CHAPTER 01

INTRODUCTION

1.1 Statement of the Problem:

We define a social communication site as web based services that allow individuals to allow a public or semi-public profile within a bounded system, articulate a list of users with whom they share a connection, and view and traverse their list of connection and those made by others within the system. The nature and nomenclature of these connections may vary from site to site.

Social communication sites are not only for you to communicate or interact with other people globally but, this is also one effective way for business promotion. A lot of business minded people these days are now doing business online and use these social communication sites to respond to customer quires. It isn't just a social media site used to socialite with your friends but also represents a huge pool of information from day to day living.

A social communication site mainly focuses on facilitating the building of social relations among people who, for example, share interests, activities, backgrounds or real life connections. Most social communication sites are provide online instant messaging service among users.[1]

1.2 Background:

NSTUSocial (Social communication site for NSTU) that implements a web based networking site and that could be used for all kind of social thoughts. All respective teachers and students can use this system. All the information of users can be saved in the database and they can update their information as required. User can easily post status, upload valid images and send messages to other users. And the notification will go instantly to user's profile page. It also focused each of the underlying technologies used to create and implement the application.

1.3 Objectives

- This system provides users to register their social personal profiles and users can update their profile as required.
- One user can follow and send messages to other user and can maintain the records of the messages.
- Users can maintain their follower and following lists.
- To upload various images and others can like and comment on these.
- User can mentions other users in a post by using @ sign.
- User can hashtag any kind of topics on their post.

1.4 The Existing System

Now in NSTU all teachers and students are communicating to each other and their social activities are done by using social website Facebook which is a third party software. According to definition above, the first recognizable social communication site launched in 1997[1], Sixdegrees.com allowed users to create profiles, list their friends and beginning in 1998, surf the friends lists. The world's most popular social networking sites certainly have changed over the years, and they'll undoubtedly continue to change as time moves forward. Old social networks will die, popular ones will stick around as they're forced to evolve, and brand new ones will appear. From 1997 to 2001 a number of community tools began supporting various combinations of profiles and publicly articulated friends [1]. We've moved on from the days of Myspace to a social media era now dominated by Facebook and all sorts of other social mobile apps. A lot of kids even admit to using Snapchat the most, suggesting that it could be the future of where social networking is headed. Instagram, Twitter, Myspace, Pinterest, Snapchat, Friendster, Asian avenue allowed users to create personal profiles for social activities and professional or business profiles for their business purposes.

1.5 Proposed System

- This system provides users to register their various types of profile like social, personal, general and professional.
- This system provides users to send a message, images and data files to their friends.
- This system provides users to follow others and they can maintain their friend list.
- This system provides users to upload the photos so that user can maintain own album.
- This system provides user to join the communities according to their scenario.
- This system provides user to recover their account by using Gmail.
- This system provides user to mentions other and hashtag any kind of social topics.
- This system provides user to promote their site or business for free.
- This system provides user to meet new people and find jobs.
- This system provides user to make their academic and professional communities.

CHAPTER 02

Feasibility Study

2.1 Introduction

A feasibility study is undertaken to determine the possibility or probability of either improving the existing system or developing a completely new system. It helps to obtain an overview of the problem and to get rough assessment of whether feasible solution exists [2].

This is essential to avoid committing large resources to a project and then repent on it later. The feasibility study will focus on preparation of 'Design and Implementation a Communication Site for NSTU'.

2.2 Need for Feasibility Study

The feasibility study is needed to –

- Answer the question whether a new system is to be installed or not?
- Determine the potential of the existing system.
- Improve the existing system.
- Know what should be embedded in the new project.
- Define the problems and objective involved in a project.
- Avoid costly repairs at a later stage when the system is implemented.
- Avoid crash implementation of a new system.
- Avoid the 'Hardware approach' i.e. getting a computer first and then deciding how to use it.

2.3 Types of Feasibility

There are three aspects in feasibility study portion of the preliminary investigation [2].

1. Technical feasibility
2. Economic feasibility and
3. Operational feasibility of the project.

2.3.1 Technical feasibility

Technical feasibility determines whether the technology needed for the proposed system is available and how it can be integrated within the 'Design and Implementation a Communication Site for NSTU' and technical evaluation must also assess whether the existing system can be upgraded to use the new features and technology [2].

2.3.2 Economic feasibility

Economic feasibility looks at the financial aspects of the project. Economic feasibility concerns with the returns from the investments in a project. It determines whether it is worthwhile to invest the money in the proposed system. To carry out an economic feasibility for a system, it is necessary to place actual money value against any purchases or activities needed to implement the project [2].

'Design and Implementation a Communication Site for NSTU' plans to acquire the necessary hardware and software for the system and there is no other finance is necessary.

2.3.3 Operational feasibility

Operational feasibility covers two aspects. One is the technical performance aspect and other is the acceptance within the 'Design and Implementation a Communication Site for NSTU'. Operational feasibility determines how the proposed system fit in the current operations and what, if any job restructuring and retraining may be needed to implement the system [2].

2.4 Process Models

A programming process model is an abstract representation to describe the process from a particular perspective [3]. There are numbers of general models for software processes, like: Waterfall model, Evolutionary development, Format systems development and Reuse-based Development, etc. This research will view the four models:

1. Waterfall model,
2. Prototyping model,
3. Iterative model,
4. Spiral model.

Waterfall model: The Waterfall Process Model adds a backward path so that problems in a later stage may be addressed by revisiting an earlier stage [3].

Problems:

- Iteration often goes back over several stages. This can cause severe organizational problems.
- The process is document driven
  - We don't see working software until the end.

Prototyping model: The Prototyping Model is a systems development method (SDM) in which a prototype (an early approximation of a final system or product) is built, tested, and then reworked as necessary until an acceptable prototype is finally achieved from which the complete system or product can now be developed [3].

Problems:

- Leads to implementing and then repairing way of building systems.
- Incomplete application may cause application not to be used as the full system was designed.

Iterative model: System can be delivered as a set of increments, each increment separated by a pre-planned time period. The idea is that the customer gets software earlier.

Problems:

- Problems may arise pertaining to system architecture because not all requirements are gathered up front for the entire software life cycle.

Spiral model: The spiral model (or 'risk-based' model) is an evolutionary model that couples the:

- Iterative nature of the prototyping approach.
- With the systematic approach of the waterfall model.

The key element to the process model is that risks are evaluated at regular stage through the project.

- Risks are things that might **go wrong**
- Risks are inherent due to **incomplete information**

Prototyping Process Model:

The basic idea in **Prototyping model** is that instead of freezing the requirements before a design or coding can proceed, a throwaway prototype is built to understand the requirements. This prototype is developed based on the currently known requirements [3]. Prototype model is a **software development model**. By using this prototype, the client can get an "actual feel" of the system, since the interactions with prototype can enable the client to better understand the requirements of the desired system. Prototyping is an attractive idea for complicated and large systems for which there is no manual process or existing system to help determining the requirements. The prototype are usually not complete systems and many of the details are not built in the prototype. The goal is to provide a system with overall functionality [3].

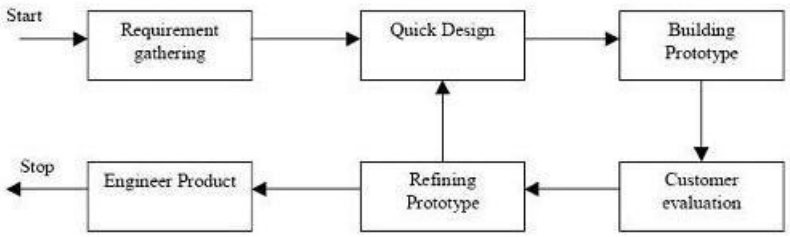


Figure 2.1: **Diagram of Prototyping model**

Advantages of Prototyping model:

- Users are actively involved in the development
- Since in this methodology a working model of the system is provided, the users get a better understanding of the system being developed.

- Errors can be detected much earlier.
- Quicker user feedback is available leading to better solutions.
- Missing functionality can be identified easily.

Disadvantages of Prototyping model:

- Leads to implementing and then repairing way of building systems.
- Practically, this methodology may increase the complexity of the system as scope of the system may expand beyond original plans.
- Incomplete application may cause application not to be used as the full system was designed.

The reason why I used prototyping process model:

- Prototype model should be used when the desired system needs to have a lot of interaction with the end users.
- Typically, online systems, web interfaces have a very high amount of interaction with end users, are best suited for Prototype model. It might take a while for a system to be built that allows ease of use and needs minimal training for the end user.
- Prototyping ensures that the end users constantly work with the system and provide a feedback which is incorporated in the prototype to result in a useable system. They are excellent for designing good human computer interface systems.

Summary:

The goal of using software process models is to determine the order of stages involved in software development and evolution, and to establish the transition criteria for progressing from one stage to next. These include completion criteria for the current stage plus choice criteria and entrance for the next stage.

CHAPTER 03

Requirement Analysis and Design

Requirements Analysis encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product or project, taking account of the possibly conflicting requirements of the various stakeholders, analyzin*g*, documenting, validating and managing software or system requirements [4].

3.1 Project Development Tools [5]

Here I use different types of tools for my project as:

3.1.1 Software and Language Tools

- HTML (Hyper Text Markup Language) version 5, CSS (Cascading Style Sheets) version 3.
- JavaScript and JQuery.
- AJAX (Asynchronous JavaScript and XML).
- Server-side Scripting Language as PHP (Hypertext Preprocessor) version 5.6.30, SQL (Stuctured Query Language).
- Apache XAMPP server 2.4.25 (local server for practice).
- Database MySQL.

Description:

What is HTML?

- HTML Stands for **H**yper **T**ext **M**arkup **L**anguage
- The markup tags tell the web browser **how to display** the page

What is CSS?

- **CSS** stands for **C**ascading **S**tyle **S**heet & Styles define how to define **how to display HTML** elements.
- Styles are normally stored in **Style Sheets & External Style Sheets** can save a lot of work

What is PHP?

- PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.
- PHP supports many databases like MySQL, Oracle, PostgreSQL, MongoDB etc.
- PHP is an open source software and its always free to download.

What is MySQL?

- MySQL is a freely available open source Relational Database Management System (RDBMS) that uses Structured Query Language (SQL).
- MySQL runs on virtually all platforms, including Linux, UNIX, and Windows.

What is JavaScript?

- JavaScript is a cross-platform, object-oriented scripting language.
- JavaScript is the programming language of HTML and the Web.
- JavaScript contains a standard library of objects, such as Array, Date, and Math, and a core set of language elements such as operators, control structures, and statements.

What is JQuery?

- JQuery is a concise and fast JavaScript library that can be used to simplify event handling, HTML document traversing, Ajax interactions and animation for speedy website development.
- JQuery simplifies the HTML's client-side scripting, thus simplifying Web 2.0 applications development.

What is AJAX?

- AJAX stands for Asynchronous JavaScript and XML.
- AJAX is a client-side script that communicates to and from a server/database without the need for a post back or a complete page refresh.

What is SQL?

- SQL stands for **S**tructured **Q**uery **L**anguage and allows to access databases
- SQL is a standard computer language for accessing and manipulating databases
- SQL is an **ANSI** standard computer language & can execute queries against a database
- SQL can retrieve data from database & can insert new records in a database
- SQL can delete and update records in a database
-

SQL Data Manipulation Language (DML)

SQL language includes syntax to update, insert, and delete records.

These query and update commands together form the Data Manipulation Language (DML) part of SQL:

- **SELECT –** extract data from database tables
- **UPDATE –** updates data in database tables
- **DELETE –** deletes data from database tables
- **INSERT INTO –** inserts new data into database tables

SQL Data Definition Language (DDL)

The data definition language (DDL) part of SQL permits database tables to be created or deleted

The most important DDL statements are in SQL are:

- **CREATE TABLE –** creates a new database table
- **DROP TABLE –** deletes a database table
- **CREATE INDEX –** creates an index (search key)

- **DROP INDEX –** deletes an index

3.1.2 Hardware Tools:

- Processor: Pentium 4 or higher
- RAM: 4 minimum 256 MB
- Disk Space: Minimum 40 GB

3.1.3 Operating System & Browser Tools:

- Windows XP or higher
- Google Chrome, Mozilla Firefox, Internet Explorer etc.

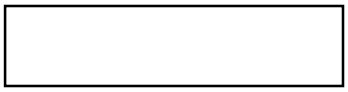
CHAPTER 04

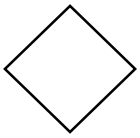
Design and Implementation

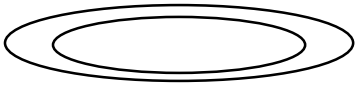
4.1 Entity-Relation Diagram

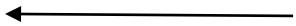
In software engineering an **entity-relationship model (ERM)** is an abstract and conceptual representation of data. Entity –relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relation database, and it's requirements in a top-down fashion. Diagrams created by this process are called **entity-relation diagrams, ER diagrams,** or **ERDs.** Entity Relationship Diagrams (ERDS) illustrate the logical structure of databases [6].

Attribute sign: 

Entity sign: 

Relationship: 

Multi-valued attributes: 

One to many relationship: 

Many to many relationship:

E-R Diagram of 'Design and Implementation a Communication Site for NSTU':

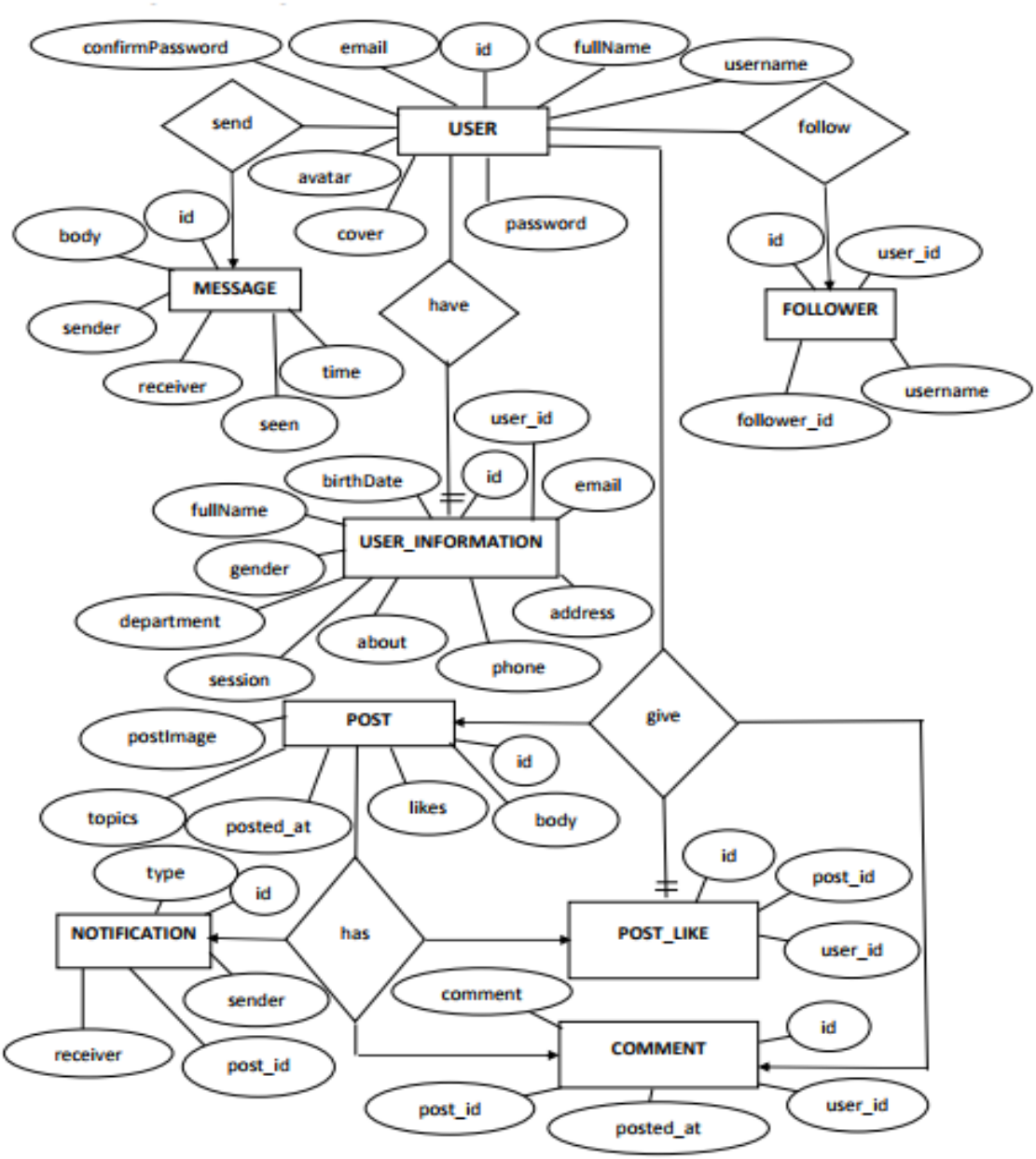


Figure 4.1: **Entity-Relationship Diagram**

4.2 Relational Model:

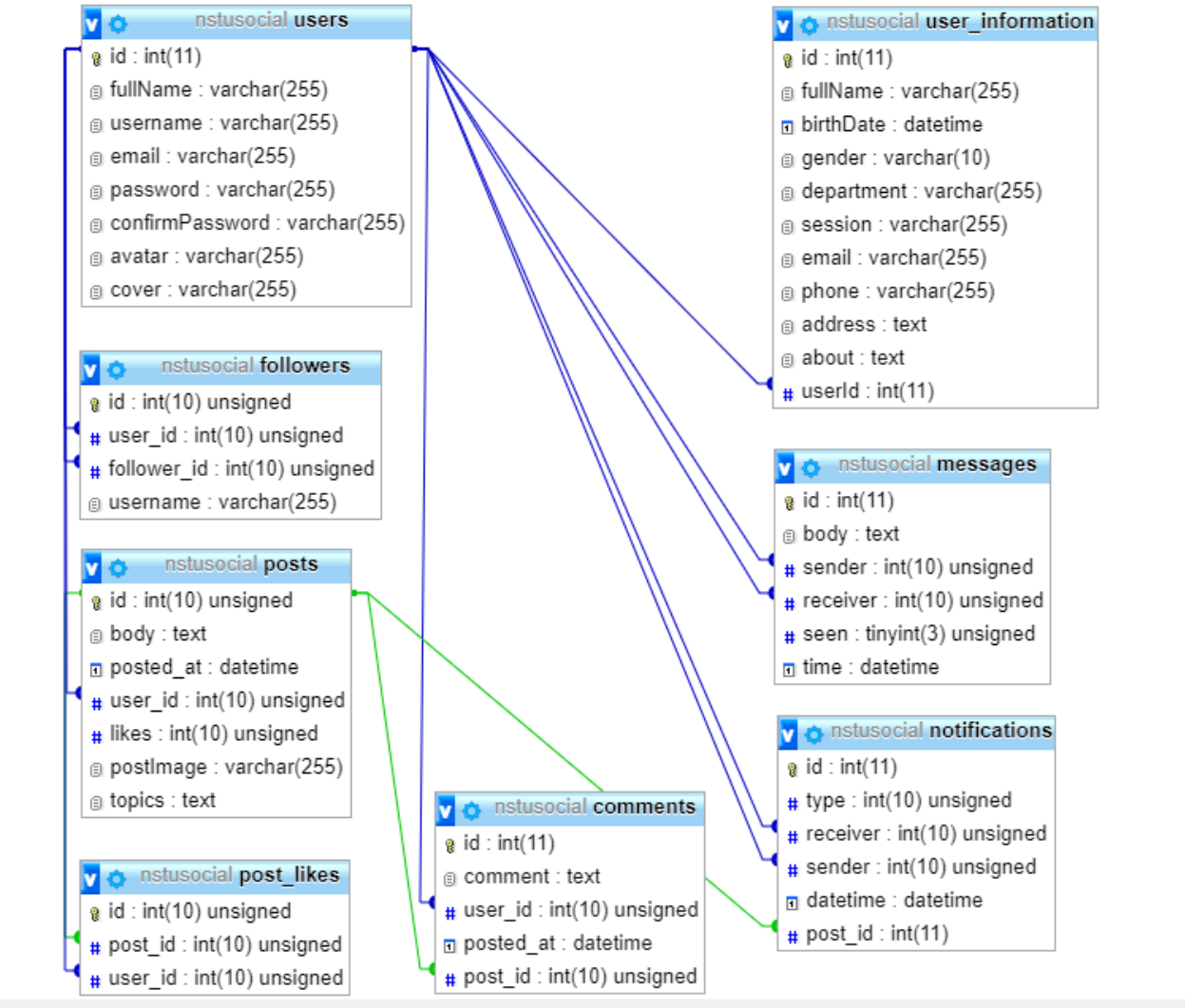


Figure 4.2: Relational Model

4.3 Data Flow Diagram [7]:

Data flow diagram model the flow of the data into, through and out of an information system:

- Show the process that change or transform data
- Show the movement of data between processes
- Represent a system as a network of processes which transform data flowing between them

4.4 Context Diagram

The highest level data flow diagram is the context diagram.

- The context diagram shows the interaction of the system with its environment in terms of data flows
- The context diagram defines the boundary of the system (the scope of the system)

0 Level DFD: A level 0 DFD also called a fundamental system model or context diagram represent the entire software element as a single bubble as a input and output data indicating by incoming and outgoing arrows, respectively.

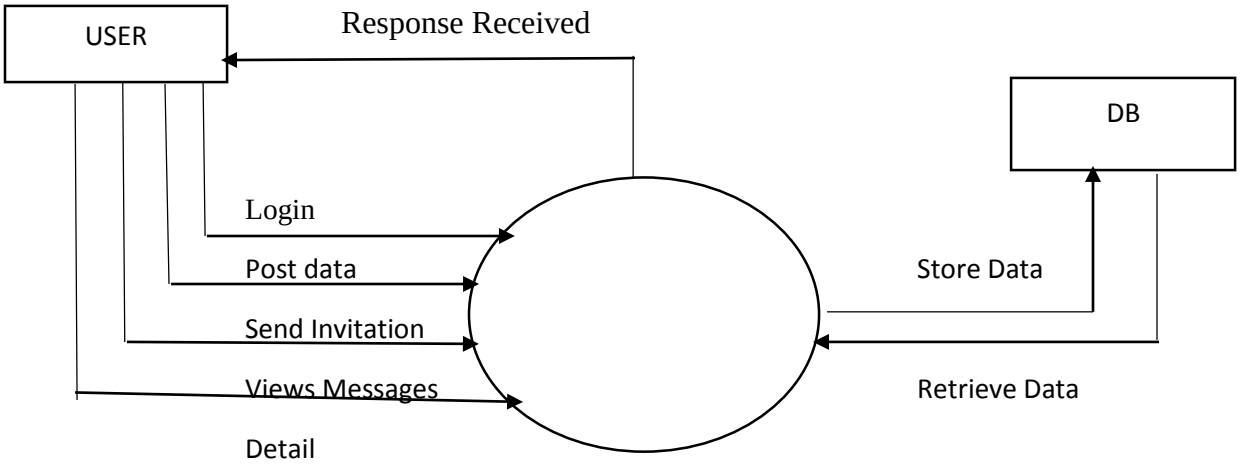


Figure 4.3: 0 Level Data Flow Diagram

1 Level DFD: This level of DFD provide more detailed structure. It provides a detailed view of requirements and flow of data from 1 bubble to another.

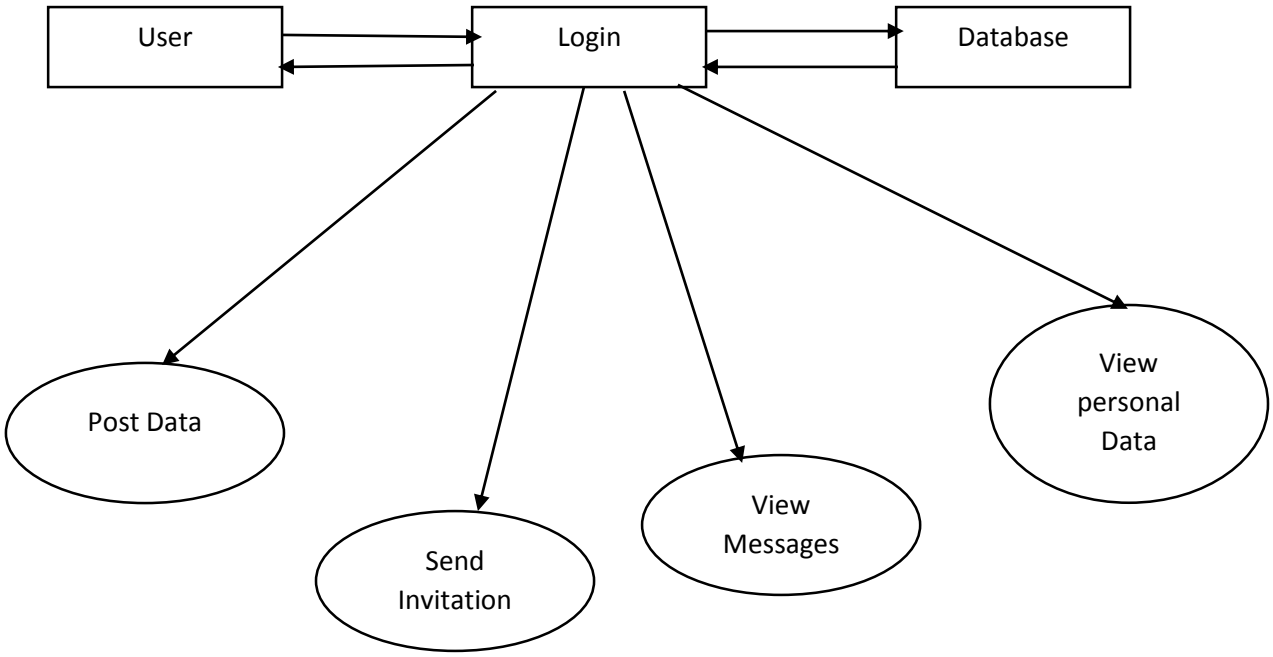


Figure 4.4: 1 Level Data Flow Diagram

4.5 Database Tables:

users table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(11)			No	*None*		AUTO_INCREMENT
2	fullName	varchar(255)	latin1_swedish_ci		No	*None*		
3	username	varchar(255)	latin1_swedish_ci		No	*None*		
4	email	varchar(255)	latin1_swedish_ci		No	*None*		
5	password	varchar(255)	latin1_swedish_ci		No	*None*		
6	confirmPassword	varchar(255)	latin1_swedish_ci		No	*None*		
7	avatar	varchar(255)	latin1_swedish_ci		Yes	*NULL*		
8	cover	varchar(255)	latin1_swedish_ci		Yes	*NULL*		

users_information table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(11)			No	*None*		AUTO_INCREMENT
2	fullName	varchar(255)	latin1_swedish_ci		No	*None*		
3	birthDate	datetime			No	*None*		
4	gender	varchar(10)	latin1_swedish_ci		No	*None*		
5	department	varchar(255)	latin1_swedish_ci		No	*None*		
6	session	varchar(255)	latin1_swedish_ci		No	*None*		
7	email	varchar(255)	latin1_swedish_ci		No	*None*		
8	phone	varchar(255)	latin1_swedish_ci		No	*None*		
9	address	text	latin1_swedish_ci		No	*None*		
10	about	text	latin1_swedish_ci		No	*None*		
11	userId	int(11)			No	*None*		

posts table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(10)		UNSIGNED	No	*None*		AUTO_INCREMENT
2	body	text	latin1_swedish_ci		No	*None*		
3	posted_at	datetime			No	*None*		
4	user_id	int(10)		UNSIGNED	No	*None*		
5	likes	int(10)		UNSIGNED	No	*None*		
6	postImage	varchar(255)	latin1_swedish_ci		Yes	*NULL*		
7	topics	text	latin1_swedish_ci		Yes	*NULL*		

followers table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(10)		UNSIGNED	No	*None*		AUTO_INCREMENT
2	user_id	int(10)		UNSIGNED	No	*None*		
3	follower_id	int(10)		UNSIGNED	No	*None*		
4	username	varchar(255)	latin1_swedish_ci		No	*None*		

messages table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(11)			No	*None*		AUTO_INCREMENT
2	body	text	latin1_swedish_ci		No	*None*		
3	sender	int(10)		UNSIGNED	No	*None*		
4	receiver	int(10)		UNSIGNED	No	*None*		
5	seen	tinyint(3)		UNSIGNED	No	*None*		
6	time	datetime			No	*None*		

comments table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(11)			No	*None*		AUTO_INCREMENT
2	comment	text	latin1_swedish_ci		No	*None*		
3	user_id	int(10)		UNSIGNED	No	*None*		
4	posted_at	datetime			No	*None*		
5	post_id	int(10)		UNSIGNED	No	*None*		

notifications table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(11)			No	*None*		AUTO_INCREMENT
2	type	int(10)		UNSIGNED	No	*None*		
3	receiver	int(10)		UNSIGNED	No	*None*		
4	sender	int(10)		UNSIGNED	No	*None*		
5	datetime	datetime			No	*None*		
6	post_id	int(11)			No	*None*		

post_likes table:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id	int(10)		UNSIGNED	No	*None*		AUTO_INCREMENT
2	post_id	int(10)		UNSIGNED	No	*None*		
3	user_id	int(10)		UNSIGNED	No	*None*		

CHAPTER 05

Interfaces and Working Procedures

5.1 User Registration and Login:

This is the user registration and login page. User can registration their profile by providing their valid information as required for the system. User can login into their profile by providing their verified email and password. If provided information become invalid system will generate an error message.

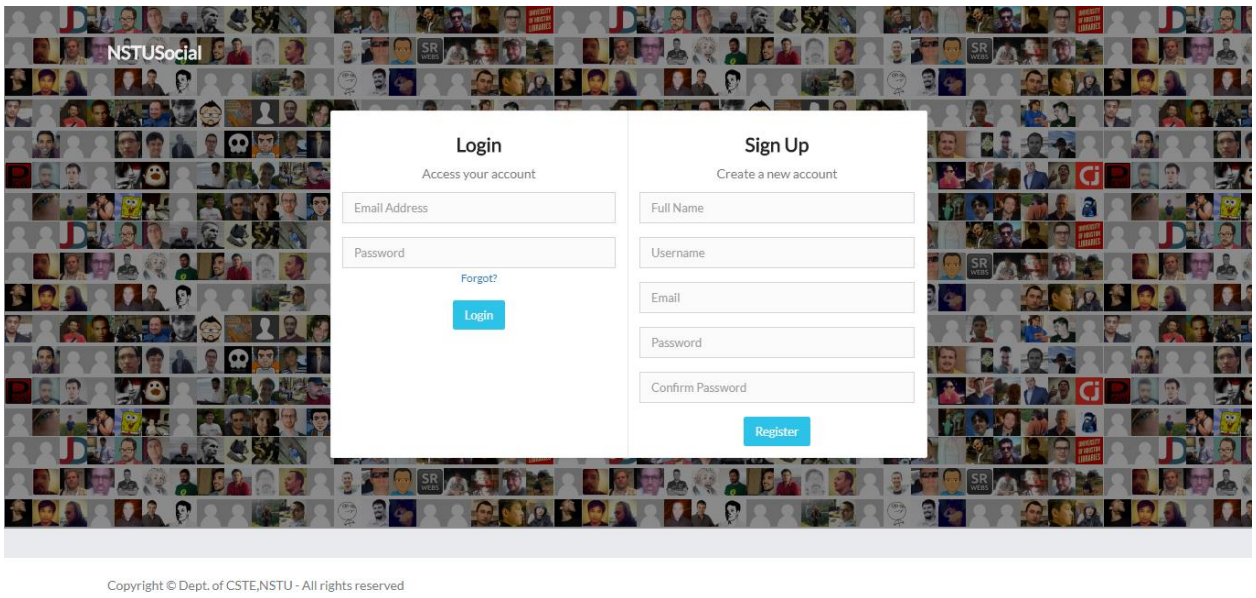


Figure 5.1: User registration and login page

5.2 Users Profile :

This is users profile page. Any user can see his/her own profile page after valid authentication.

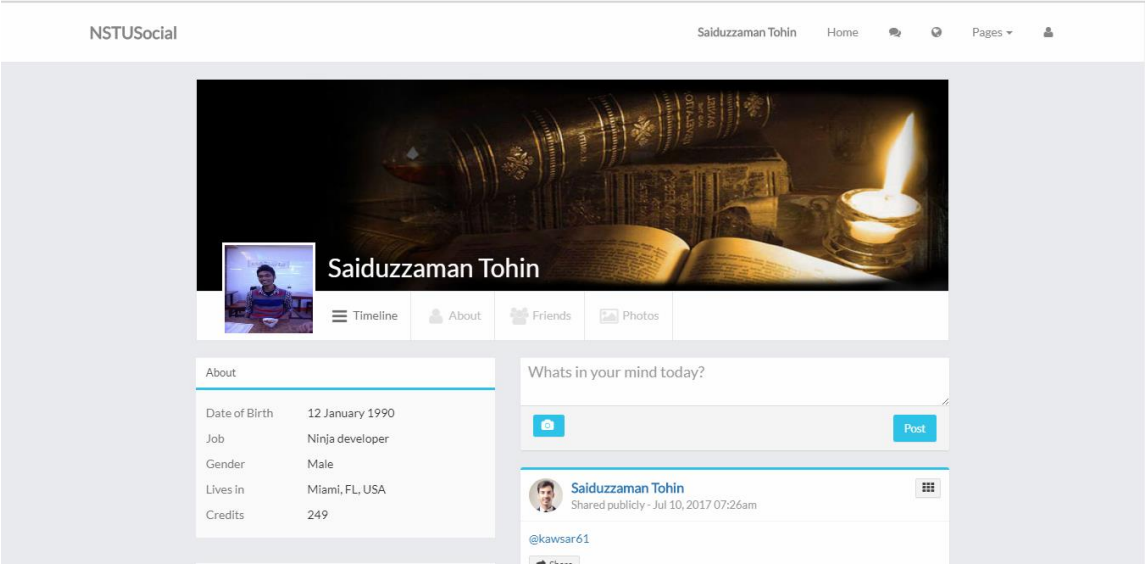


Figure 5.2: User profile page

5.3 Message area:

By using this interface users can send or receive their messages. They can also manipulate their messaging system.

Figure 5.3: Message sending and receiving page

5.4 News Feed:

On news feed page users can see others posts and social activities.

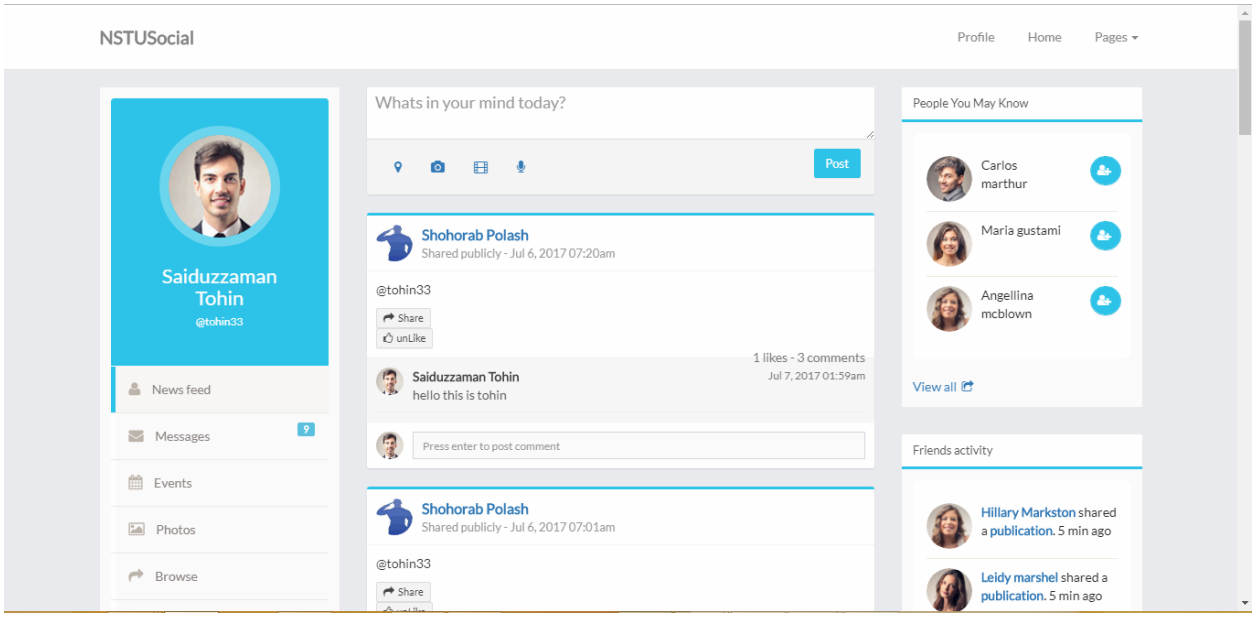


Figure 5.4: News feed page for all followers post

5.5 Get Notification:

Users can find their notification on this page.

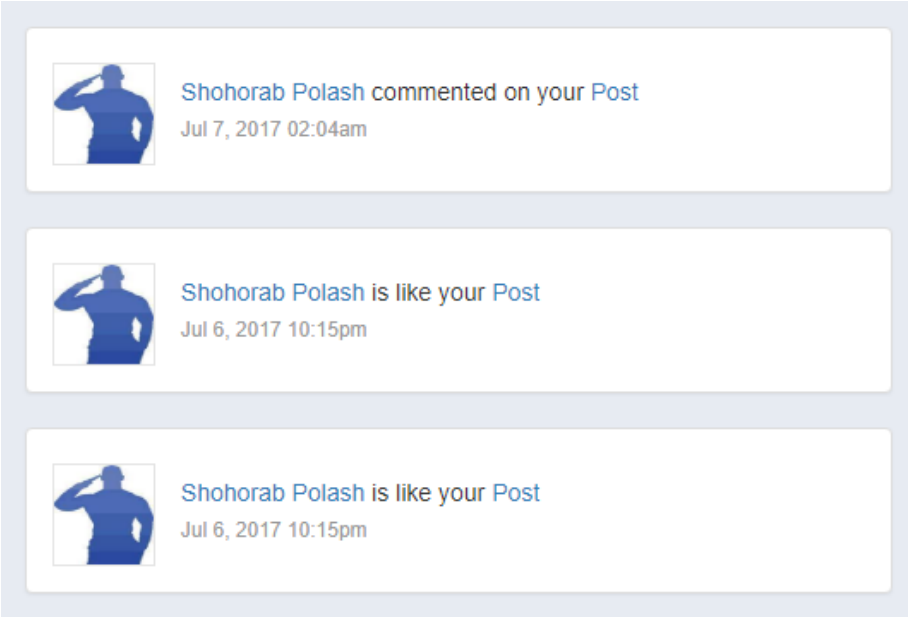


Figure 5.5: Notification received page

5.6 Find Friend:

On this page one user can find others by their Profile name.

Figure 5.6: Friend searching page

5.7 Account Settings:

Here users can change their avatar and cover image for their own profile. They can update their basic and contact information by using this page.

Users can also change their password by using account settings page.

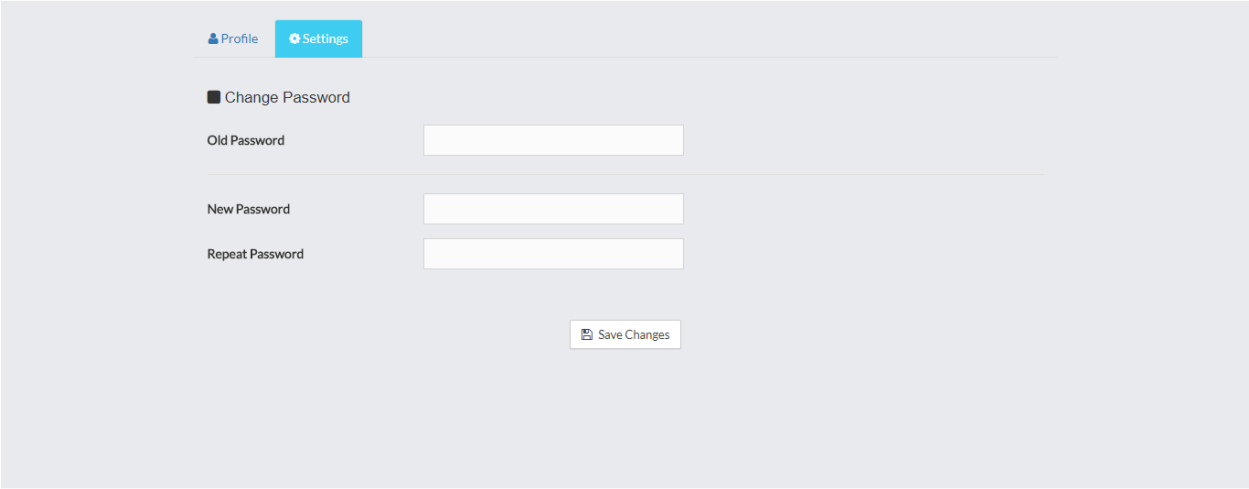


Figure 5.7: Users account setting page

5.8 Photo Gallery:

One users all posting photos are viewed in this area.

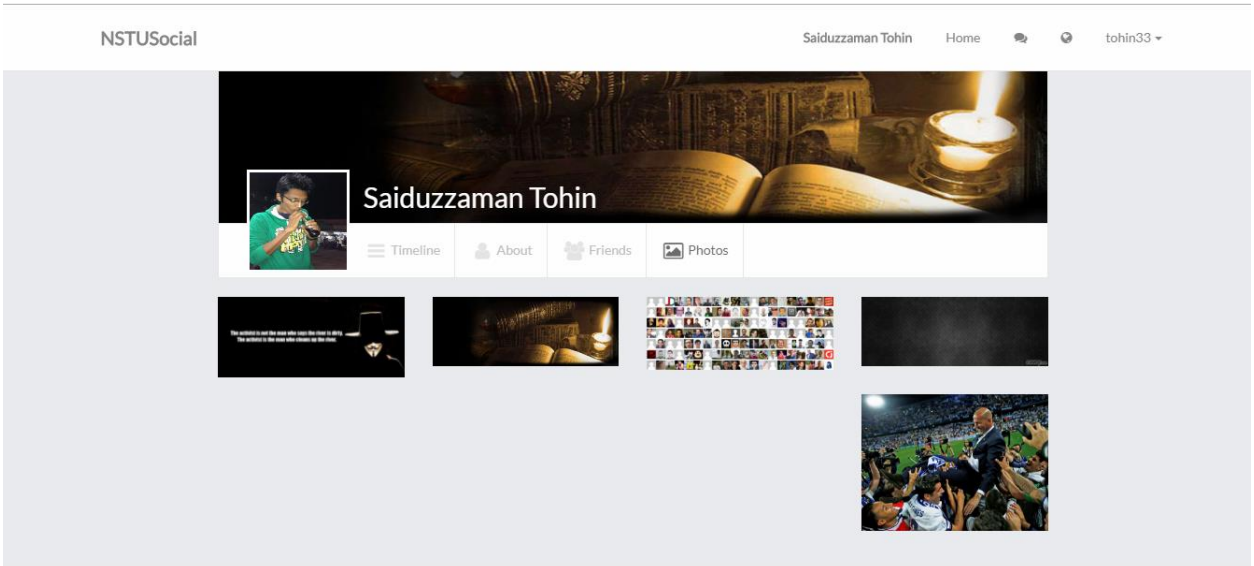


Figure 5.8: Users photo gallery page

5.9 Password Reset:

If any user forget his/her password then using this page he/she can reset a new password.

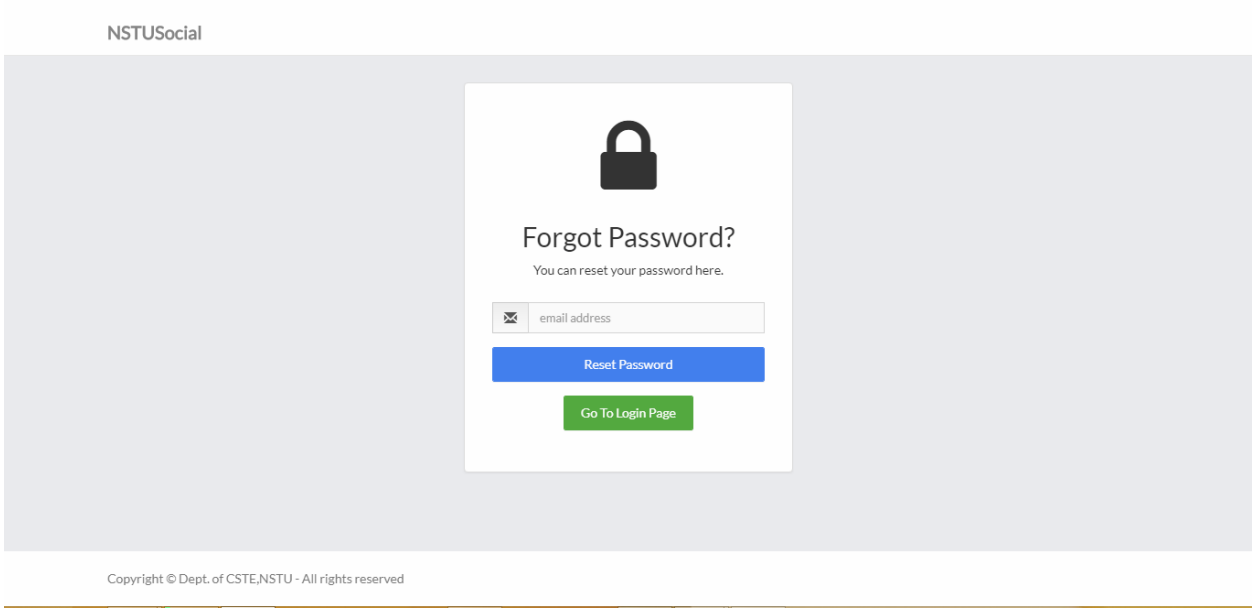


Figure 5.9: Password reset page

CHAPTER 06

Limitations and Future Development

6.1 Limitation:

- One user does not share others users.
- Users does not block each other.
- Users cannot upload any files, sounds or videos.
- Do not cyberstalk, spam, or send unwanted messages to anyone.
- Do not steal a password, account data or other information from anyone.
- Do not use asynchronous system.

6.2 Future Development:

- In future release, all the limitations of the application will be fulfilled.
- The mobile version of this project will be compatible with other mobile platforms.
- The android version of this application will be fully completed and it will be completely functional.
- AJAX will be added to remove synchronous system.

CHAPTER 07

Conclusion

- Using this communication site all teachers and students will benefitted.
- Dependency on other network will be reduced.
- The interaction among users will be a lot easier.
- Privacy will be more secure.

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Appendix

List of Figures