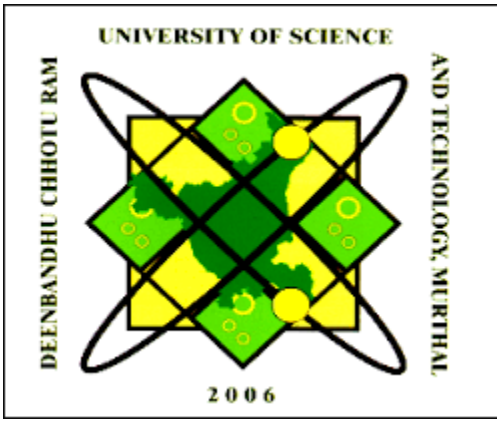
Project Report

on

Social Networking Website Leechi

Bachelor of Technology
in
Computer Science & Engineering



Submitted To
Mrs. Kavita Rathi

Submitted by
Rajeev Kumar
18001001044

Department of Computer Science & Engineering
Deenbandhu Chhotu Ram University of Science and Technology

ACKNOWLEDGEMENT

A successful task makes everyone happy. Success will often be crowned to people who made it reality but the people who are behind curtain with constant guidance and encouragement that made it possible will be crowned first on the eve of success. Words are inadequate to express my deep sense of gratitude towards all those people behind the screen who guided, inspired and helped me for the completion of our project work. The successful completion of the project on “SOCIAL NETWORKING” which I have undertaken has a partial fulfillment of the requirements for the award of Bachelor of technology degree in Computer Science and Engineering. It is with profound sense of gratitude that I acknowledge my project guide Mrs. Kavita Rathi for providing me with live specification and his valuable suggestion which encouraged me to complete this project successfully. I thank our Mrs. Kavita Rathi for permitting us to do this project. At last but not the least I thank entire Computer Science department who rendered their full cooperation for successful completion of the project.

(Rajeev Kumar)

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Introduction

SOCIAL NETWORKING is a website which provides the up-to date information of all the students registered into it. It is effectively used for knowing the people of different groups. We can update our personal details. The user is also provided the facility of scraping to friends and to all the registered members from. They can wish their friends by sending E-Cards. technology for building applications for generating dynamic web content, such as HTML,CSS, Reactjs,Saas,Material UI Lib,Node js,etc.

A website succeeds-when it meets the needs of the people who use it, when it performs flawlessly over a long period of time, when it is easy to modify and even easier to use-it can and does change things for the better. But when software fails-when its users are dissatisfied, when it is error prone, when it is difficult to change and even harder to use-bad things can and do happen.

We all want to create websites that makes things better, avoiding the bad things that lurk in the shadow of failed efforts. To succeed we need discipline when software is designed and built. Many individuals and companies still develop software haphazardly, even as they build systems to service the most advanced technologies of the day. As a result, the quality of the software that we produce suffers and bad things happen.

This project report is intended to serve as a guide to the website developed on Social Networking. I have tried to follow the principles and rules as suggested by the software engineers as far as possible, in order to make this website a successful one. The report starts with a comprehensive introduction to the project undertaken as its very First Section. It includes objectives and scope of the project; about the front-end tool used i.e. React js with js and the Backend Node js Server. The second part presents and discusses the theoretical background of the project. The third section encompasses all the problems of the software that includes what is expected from the software, the demands and the requirements of the end-users. The fourth part is the System analysis and design section. This part focuses on requirements analysis and specification, analysis issues, detailed procedures and the database designs. In The fifth section, different approaches to formal evaluation and review techniques are explored. The sixth section highlights the methodology adopted for this project. The seventh part suggests the steps required to implement the software on the user machine. The eighth part discusses the hardware and software requirements of the user machines. The ninth part deals with the cost benefit analysis. The tenth section contains the data flow diagrams. The next section is the flowchart part. The next section is for the entity relationship diagram of the project. The thirteenth part explains the methodology used for testing. The fourteenth section is the test report. The fifteenth part is the most important part of the project i.e. the code for the software. The sixteenth part is the user manual section. The seventeenth part is the annexure for the topic that includes some details about the organization, the data dictionary, definitions, acronyms and abbreviations used in the report. The final section is the reference part that contains a list of the books and reports that were referred during the

development of the project and the report as well. The emphasis in this report is to document the important concepts and techniques used for the successful development of this project.I do hope fervently that, through this report, the readers will get a real picture of what the project is all about. I also wish that may this website satisfies all the needs and requirements of the us

2. Objective and Scope of the Project

Social networks are important because they allow people to develop relationships with others with whom they might not otherwise be able to connect. It also helps boost business productivity when used for public relations, marketing, and advertising purpose.

Objective- :

Linking Friends : The primary objective of Leechi is to link the friends all over the world. Geographical distances shall not be a reason for cardiological distances between friends. They must stay in touch no matter where they are and what they are
And Leechi help this cause.

Making new friends: The next objective is to make new friends as per one's own taste. Any social networking must not be limited to liking just existing friends. But there must also be scope of making new friends having desired tastes.

Security: Security is a major issue. The next objective of Leechi is to keep website free from fake accounts, hacks and other threats.

Education: Education through a social networking website is a big fun. Learning in a way you never get bored off, reaps big and tasty fruits. Leechi provide you this opportunity to learn new English language words, new facts and a lot more in a very innovative way.

Fun: The next objective is to introduce some fun element in the website. This can be accomplished by integrating some games and puzzles in the website. By doing so, Leechi will be the complete package for today's generation. Social media has changed the way we communicate today. It's in our best interest to be informed about all of the new possibilities to manage our online reputation. The lines between professional and personal are blurring online and many times, we refer to our online presence as our "Personal Brand." Your Personal Brand can be both the personal and professional "YOU."

Here are five benefits of using social media:

A. Build relationships.

Social media is not just about brands connecting with their customers. In fact, at its root, social media is about connecting people to people. If you've attended a Social Shift training session I've led, chances are you've heard that almost every single friend I have in San Francisco, I met through social media.

From a professional perspective, you can grow your professional network online tremendously by connecting with colleagues, mentors, role models and other professionals. If you nurture those relationships, you have a whole new network to tap when you're looking for opportunities or professional guidance.

B. Share your expertise.

Social media gives you an opportunity to talk about what you know and what you want to be known for. Sharing your expertise will attract potential professional and personal connections. Learn how to present your professional experience, achievements and results and you will get more and more opportunities to connect with like-minded people.

If you share content on topics that you know much about, you can begin to build credibility. This doesn't only go for your online presence. If you live your personal brand and your actions reflect your online presence, it validates that you can be trusted and those relationships you are building will be that much more authentic and valuable.

C. Increase your visibility.

If you spend time honing in on your expertise, consistently managing your social channels, then you have the potential to greatly increase your visibility and even become a thought-leader in your space. Good content gets shared, so if you are consistently posting quality content, the more people who share it, the more people see it.

It's not just about pushing content, however. You also need to be engaging with other people's content. Following people and interacting with them on social media will work to build relationships (we keep coming back to this one!) and will help to get your name out there for people to turn to.

D. Educate yourself.

There is a lot of noise on the Internet. Social media allows you to hone in on what you really care about and what you really want to read. You can create lists that curate content from your favorite people, thought leaders in the space, or media outlets. You can easily learn about current events and things taking place near you.

E. Connect anytime

I know to some of you this may sound like a disadvantage. But, the advantage of being able to communicate and connect with anyone instantly outweighs the potential negative.

Social media can help you connect before, during and after networking events, a conference or a meeting.

3. Study and analysis of Existing System

Existing System: The existing system for Leechi is the current social networking giant-The Facebook.

Study of Existing System: Facebook is a social networking service launched in February 2004, owned and operated by Facebook It was founded by Mark Zuckerberg with his college roommates and fellow Harvard University students Eduardo Saverin, Azel Andrew McCollum, Dustin Moskovitz and Chris Hughes. The website's membership was initially limited by the founders to Harvard students, but was expanded to other colleges in the Boston area, the Ivy League, and gradually most universities in Canada and the United States, corporations, and by September 2006, to everyone of age 13 and older with a valid email address.
Current Stats: The current presence of Facebook is all over the world. Facebook is ranked 2nd in the internet world next only to Google and have a record 1.15 billion active users till March 2013. **Platform:** Facebook is developed using C++ and PHP. The database used by Facebook is MySQL. **Issues with Existing System:** The various issues with the existing

System are as follows:

1. Compatibility of platform and database server*:* The platform used to develop Facebook is PHP while database server used is MySQL. The compatibility between PHP and MySQL server is known to have certain issues when used with large data regarding speed of operation.

2. We cannot Find nearby Friends on facebooks

4. Proposed System

The proposed system aims at overcoming the pitfalls of the existing system then replicating the major features of the same gradually. The major features of the proposed system are:

Each specific type of NoSQL database has different strengths, but all share fundamental characteristics that allow them to:

- Handle large volumes of data at high speed with a scale-out architecture
- Store unstructured, semi-structured, or structured data
- Enable easy updates to schemas and fields
- Be developer-friendly
- Take full advantage of the cloud to deliver zero downtime
- Map Feature With near By friends

Handle Large Volumes of Data at High Speed with a Scale-Out Architecture

SQL databases are most often implemented in a scale-up architecture, which is based on using ever larger computers with more CPUs and more memory to improve performance.

NoSQL databases were created in Internet and cloud computing eras that made it possible to more easily implement a scale-out architecture. In a scale-out architecture, scalability is achieved by spreading the storage of data and the work to process the data over a large cluster of computers. To increase capacity, more computers are added to the cluster.

This scale-out architecture is particularly painless to implement in cloud computing environments where new computers and storage can be easily added to a cluster.

The scale-out architecture of NoSQL systems provides a clear path to scalability when data volume or traffic grows. Achieving the same type of scalability with SQL databases can be expensive, require lots of engineering, or may not be feasible.

A financial services company like IHS Markit requires high performance both for ingesting data and for delivering it. Moving from a relational database to MongoDB, IHS Markit reports that it is able to deliver timely financial information to its customers 250x faster.

Store Unstructured, Semi-Structured, or Structured Data

Relational databases store data in structured tables that have a predefined schema. To use relational databases, a data model must be designed and then the data is transformed and loaded into the database.

When data is used in applications, the data then must be retrieved using SQL, and adapted to the form used in the application. Then when the data is written back, it must be transformed again back into the relational tables.

NoSQL databases have proven popular because they allow the data to be stored in ways that are easier to understand or closer to the way the data is used by applications. Fewer transformations are required when the data is stored or retrieved for use. Many different types of data, whether structured, unstructured, or semi-structured, can be stored and retrieved more easily.

In addition, the schemas of many NoSQL databases are flexible and under the control of the developers, making it easier to adapt the database to new forms of data. This removes bottlenecks in the development process associated with asking a database administrator to redesign a SQL database.

NoSQL databases support widely used data formats:

- Big data of all kinds -- text data as well as time-series data
- JSON files, which are nested human-readable files consisting of names and value pairs. This format can capture highly complex parent-child hierarchical structures, which can be efficiently stored in document databases
- Simple binary values, lists, maps, and strings can be handled at high speed in key-value stores
- Sparse data can be efficiently stored in columnar databases, where null values take up no room at all. They are also effective for information that does not change frequently (nonvolatile data)
- Networks of interrelated information can be stored in graph databases.

Enable Easy Updates to Schema and Fields

NoSQL databases have become popular because they store data in simple straightforward forms that can be easier to understand than the type of data models used in SQL databases.

In addition, NoSQL databases often allow developers to directly change the structure of the data.

- Document databases don’t have a set data structure to start with, so a new document type can be stored just as easily as what is currently being stored.
- With key-value and column-oriented stores, new values and new columns can be added without disrupting the current structure.
- In response to new kinds of data, graph database developers add nodes with new properties and arcs with new meanings.

Developer-Friendly

Adoption of NoSQL databases has primarily been driven by uptake from developers who find it easier to create various types of applications compared to using relational databases.

Hardware Requirements:

For development:

- 8 GB Ram
- 1.5 GHz processor or more
- Internet Connection (1Mbps broadband connection is recommended for smooth operation).

For Deployment:

- 512 MB Ram
- Any processor with operating frequency not less than 1GHz.
- Internet connection (256Kbps broadband connection is recommended for smooth operation).

Software Requirements :

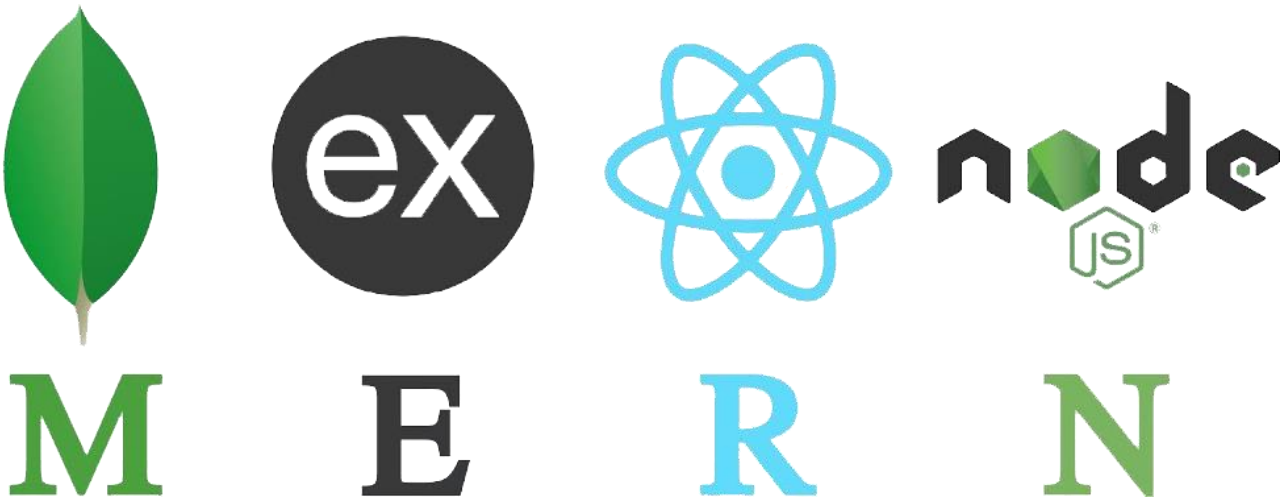
For Development:

- Visual Studio Code
- Chrome
- ColorZilla
- PostMan
- Git Lense
- Es6 Formatter

For Deployment

- Github
- Heroku
- Aws
- Gitbash
- Heroku watcher app

Which Technology is Used and Why?



Technology used:

Reactjs - React. js is an open-source JavaScript library that is used for **building user interfaces specifically for single-page applications**. It's used for handling the view layer for web and mobile apps. React also allows us to create reusable UI components.

Nodejs - is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser. Consequently, Node.js represents a "JavaScript everywhere" paradigm, unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.

Expressjs - Express.js, or simply Express, is a back end web application framework for Node.js, released as free and open-source software under the MIT License. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js.

MongoDB - MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas. MongoDB is developed by MongoDB Inc. and licensed under the Server Side Public License.

HTML - The HyperText Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript

CSS - Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript

SASS - Sass is a preprocessor scripting language that is interpreted or compiled into Cascading Style Sheets. SassScript is the scripting language itself.

Redux - Redux is an open-source JavaScript library for managing and centralizing application state. It is most commonly used with libraries such as React or Angular for building user interfaces. Similar to Facebook's Flux architecture, it was created by Dan Abramov and Andrew Clark.

SocketIO - In most cases, the connection will be established with WebSocket, providing a low-overhead communication channel between the server and the client.

Why choose of MERN Stack!

a. UI rendering and performance

React JS is the best when it is about UI layer abstraction. Since React is only a library, it provides you the freedom to build the application and organize the code however you want. So, it is better than Angular in terms of UI rendering and performance.

b. Cost-Effective

As MERN Stack uses one language throughout that is Javascript so it will be beneficial for a company to hire Javascript experts only rather than hiring different specialists for different technology. This move will save a lot of time and money.

c. Open Source

All technologies that are involved in MERN are open-source. This feature allows a developer to get solutions to queries that may evolve during development, from the available open portals. As a result, it will be beneficial for a developer.

d. To switch between client and server

As everything is written in one language this is why MERN is simple and fast. And also it is easy to switch between client and server.

Service Used :

Mapbox - a plugin for react-map-gl, is a JavaScript library that allows you to add an interactive map to your website. Mapbox.js is no longer in active development. Mapbox.js natively supports raster tilesets, and can support vector tilesets using L.mapbox.styleLayer

.

EmojiPicker – for emoji sending.

Weatherbit- A weather Api.

Cloudinary - a cloud-based image and video management services. It enables users to upload, store, manage, manipulate, and deliver images and video for websites and apps. Wikipedia

LIBRARY USED

At FrontEnd:

- "react-awesome-slider": "^4.1.0",
- "react-cropper": "^1.3.0",
- "react-dom": "^16.12.0",
- "react-helmet": "^6.1.0",
- "react-hook-form": "^4.9.8",
- "react-html-parser": "^2.0.2",
- "react-image-lightbox": "^5.1.1",
- "react-infinite-scroll-component": "^5.0.4",
- "react-infinite-scroller": "^1.2.4",
- "react-linkify": "^1.0.0-alpha",
- "react-loader-spinner": "^4.0.0",
- "react-map-gl": "^5.3.10",
- "react-places-autocomplete": "^7.2.1",
- "react-redux": "^7.2.0",
- "react-reveal": "^1.2.2",
- "react-router-dom": "^5.1.2",
- "react-scripts": "^4.0.3",
- "react-select": "^3.1.0",

- "react-slick": "^0.28.1",
- "react-toastify": "^8.1.0",
- "react-transition-group": "^4.3.0",
- "react-video-thumbnail": "^0.1.3",
- "reactjs-file-uploader": "^1.0.8",
- "redux": "^4.0.5",
- "redux-thunk": "^2.3.0",
- "simple-react-video-thumbnail": "^0.0.7",
- "socket.io-client": "^2.3.0",
- "styled-components": "^5.3.3",
- "sun-time": "^1.0.2",
- "validator": "^12.2.0",

At BackEnd

- "bcryptjs": "^2.4.3",
- "body-parser": "^1.19.0",
- "cloudinary": "^1.21.0",
- "cors": "^2.8.5",
- "dotenv": "^8.2.0",
- "express": "^4.17.1",
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- "mongoose": "^5.7.8",
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- "multer": "^1.4.2",
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For Deployment Services

Features Of Social Media and Main Components:

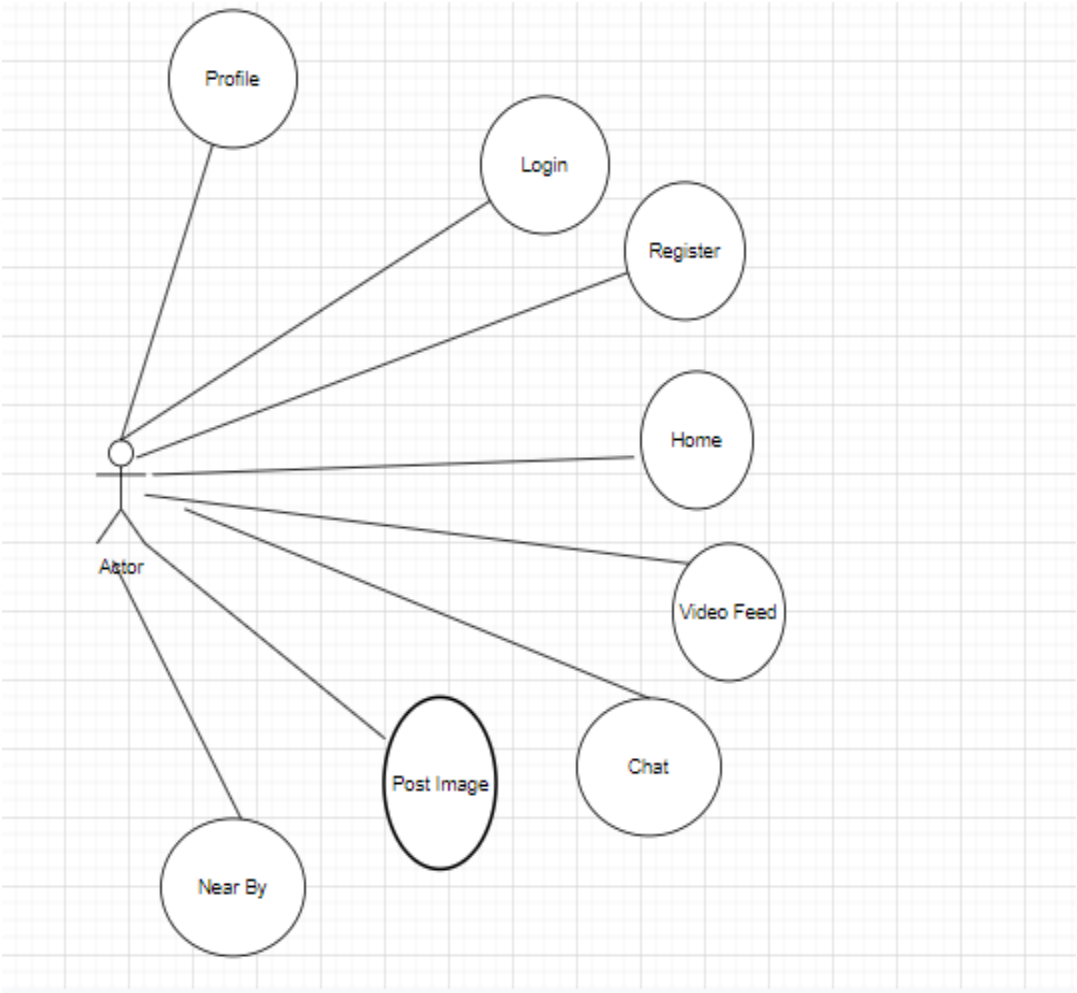
- Register
- Friends
- Chat
- Near By
- Weather
- Notification
- Account
- Setting

User features:

- register and login users.
- post images can be uploaded using camera or file system.
- pagination on every pages.
- Dark mode.
- Weather option
- Near by friends
- search other users by username.
- user suggestions menu.
- save any post to collection.
- Emoji picker.
- delete posts and comments.
- admin panel is included.
- Explore page to view other posts by random users.
- notifications page.
- profile page.
- edit profile page user data.

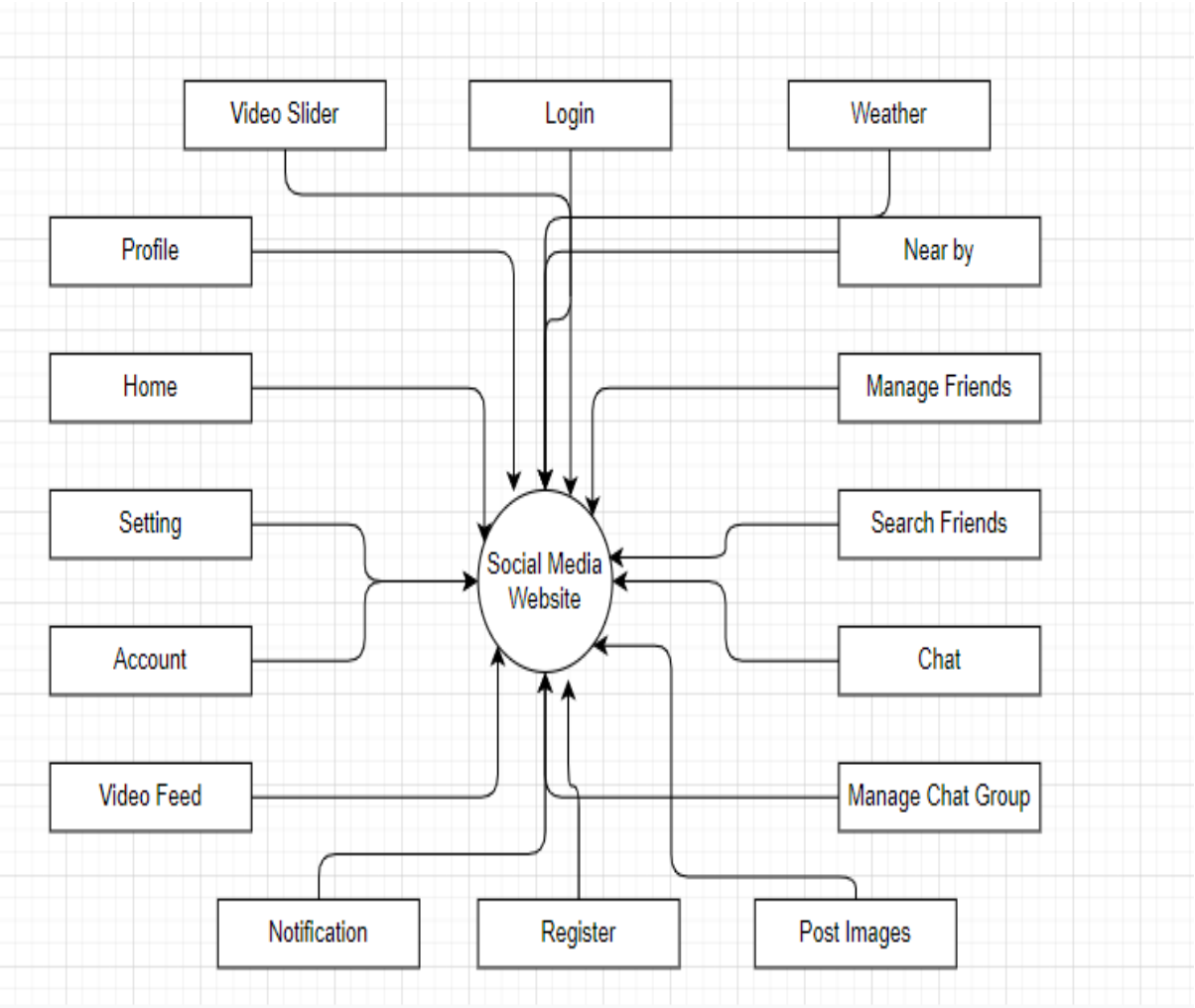
- password is stored in database in encrypted format with salt.
- create and edit posts.
- like ,comment, share and edit posts.
- posts include text(caption) and image(s).
- comment on posts.
- reply comments.
- like commets.
- clear notification option.
- profile page shows user details and posts with following and followers menu.
- Group chat
- Single chat
- Online friends
- Video feed
- Share location
- Edit image
- Upload profile
- Lazy loading
- Send image to other user while chat
- Chat with socket io

Use Case Diagram



Overview of Project Functionality

Data Flow Diagram



Data Flow With Diagram

Main Model Component

- **User Model :**

```
name:{
        type:String,
        required:true
    },
    email:{
        type:String,
        required:true,
        unique:true,
    },
    chatRooms: [userChatRoomSchema],
    password:{
        type:String,
        required:true,
        minlength:6
    },
    username:{
        type:String,
        required:true,
        unique:true
    },
    cover:{
        type:String
    },
     isOnline: {
      type: Boolean,
      default: false,
    },
    socketId: {
      type: String,
```

```
  default: '',
},
img:{
    type:String,
    default:"img "

},
publicId:{
    type:String
},
about:{
    livesIn:{
        type:String
    },
    bio:{
        type:String,
        maxLength:255
    },
    birth:{
        type:String
    },
    gender:{
        type:String
    },
    from:{
        type:String
    }
},
posts:[{ type: mongoose.Types.ObjectId, required: true, ref: 'Post' }],
notifications:[{type:mongoose.Types.ObjectId,ref:'Notification'}],
```

```
    friends:[{type:mongoose.Types.ObjectId,ref:"User"}],
    unReadNotifications:{
        type:Number,
        default:0
    }
```

- **Post Model :**

```
title:{
        type:String,
    },
    img:{
        type: String
    },
    location:{
        type:String
    },
    publicId:{
        type:String
    },
    comments:[{type:mongoose.Types.ObjectId,ref:'Comment'}],
    liked:[{type: mongoose.Types.ObjectId}],
    creator:{ type: mongoose.Types.ObjectId, required: true, ref:'User' },
},
```

- **Video Model:**

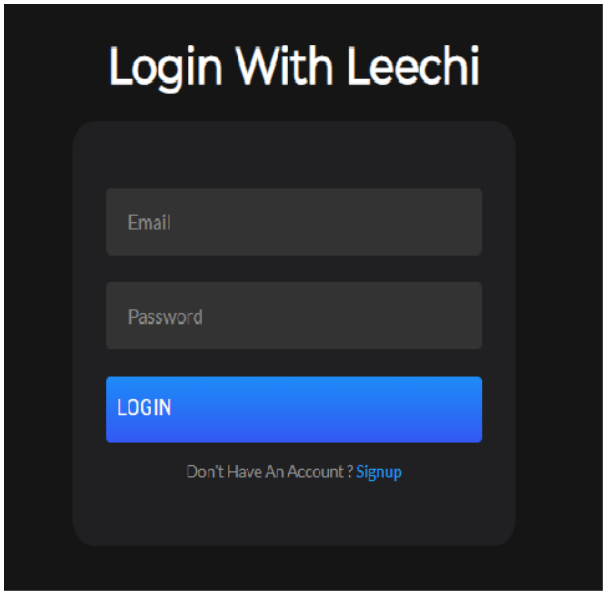
```
postedByUrl:{
        type:String,
        require:true,
    },
    postedBy:{
        type:String,
        require:true
    },
    likes:[{type: mongoose.Types.ObjectId}],
    comments:[{type:mongoose.Types.ObjectId}]

},
```

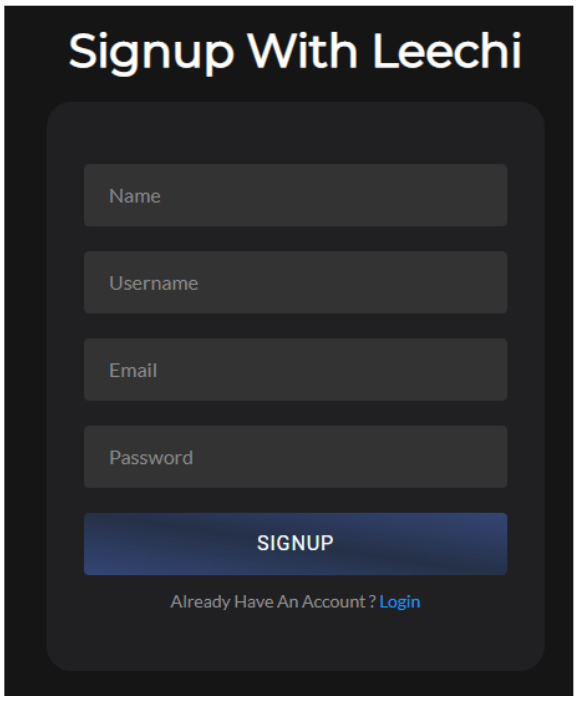
- **NearBy Model :**

```
    longi:{
        type:Number,
    },
    latti:{
        type:Number,
     },
    creator:{type:mongoose.Types.ObjectId,ref:"User",unique:true}
  }
```

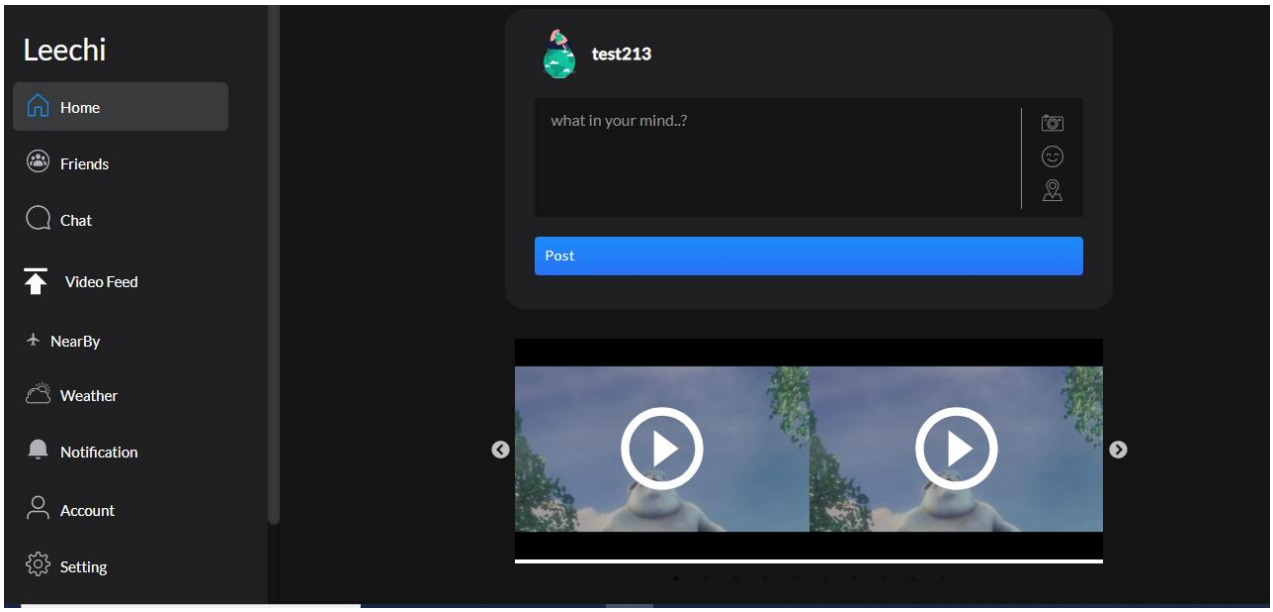
SNAPSHOTS

Login Sceen

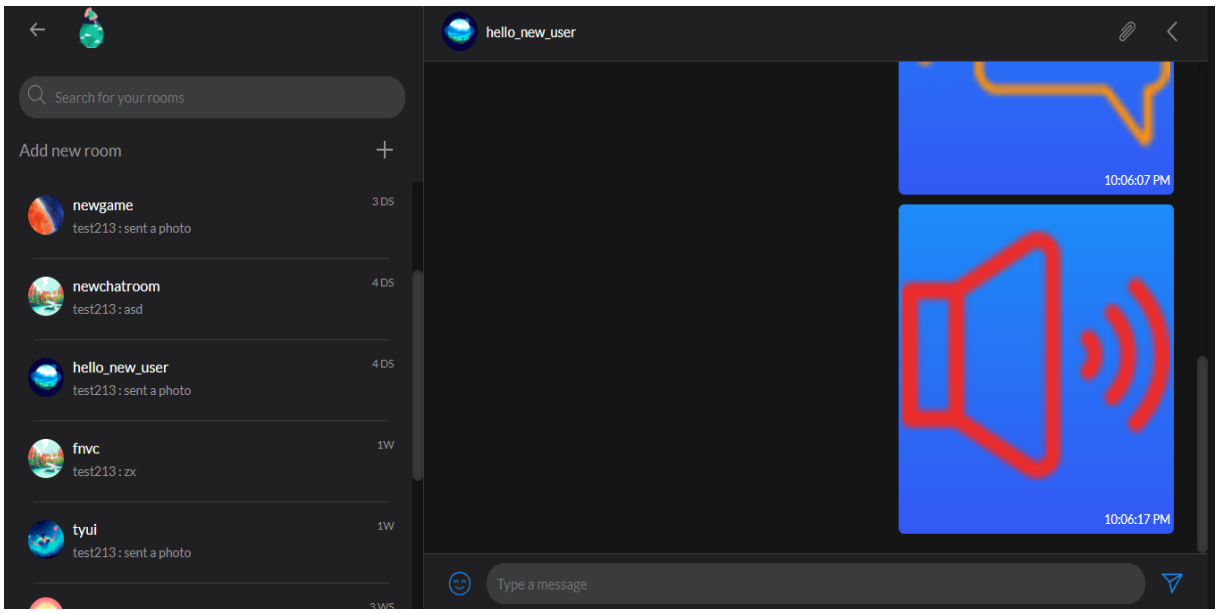




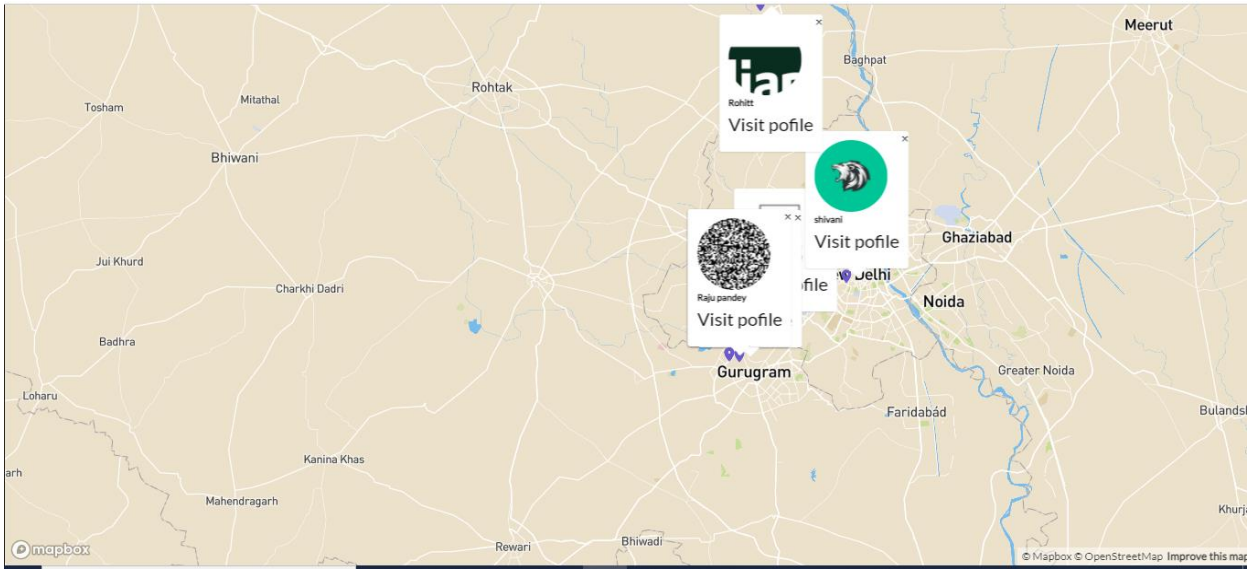
Home Screen



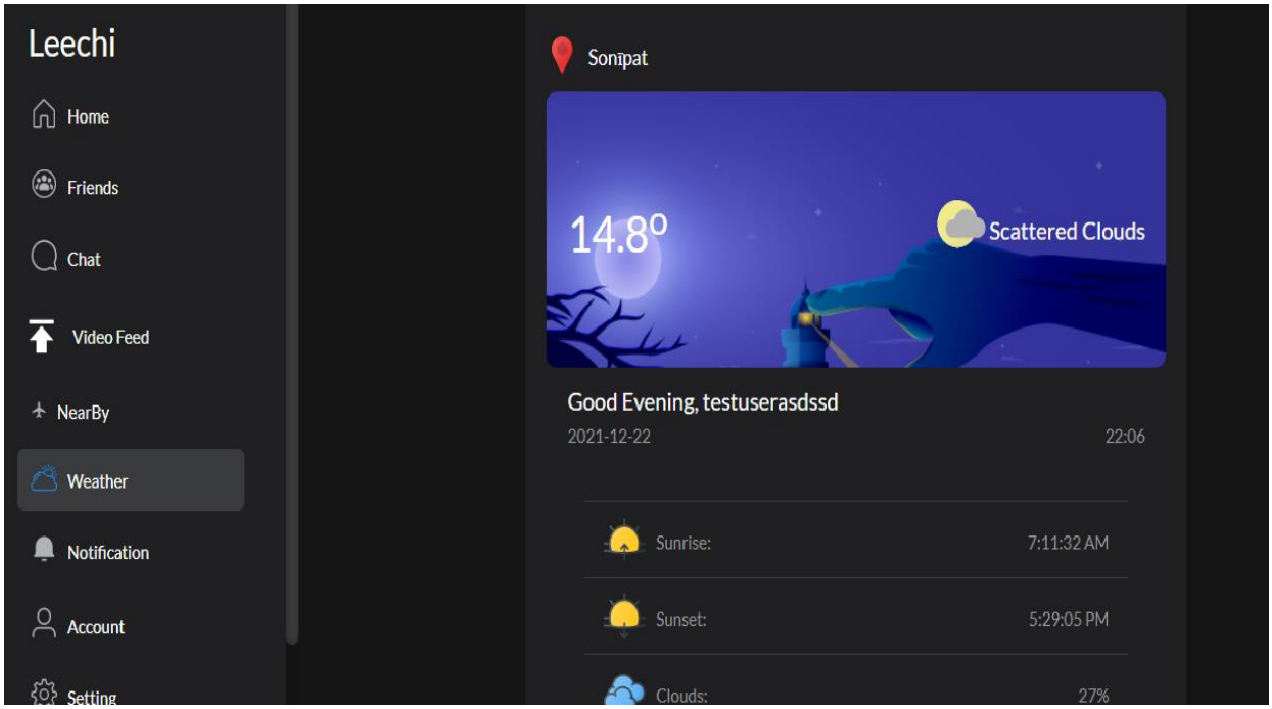
Chat Screen



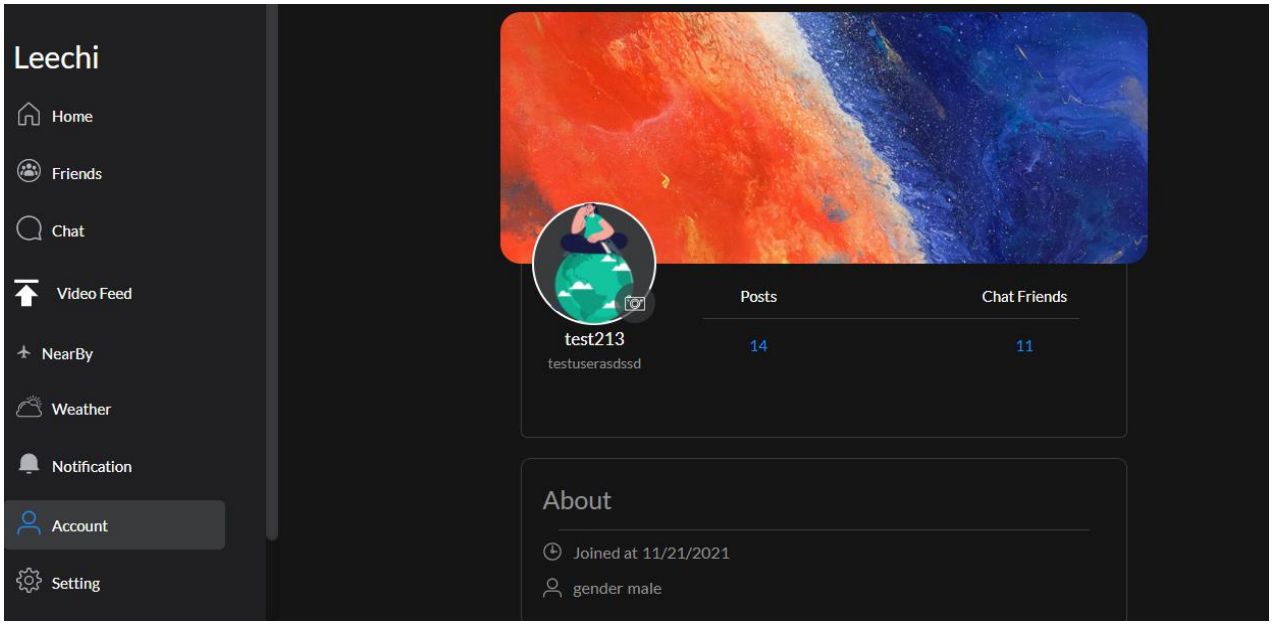
Map



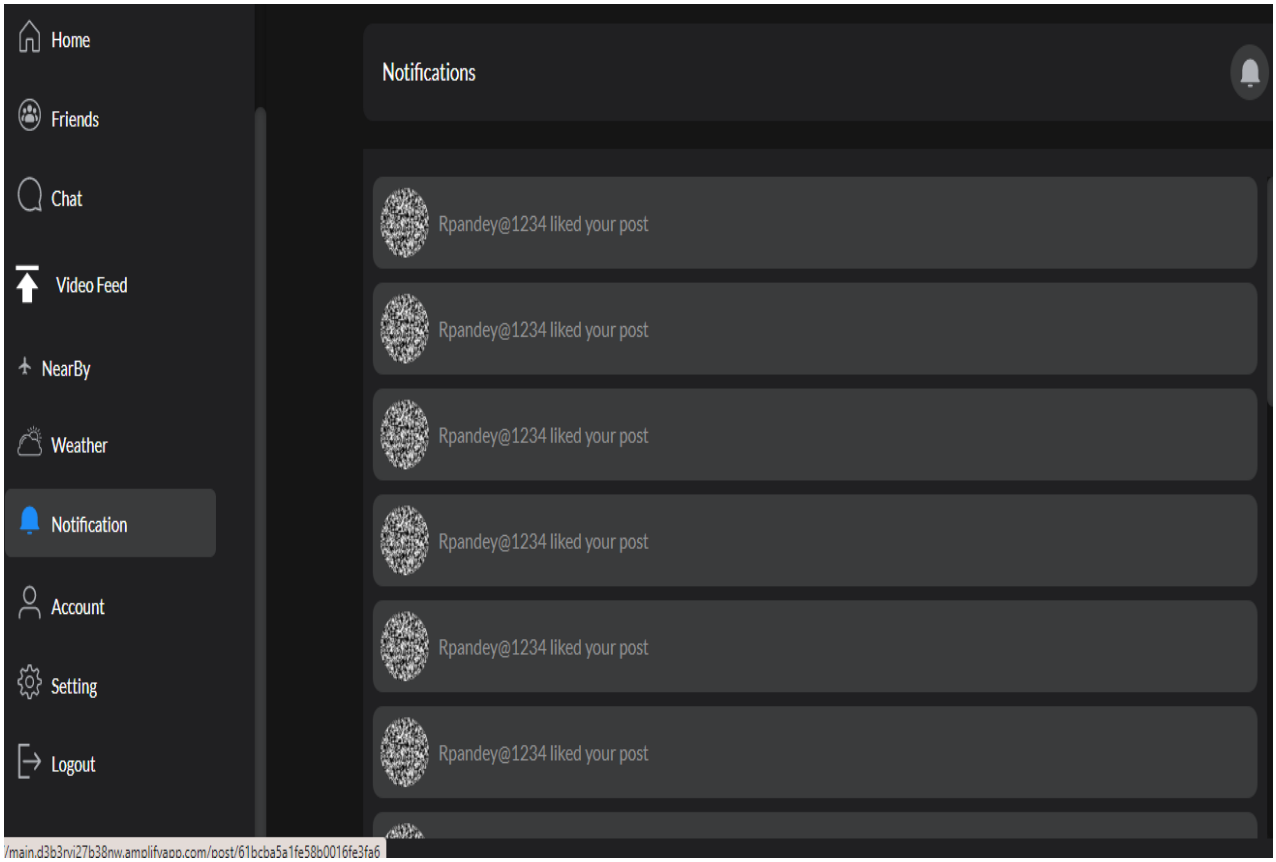
Weather



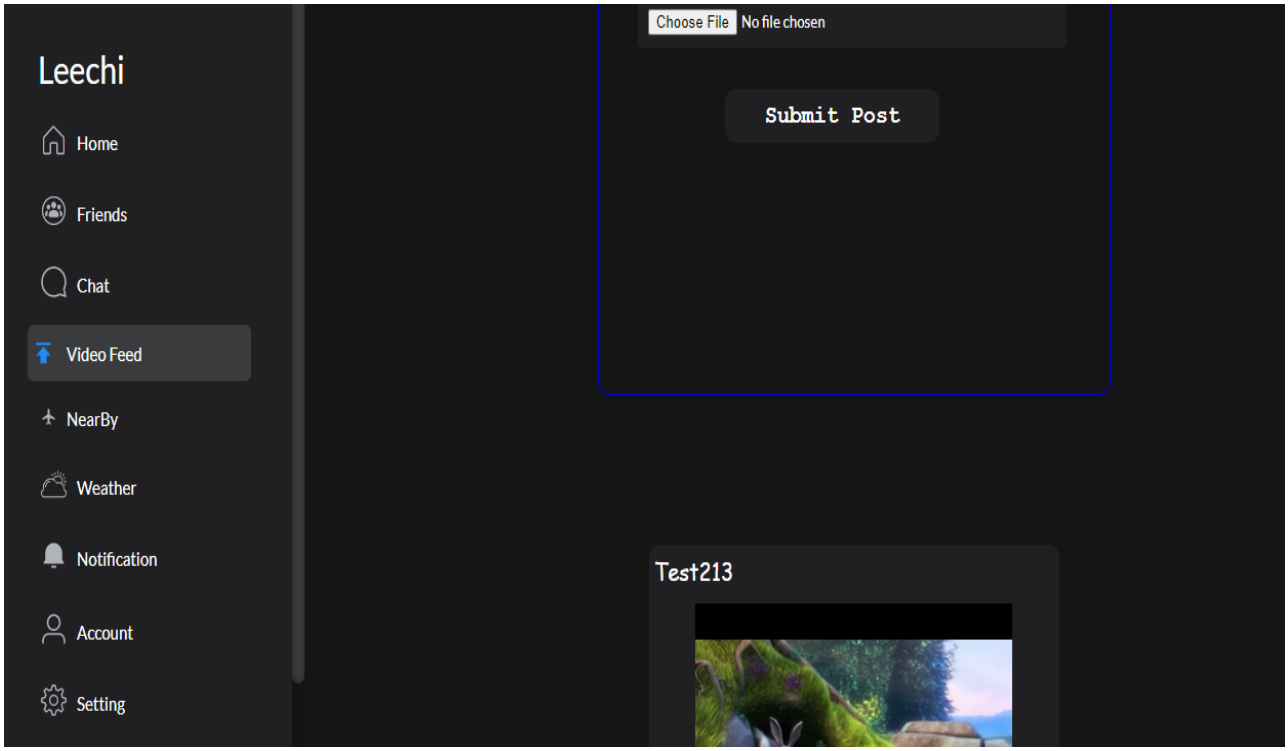
Profile Page



Notification Page



Video Feed Page



Conclusion

This report introduced the development of a new social networking titled Leechi which etymologically means Friends. Leechi is better than what Mark Zukerberg developed in the year 2004. Leechi aims at removing the present major shortcomings of Facebook which includes missing nearby (map) support at login, no testimonials writings provisions, no open chat facility, missing IT act guidelines for social networking and short-bit Hashing algorithm. The primary target is to eliminate those pitfalls of Facebook and include basic social networking functioning and later incorporate other Facebook features gradually. The various technical details of the project are also discussed which includes use of frontend and back-end tools and technologies, designing tools, data flow diagrams of the project and the various modules along with their current status of development in which the project will be carried out and the proposed time limit for each module.
developer at DreamTech Labs.

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4. React js Documentation
5. Mongo Documentation
6. Node js Documentation