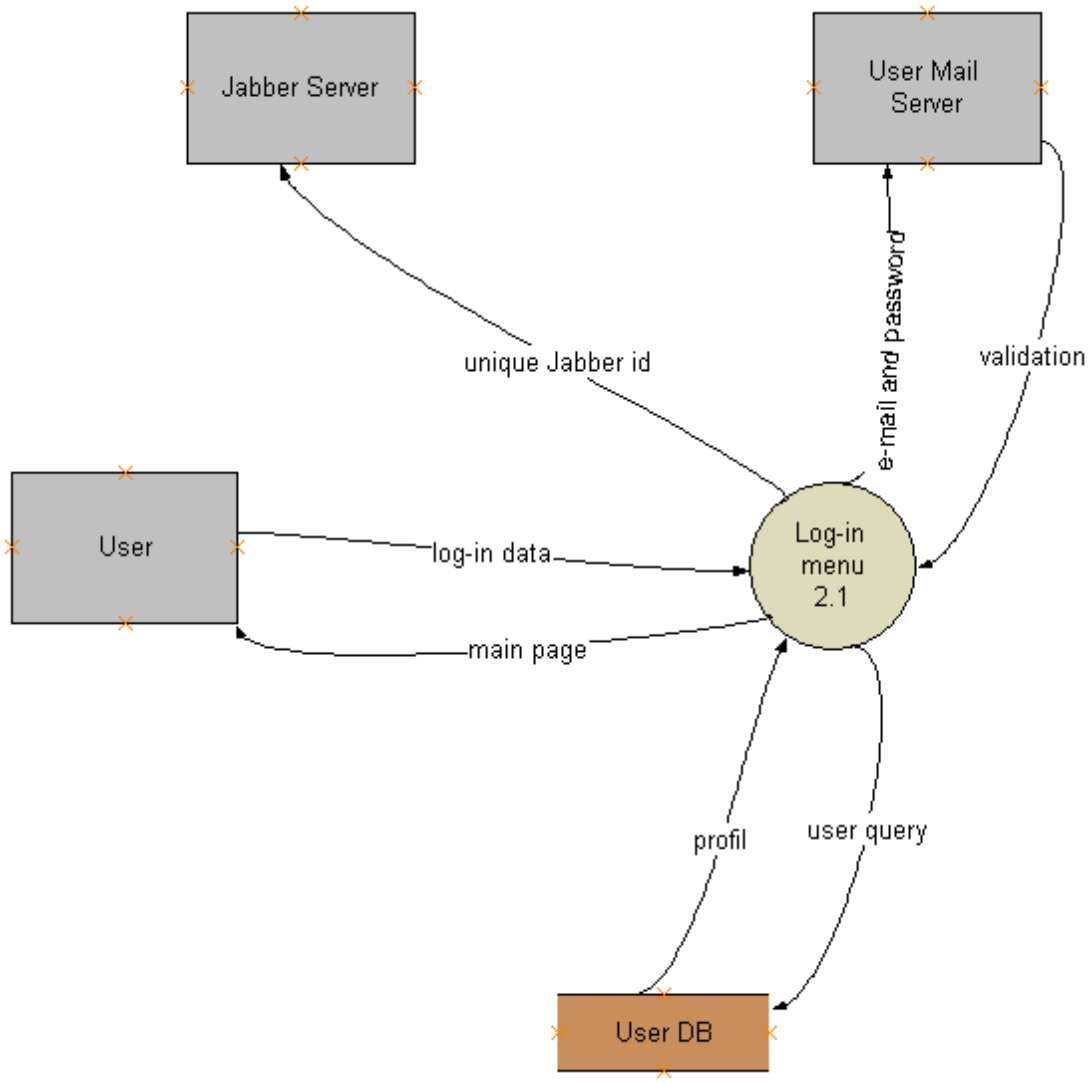
LEVEL 0:

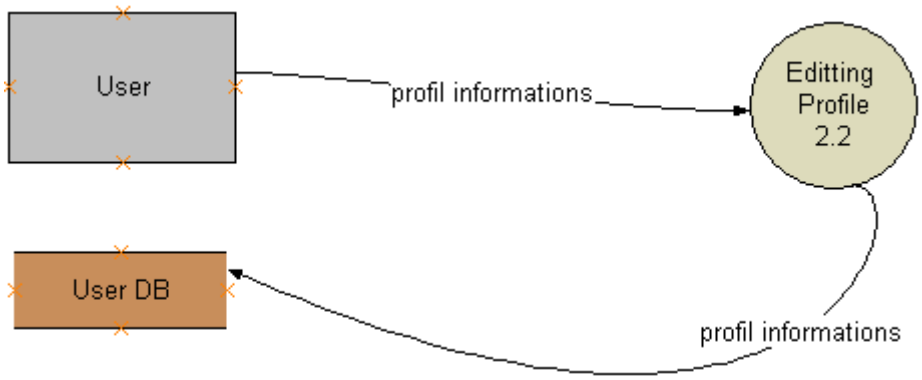


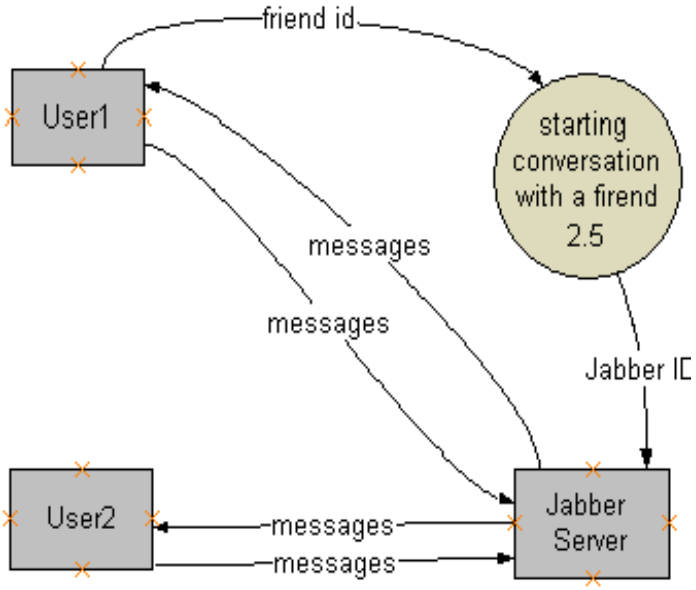
LEVEL 1:

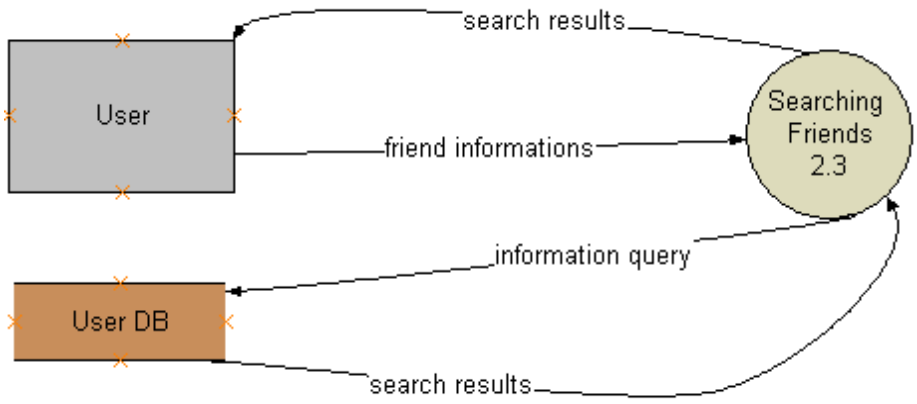

extensible platform 3.0
Social Platform 2.0
Collaborative Platform 1.0
User
HTTP requests
HTTP reponses
queries
results
All DBs
nessages
messages
requests
Jabber Server

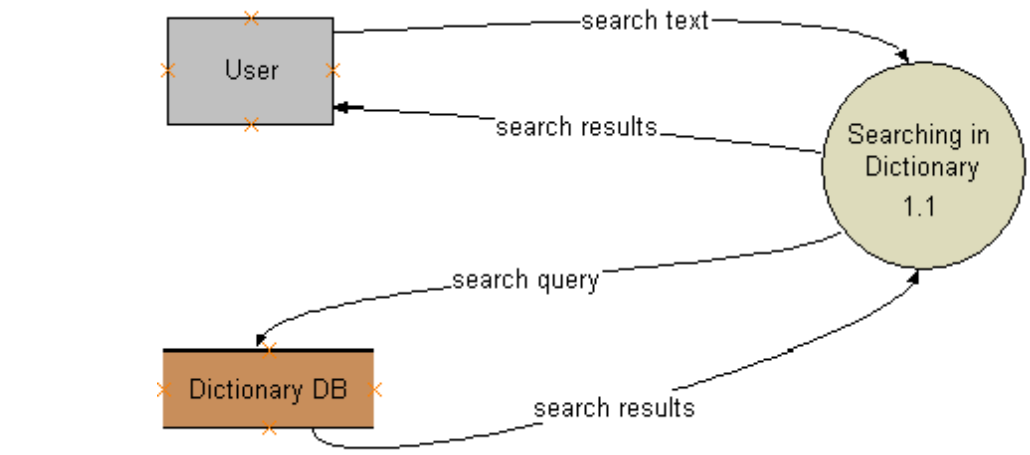
LEVEL 2:

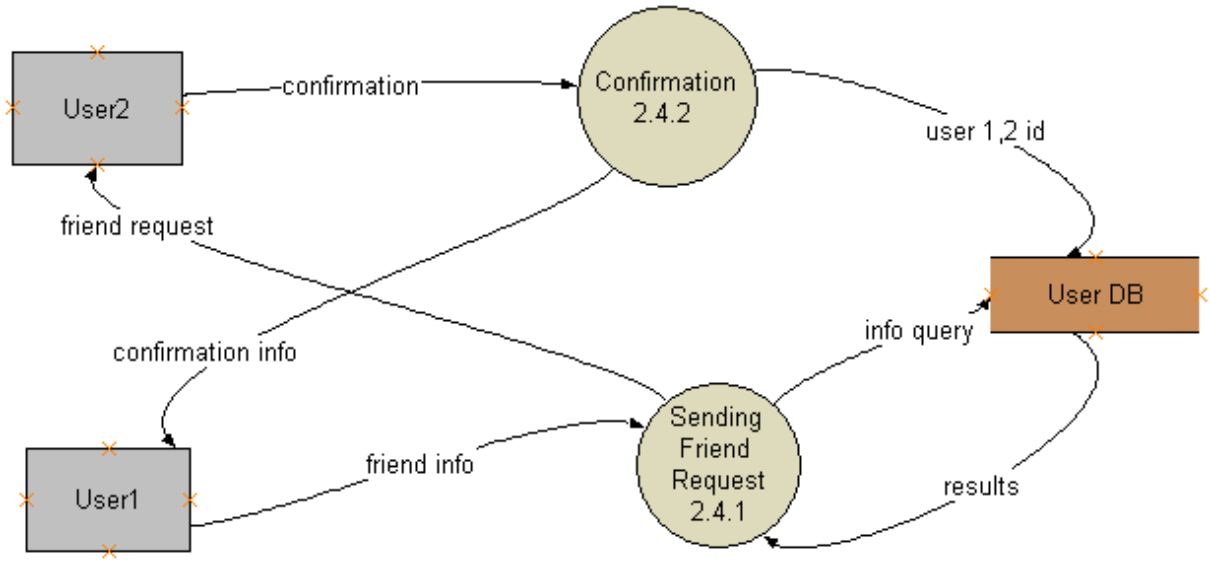

Jabber Server
User Mail Server
unique Jabber id
e-mail and password
validation
User
log-in data
Log-in menu 2.1
main page
profil
user query
User DB

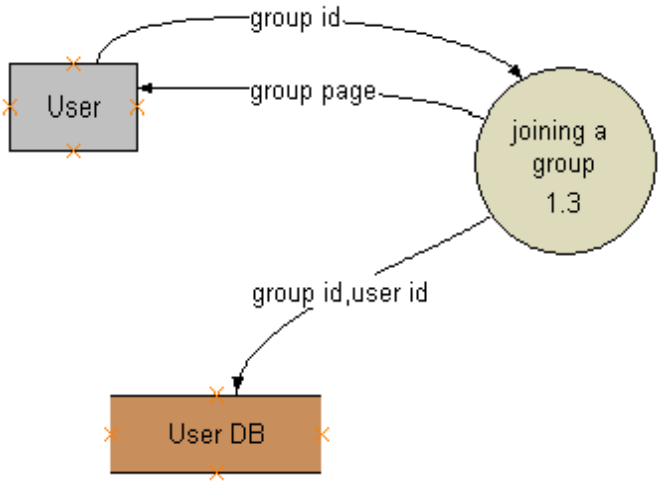

User
profil informations
Editting Profile 2.2
User DB
profil informations

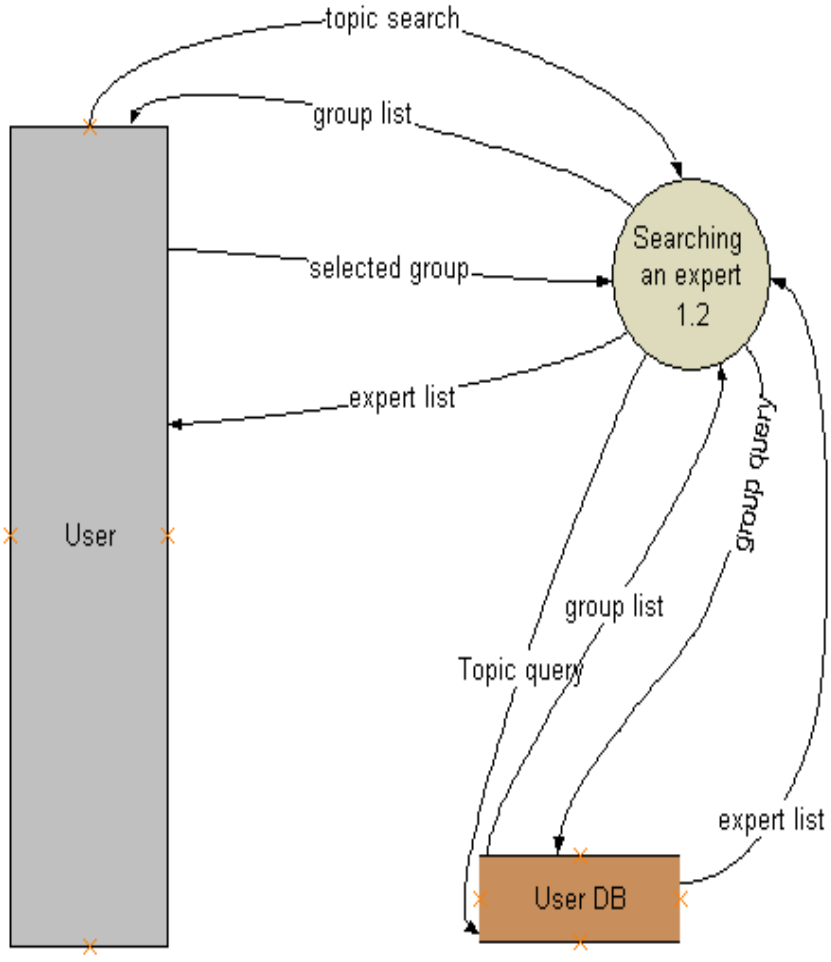

friend id
User1
starting conversation with a firend 2.5
messages
messages
Jabber ID
User2
messages
messages
Jabber Server

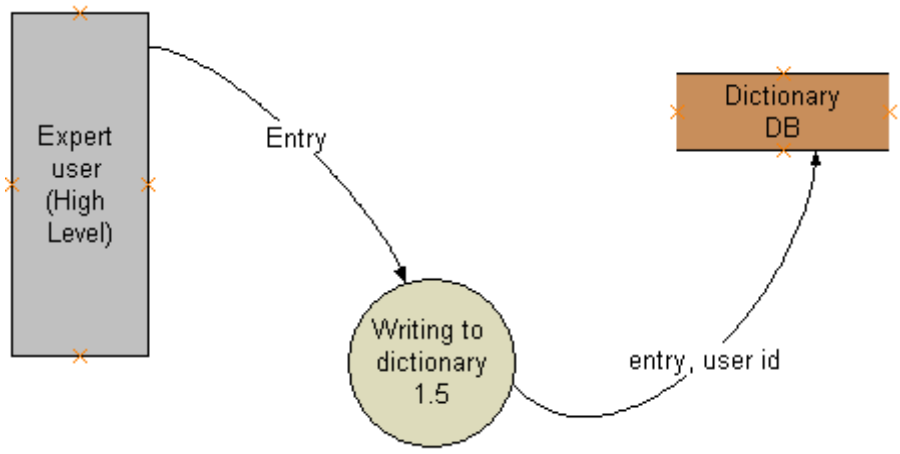

search results
User
Searching Friends 2.3
friend informations
information query
User DB
search results

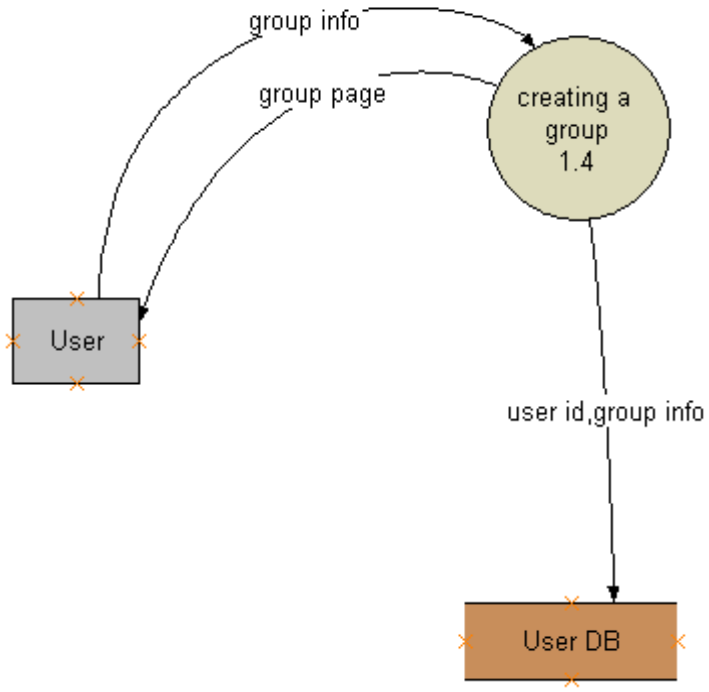

User
search text
search results
Searching in Dictionary 1.1
search query
Dictionary DB
search results

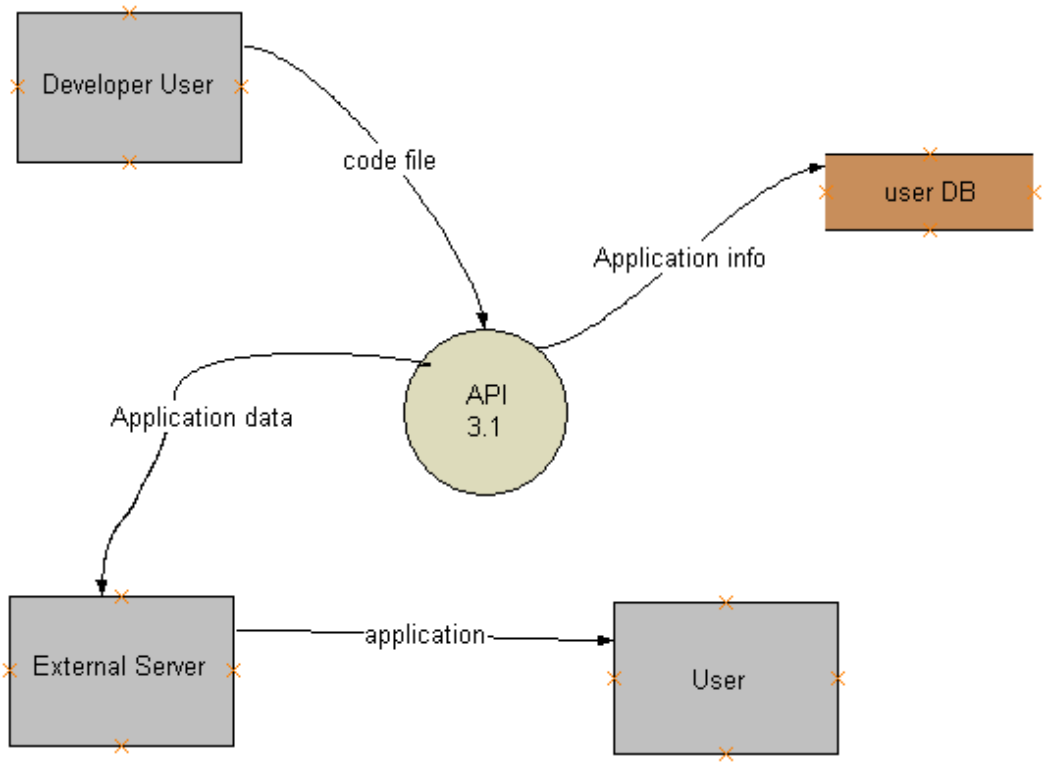

User2
confirmation
Confirmation 2.4.2
user 1,2 id
friend request
User DB
info query
confirmation info
Sending Friend Request 2.4.1
User1
friend info
results

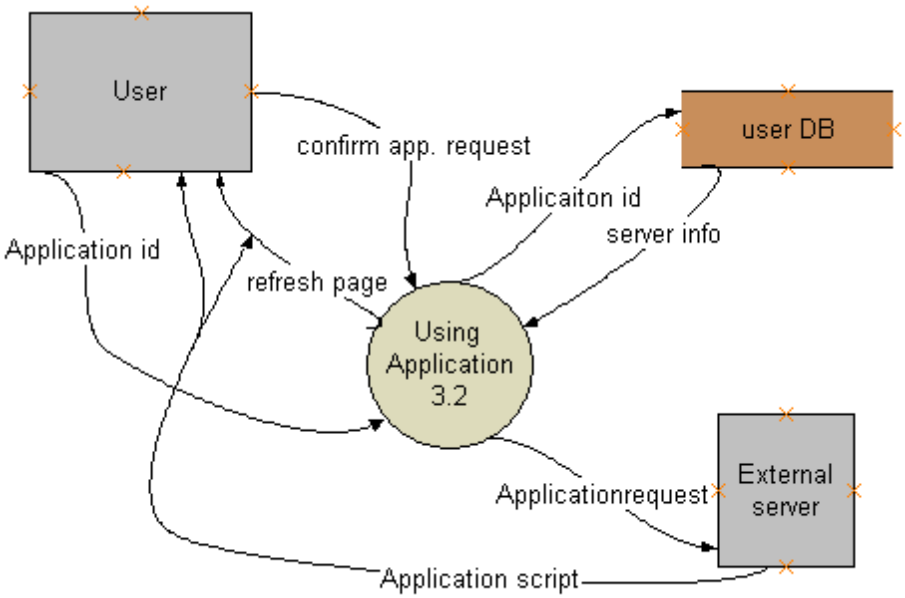

group id
User
group page
joining a group
1.3
group id,user id
User DB


topic search
group list
Searching an expert
1.2
selected group
expert list
User
group query
group list
Topic query
expert list
User DB


Expert user (High Level)
Entry
Dictionary DB
Writing to dictionary 1.5
entry, user id

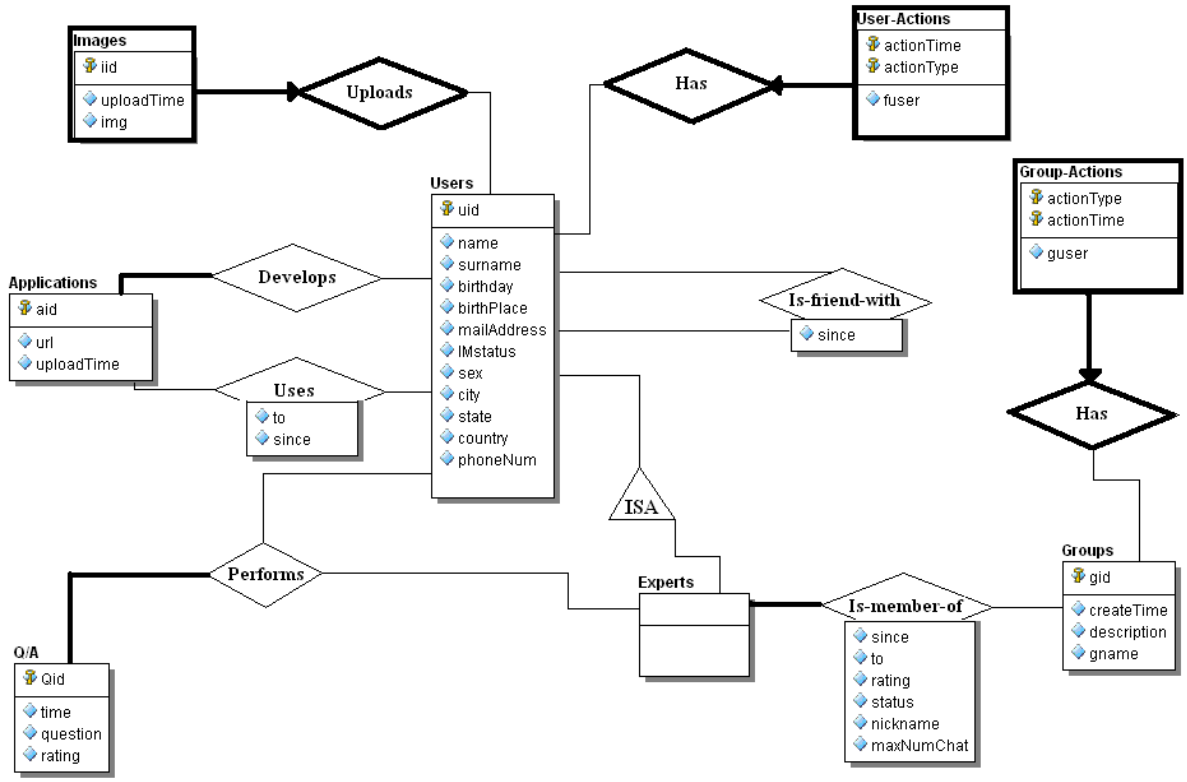

group info
group page
creating a group 1.4
User
user id,group info
User DB


Developer User
code file
user DB
Application info
API
3.1
Application data
External Server
application
User

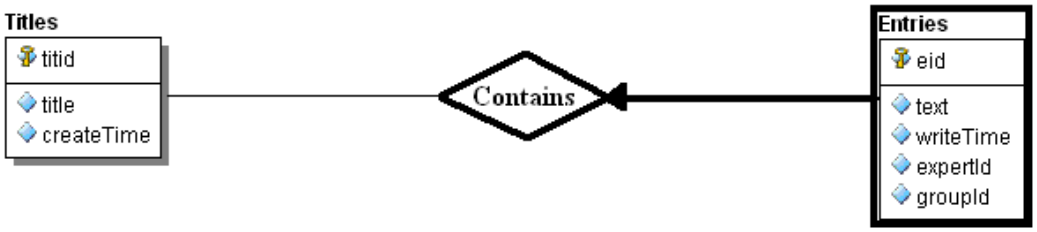

User
confirm app. request
user DB
Applicaiton id
server info
Application id
refresh page
Using
Application
3.2
External
server
Applicationrequest
Application script

6. E/R Diagrams

USER DB:



DICTIONARY DB:



DOCUMENTS DB:

7.0 Risk Management

Risk management is one of the most critical parts of a project. Since none of the members of the team has sufficient knowledge and experience of software engineering in practice, it seems possible to face with some problems during the process. So, to obey the strict deadlines we have to deal with the consequences of these possible risks whose details are explained below.

Staff Size and Experience:

For the given project, considering the number of the team members and lack of such experience, any inefficiency of these members would come up with a threat for the deadlines of the project. These inefficiencies may be due to the other taken courses.

Product Size:

Although the details of the project seem to be well defined, it is possible that new features can be appearing to be added. And considering the size of the project these kinds of additions may cause unforeseen chances in the whole project.

Process Definition:

For the team members, to agree with the same ideas for the project design details is essential. Any different thought or confliction for a part of the project will lead to effort and

time loss. To avoid this, we will clarify the details and come to an agreement for the whole process.

Customer demands

The demand for the project may have changes during the process. This also may cause unwanted consequences. So we have to agree with the things that are expected.

Technology risks:

There is also a small risk about the technology such as; crushes of software and frameworks that we will use.

Risks for the members individually

It is obvious that every member of the team, being a senior student, having a lot of different courses from different departments including the technical and non technical electives. Because the schedules of the courses are not precise, some unforeseen critical works (homework, exam, quiz, etc.) may appear. To avoid this we are studying through weekly plans. Beside this, we may share the task to be done in helpless situations.

Risk Table

RISKS	Category	Probability	Impact	Risk id
Temporary unavailability of a member	IR	%30	3	R1
Costumer dissatisfaction	CD	%10	2	R2
Overloaded term schedule	IR	%40	2	R3
Unforeseen expansions for project	PS	%35	2	R4

Misunderstandings for design	PD	%20	3	R5
Failure of member for a task	SE	%15	2	R6
System crushes	TR	%5	4	R7

IR: Risks for the members individually

CD: Customer demands

PS: Product Size:

PD: Process Definition:

SE: Staff Size and Experience

TR: Technological Risks

impact values are:

1. catastrophic
2. critical
3. marginal
4. negligible

RMMM

Risk Id = R1

The one who is absent will follow the schedule, doing extra study.

Risk Id = R2

We will come to an agreement in reasonable boundaries.

Risk Id = R3

We will act in solidarity, and help each other for the other courses.

Risk Id = R4

A quick revision will be done and we will try to avoid huge changes in project.

Risk Id = R5

Discussing the design details and try to catch up the schedule.

Risk Id = R6

We will help the one that fails. In worst case we will exchange the tasks, trying best to obey the deadlines.

Risk Id = R7

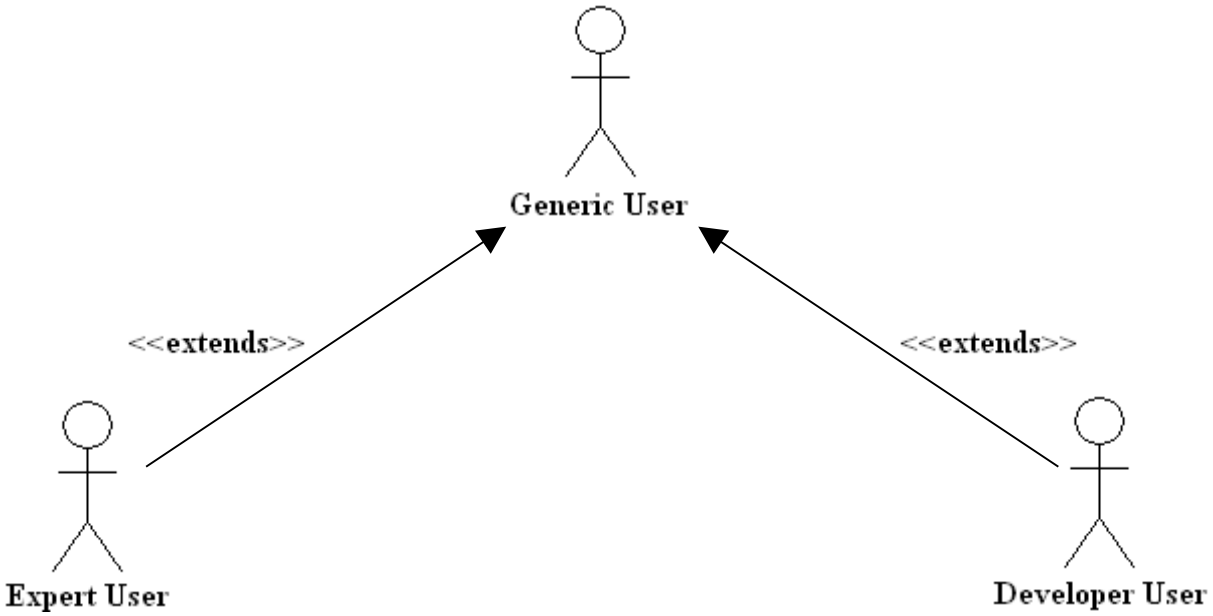
It has very low probability. We will handle by recovering it.

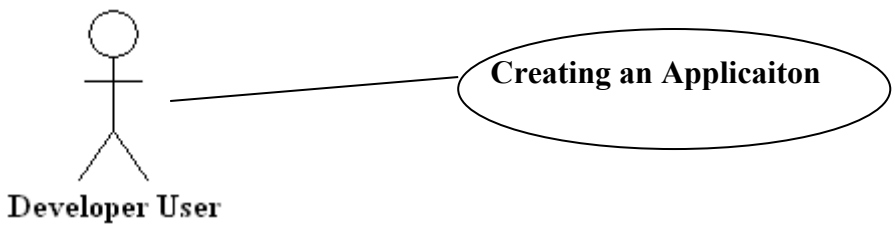
8.0 Conclusion

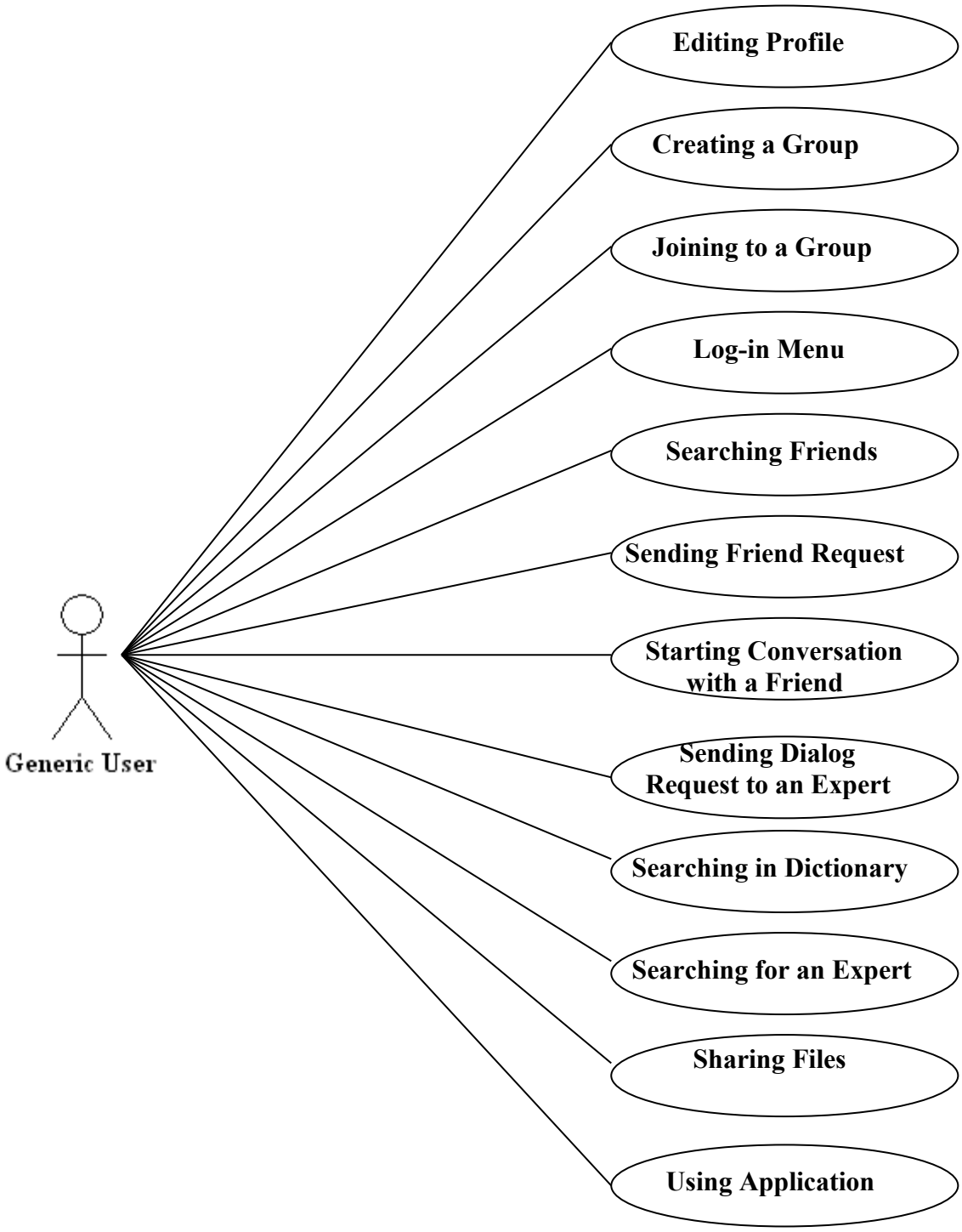
With this analysis report we defined our problems in details and show our solution to these problems. This report was very important for us to start our project, because we now have the picture in front of us, white and black. All we need from now on is to take brush in hand and paint. As the picture shows, our work will be very helpful in a large area and we really want it to be perfect. There are lots of things to do and there will be a lot more day-by-day. The topic and the objective of this project give us excitement and determination with its extendibility and Web 2.0 approach.

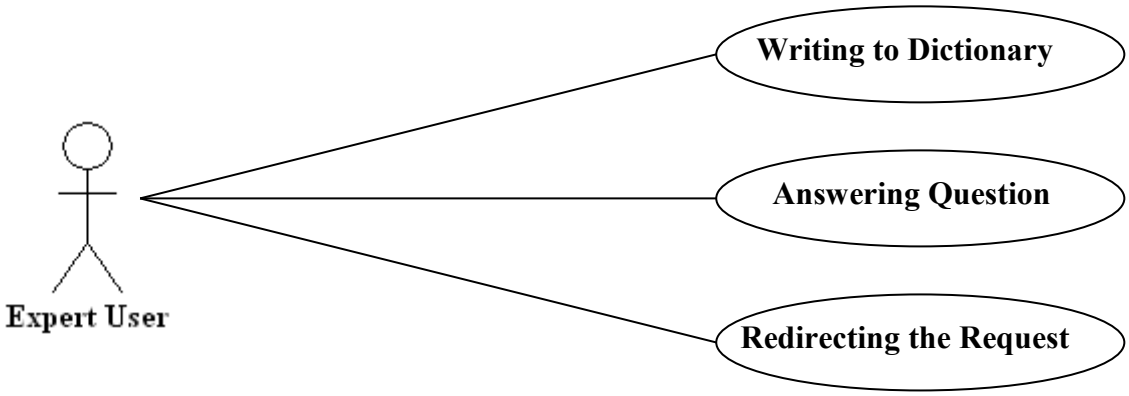
9.0 Appendices

9.1 Use-cases



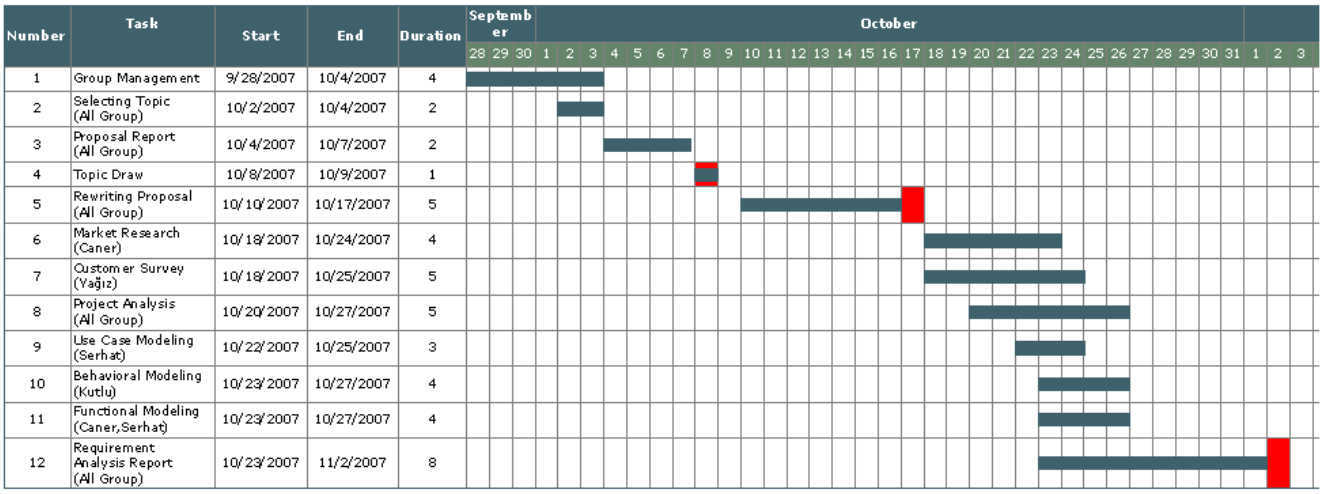



Editing Profile
Creating a Group
Joining to a Group
Log-in Menu
Searching Friends
Sending Friend Request
Starting Conversation with a Friend
Sending Dialog Request to an Expert
Searching in Dictionary
Searching for an Expert
Sharing Files
Using Application
Generic User

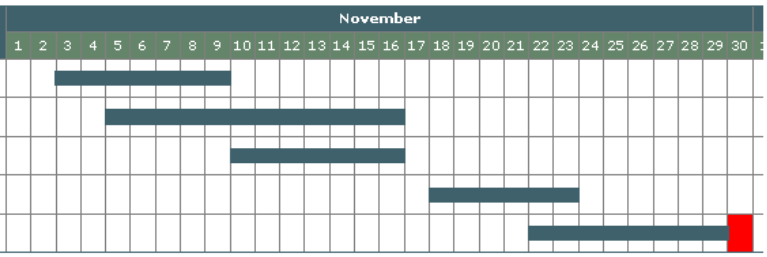


9.2 GANTT Chart

Number	Task	Start	End	Duration
1	Group Management	9/28/2007	10/4/2007	4
2	Selecting Topic (All Group)	10/2/2007	10/4/2007	2
3	Proposal Report (All Group)	10/4/2007	10/7/2007	2
4	Topic Draw	10/8/2007	10/9/2007	1
5	Rewriting Proposal (All Group)	10/10/2007	10/17/2007	5
6	Market Research (Caner)	10/18/2007	10/24/2007	4
7	Customer Survey (Yağız)	10/18/2007	10/25/2007	5
8	Project Analysis (All Group)	10/20/2007	10/27/2007	5
9	Use Case Modeling (Serhat)	10/22/2007	10/25/2007	3
10	Behavioral Modeling (Kutlu)	10/23/2007	10/27/2007	4
11	Functional Modeling (Caner,Serhat)	10/23/2007	10/27/2007	4
12	Requirement Analysis Report (All Group)	10/23/2007	11/2/2007	8



Number	Task	Start	End	Duration
1	Architectural Design (Serhat, Kutlu)	11/3/2007	11/10/2007	5
2	Web Design & Construction (Yağız, Caner)	11/5/2007	11/17/2007	10
3	User Interface Design (All Group)	11/10/2007	11/17/2007	5
4	IM Workshop (Caner, Serhat)	11/18/2007	11/24/2007	5
5	Initial Design Report (All Group)	11/22/2007	11/30/2007	6



Number	Task	Start	End	Duration
1	Implementing Prototype (All Group)	12/1/2007	1/18/2008	34
2	Detailed Interface Implementation (Kutlu, Serhat)	12/2/2007	12/15/2007	10
3	Debugging & Re-Implementation (Caner, Yağız)	12/8/2007	1/18/2008	29
4	Prepare for Presentations (Caner, Yağız)	12/12/2007	12/25/2007	9
5	Final Design Report (All Group)	12/19/2007	1/11/2008	17
6	Presentations (Caner, Yağız)	12/25/2007	1/5/2008	9
7	Prototype Demo (All Group)	1/18/2008	1/19/2008	1