Indian Wildlife

Software Design Specification

Version 1.1

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1. PURPOSE

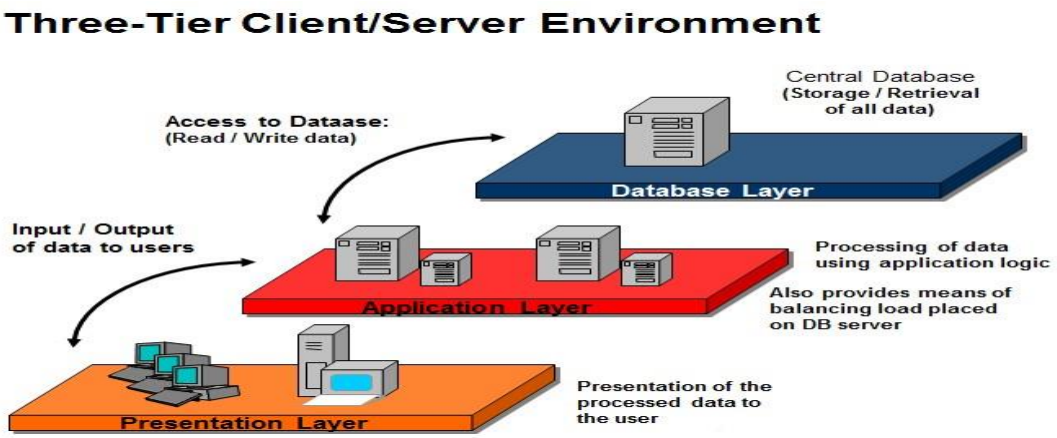
The main purpose of the site is the conservation of Indian Wildlife. The website will be an all in one package that will focus on promoting conservation to monitoring stats to organizing events. Website will be highly customizable and flexible enough to easily deploy. It'll seek creative ideas from people to promote conservation of India's wildlife. The targeted user's community consists of wildlife enthusiasts, ecologists, zoologists, scientists, and various other government and non-government organizations.

The site will monitor statistics related to endangered species, jeopardized habitats, unbalanced ecosystems and unfavourable climate changes. Secure registration and profile management facilities with registered members, government and NGOs will also be incorporated. It will facilitate members to form groups to organize local meetings, wildlife forums, periodicals and wildlife camps. Registered members can post relevant photos, videos and other data. There will be regular updates and news flashes about recent events in the field. The main aim is to make the people aware about the importance of conservation of wildlife so that everyone realizes the importance of this issue and contributes a hand.

2. DESIGN OUTLINE

2.1. Design Model

This includes the higher level overview of the modules used in the application. The system uses the 3 tier which includes client, server, database server and database. The detailed diagram is given below as:



The top tier of the system is referred to as client tier, is the application's user interface, which gathers input and displays output. Users interact directly with the application through the user interface, which is typically a web browser. It translates tasks and results to something user can understand. The user chats with the other users directly through this tier.

The middle tier implements business logic, controller logic and presentation logic to control interactions between the application's clients and its data. The middle tier acts as an intermediary between data in the information tier and the application's clients. The middle-tier controller logic processes client requests (such as requests to view a product catalogue) and retrieves data from the database. The middle-tier presentation logic then processes data from the information tier and presents the content to the client. Web applications typically present data to clients as HTML documents. Business logic in the middle tier enforces business rules and ensures that data is reliable before the application updates a database or presents data to users.

The bottom tier (also called the data tier or the information tier) maintains the application's data. This tier typically stores data in a relational database management system (RDBMS). This basically contains the database server along with the database in the backend. The database server is specialized for retrieving the data being queried by the users.

2.2. Components of the System

- Post Data - To provide a space for registered users to post interesting photos, videos and presentation on Indian wildlife.

- Registration - Secure registration and profile management facilities for registered members, government and NGOs.

- Statistical Analysis - To monitor statistics related to endangered species, habitats, ecosystem, and climate.

- Social (Forum) - To facilitate members to form group for meetings, wildlife camps, periodicals and forums.

- Newsletter - A regular newsletter should be sent to registered user to spread awareness.

- Employment Opportunities - To provide various career opportunities in field of wildlife along with list of universities offering degree, fellowships and certification.

- News Updates - It will provide recent wildlife stories (success) with an opportunity for user to participate in wildlife blogs, forum, internships, conference and other awareness programs. The news updates can be sent to the respective members.

- Member Management - Basic facilities like add and update members, backup/recovery of data, generating reports etc.

- Feedback - To setup reviewers' panel to have tab on data being posted for website, panel will be responsible for various queries of users.

2.3. Interactions between System Components

- Registration and Posting Data - The users will be first asked to register. Only then they can post data using their respective username. The user can then repost or delete his/her posts as per his/her wish.

- Employment Opportunities and Forum - The admin and the registered users like the zoologists and ecologists can post respective employment opportunities on their forum.

- Registration and News Updates - The registered users can select an option whether to receive news updates or not. The admin then facilitates the delivery process of news updates to the registered users.

- Feedback and Forum - The registered users can use the forum to discuss and post the feedback. The admin can then analyse and improve upon the same.

- Registration and Statistical Analysis - Statisticians can register using the Registration portal and then using their account, post and analyse relevant statistical data on the site.

2.4 Design Diagrams

2.4.1 Context Diagram

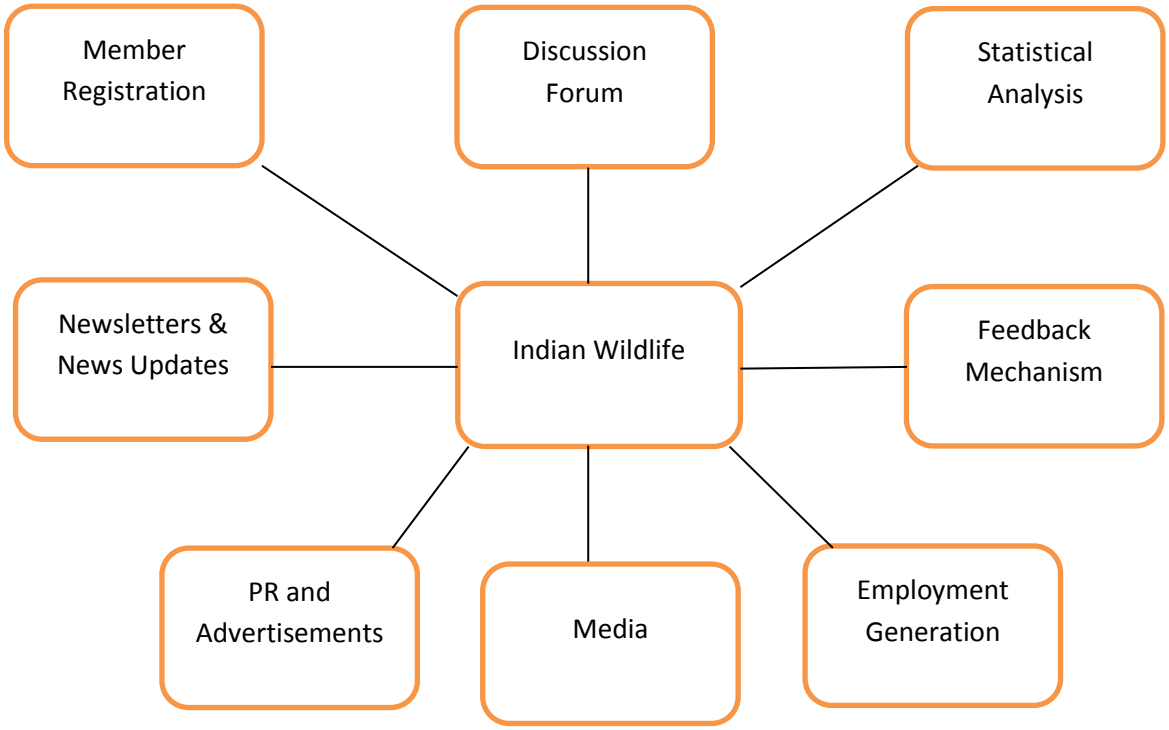


Figure 1: Context Diagram

Context Diagram is used to define the boundary between the system, or a part of the system and its environment showing the entities that interact with it. For instance, Indian Wildlife is connected to the various portals of member registration, discussion forum etc.

2.4.2 Behavioural Diagram

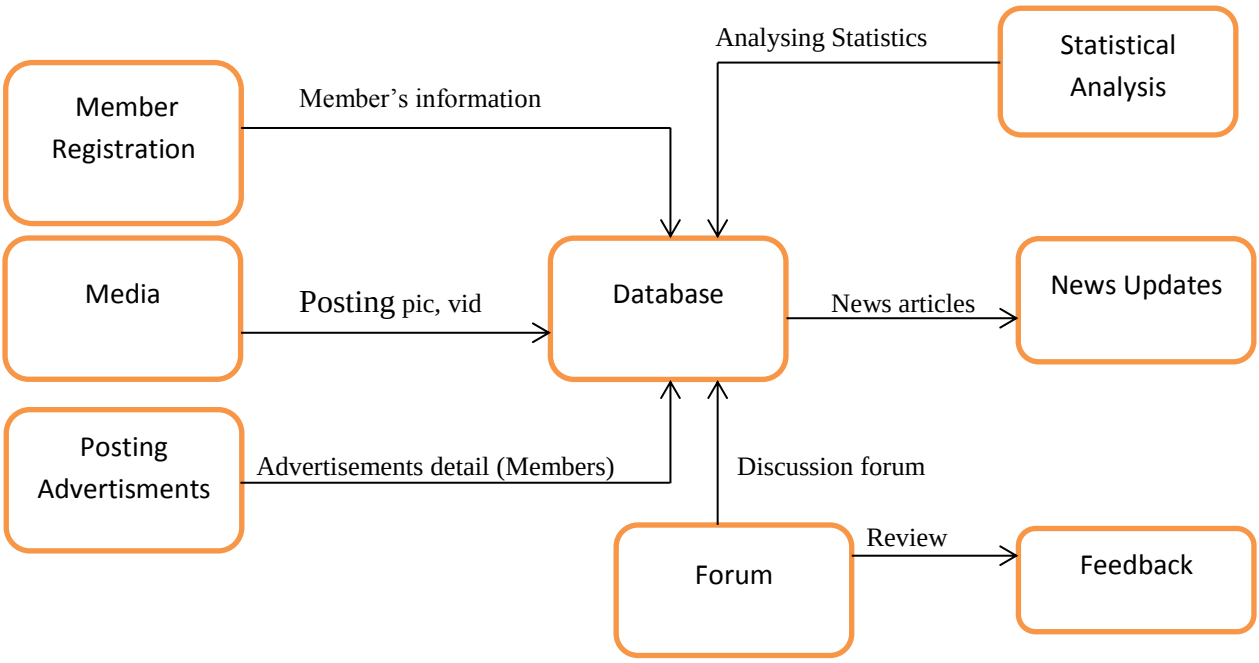


Figure 2: Behavioural Diagram

Behavioural diagrams are used to show the functionalities of the system. For example, in the above diagram, when a member registers, his information gets stored in the system database. And similarly, the other functionalities are carried out.

2.4.3 ER Diagram

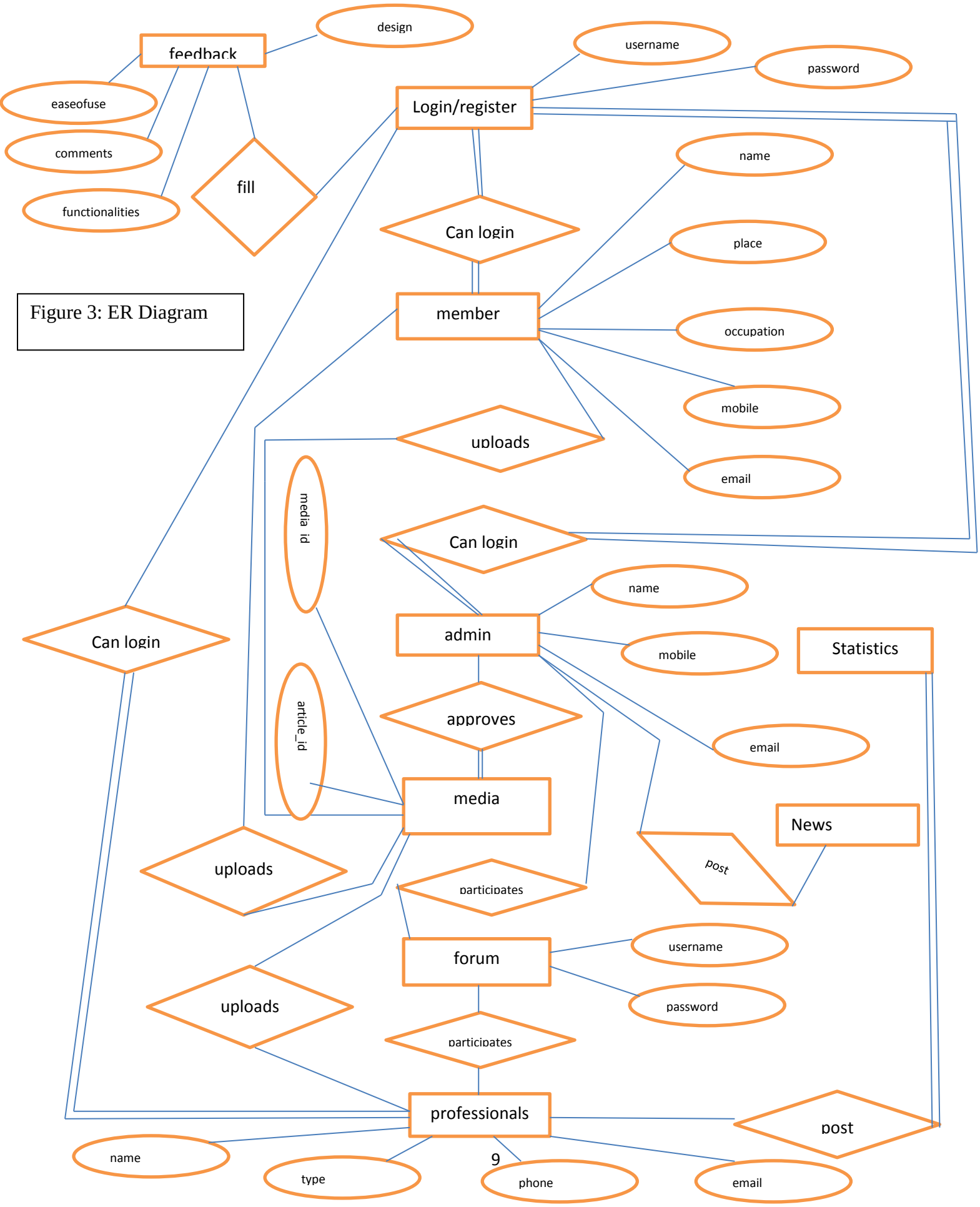


Figure 3: ER Diagram

ER Diagram is used to show the relationship between the entities and their attributes. For example, feedback has four attributes, namely easeofuse, comments, functionalities, design, and all the people who'll log in, can fill the feedback. Similarly, we've for other entities.

2.4.4 Architectural Diagram

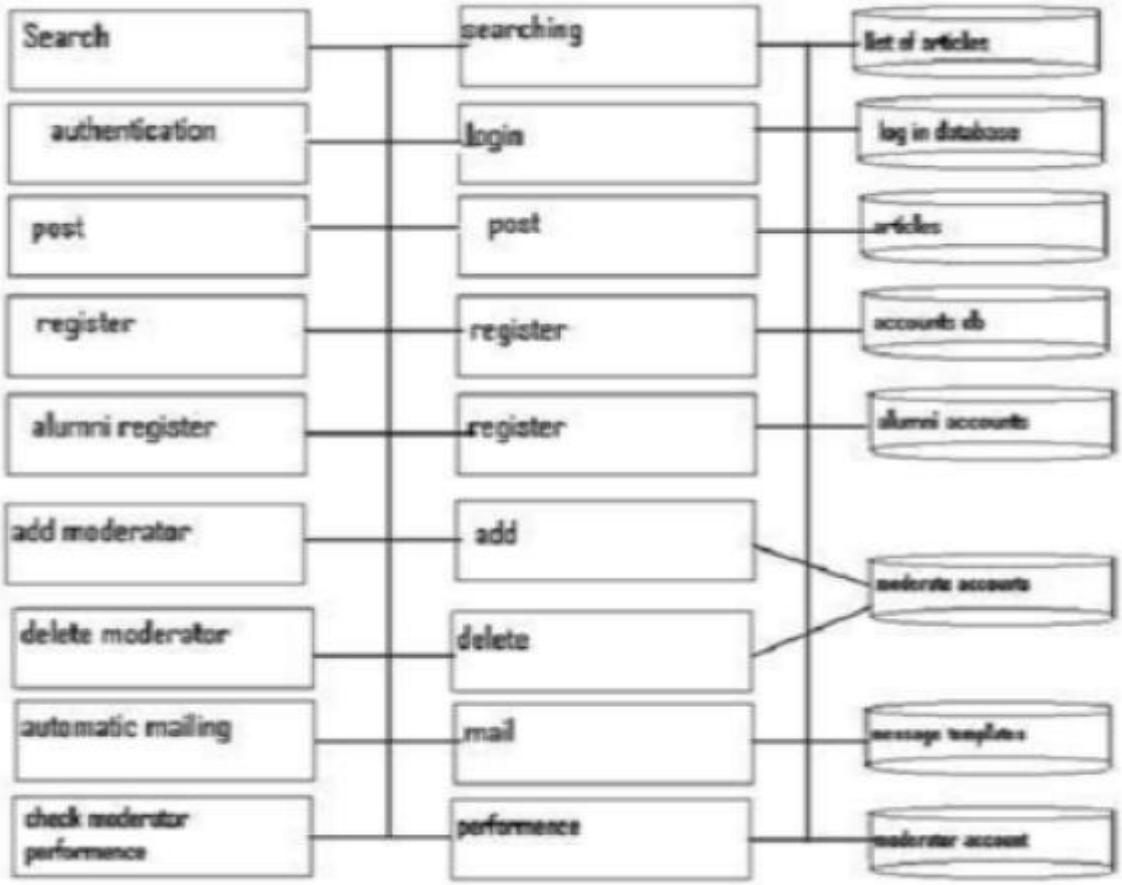


Figure 4: Architectural Diagram

Architectural Diagram is used to depict the architecture of the system. The above depicts how the functionalities can be associated with their respective databases.

3. DESIGN ISSUES

3.1. Functional Issues

- Validation of Registration Forms: It may happen that the registration forms are not properly validated and this may result in the entry of fake data or data that may have been entered by mistake.

  Problem: This may lead to incorrect entry of data which may further lead generation of incorrectly named certificates

  Solution: Proper validation of the each of the input fields in the form.

- Retrieval of Uploaded Files from Database: The source of the files uploaded on the portal should be correctly stored onto the database.

  Problem: This may create problems when we want to retrieve the files from the database and display them onto the portal.

  Solution: An algorithm should be created so that the source of the file is correctly formed. A correct source will help in proper retrieval of the file from the database.

- Database Designing: The database should be properly designed so that there are no problems related to storage of data or data redundancy in any form.

  Problem: incorrect tables in a database may lead to data redundancy. When large amount of data are stored in the same table, then it may take more time for the data to be searched from the database.

  Solution: ER diagrams should be formed first so that the relations between each of the table in the database can be found.

3.2. Non-Functional Issues

- Usability: The portal should be easily understandable so that a person works fluently on the system.

  Problem: If a user is not able to understand the working of the system then he might not work progressively which will further lead in the delay of every work that depends on it.

  Solution: An easy working system is created where a user is able to get the functionality of each and every component of the system.

- Efficiency: The portal should be efficient and save the time of the users and the programmer. It is also efficient in a way that it saves the wastage of paper and other resources that are normally used for documentation purposes.

  Problem: A less efficient system will consume more user time which might lead in the delay of work and other activities that depend on that work

  Solution: Repetition of code is prevented by creating functions that can be utilized again for the user of the programmer.

4. DESIGN DETAILS

4.1. Class Diagram

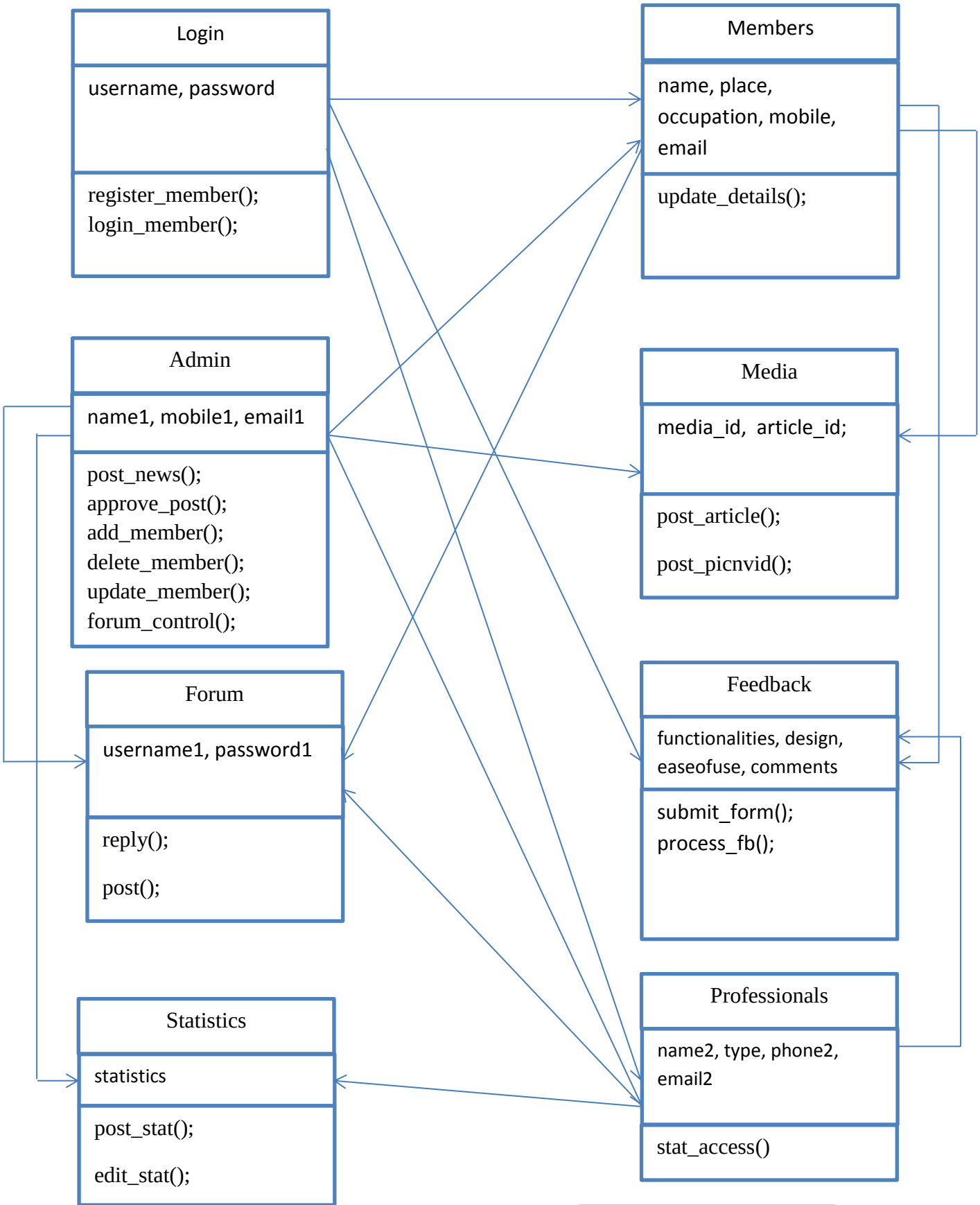


Figure 5: Class Diagram

4.2. Description of classes

- Login Class: This class helps the user, whether general or administrator, to login into the site and begin working. It also offers the facility to new users to register them if they are interested in being part of our venture.

- Members Class: This class allows the system to maintain the details of all its members. It contains fields such as name, place, occupation, mobile and email. This information is helpful to the administrator to view the user base of the website and for a variety of other different purposes.

- Admin Class: Contains the details of all administrators and their privileges. It defines the various domains over which the admin possesses control and the ways in which he can monitor the working of the portal.

- Media Class: This class is used to keep the information regarding all uploaded media and articles. Fields such as media_id and article_id are contained in this class. This information is useful for uniquely identifying and cataloguing all uploaded content on the site.

- Forum Class: This class contains all the necessary data, functions and modules to implement the discussion forum for the website.

- Feedback Class: This class contains all the form elements of a general feedback form asking the user for his views on the website's design, functionalities, ease of use and other comments. The details are stored in a database and then processed collectively for user response and identify areas for improvement.

- Statistics: This module contains all the functions and modules for performing various kinds of analysis operations for the data present for all the wildlife species covered by our program. It will help the conservationists to identify useful patterns in human-animal relationships and hence develop appropriate plans to solve the problems faced by these endangered species.

- Professionals: These include the zoologists, wildlife conservationists, statisticians and photographers that will form the major task force of this conservation program, providing their respective services to help this noble cause.

4.3. Sequence Diagrams

4.3.1. Based on guest member/user

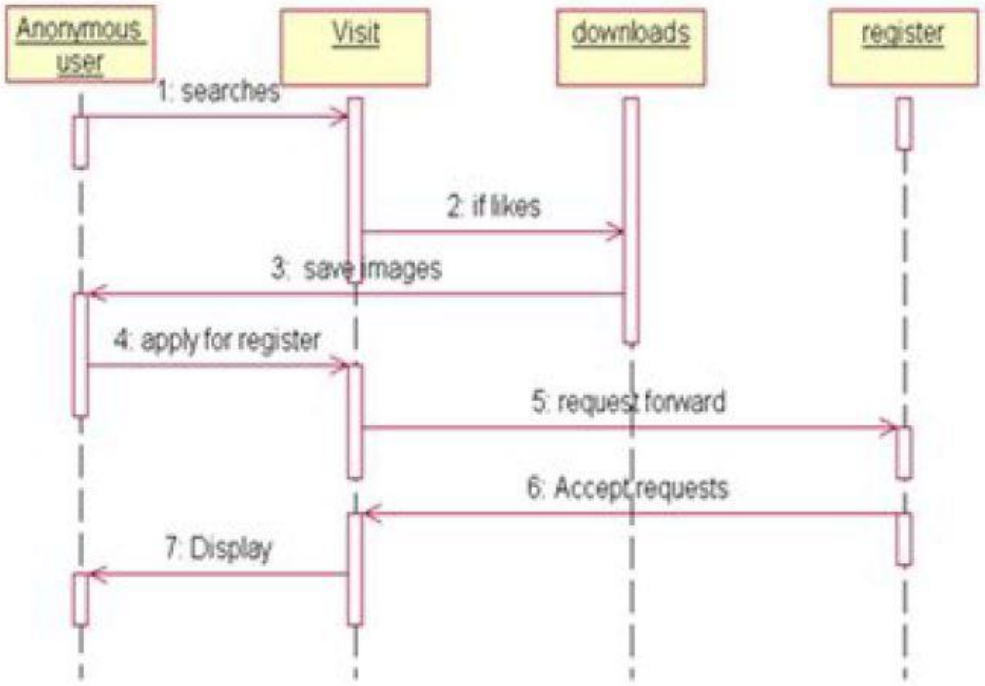


Figure 6: Sequence Diagram for guest member/user

Sequence diagram is an interaction diagram that shows how processes operate with one another and what is their order. The sequence diagram for the guest user represents the course of action that the guest user has to follow in order to register him to the site.

4.3.2. Based on registration

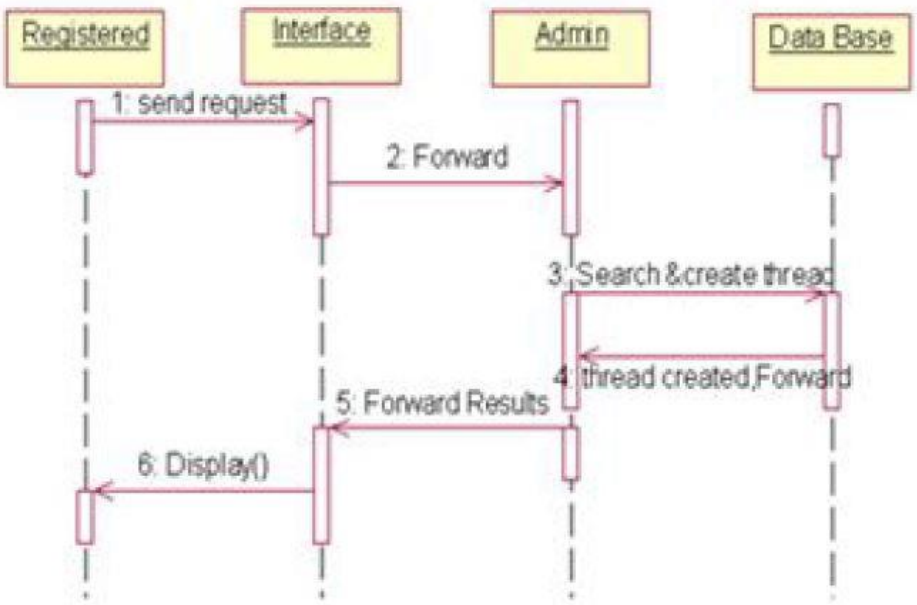


Figure 7: Sequence Diagram based on registration

This sequence diagram represents the processes involved in the registration of the user.

4.3.3. Based on posting

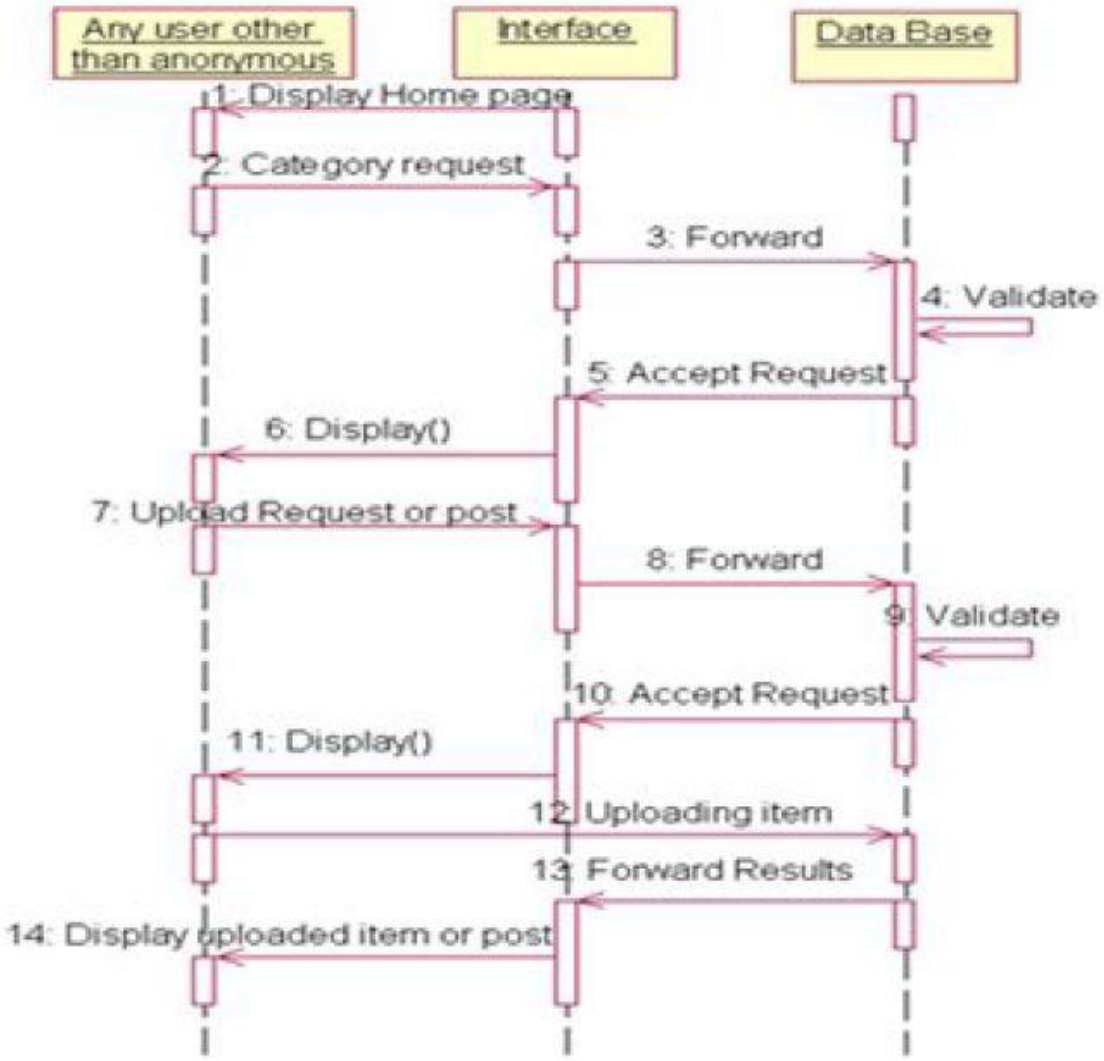


Figure 8: Sequence Diagram based on posting

The above sequence diagram represents the processes involved in posting an article, photo or video on the website.

4.4 Collaboration Diagrams

4.4.1 Based on guest member/user

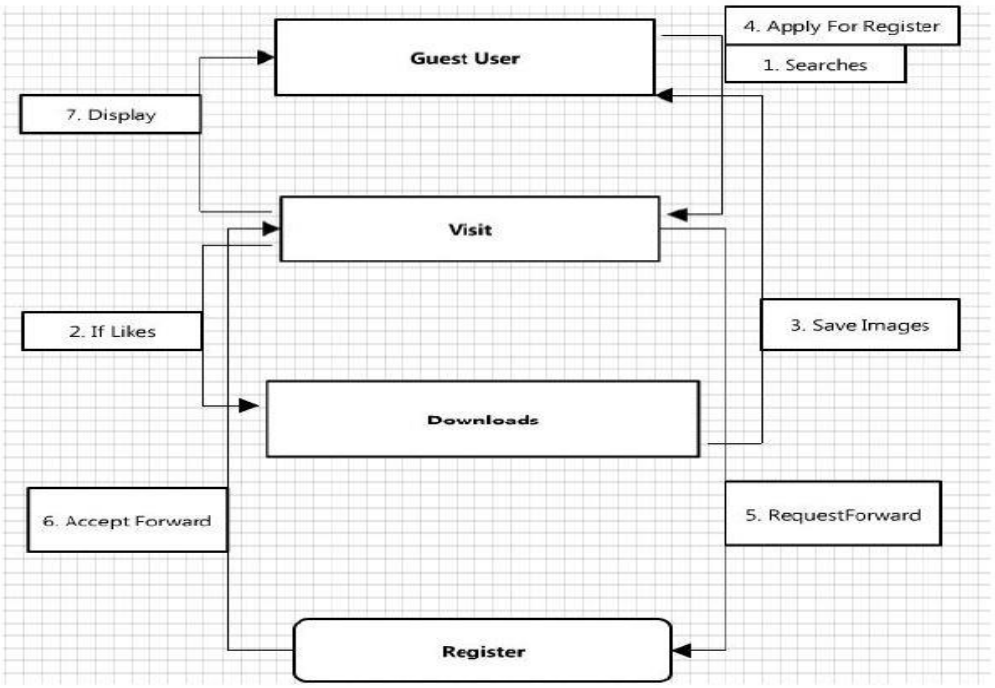


Figure 9: Collaboration Diagram for guest member/user

A collaboration diagram, also called a communication diagram or interaction diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). The collaboration diagram for the guest user represents the course of action that the guest user has to follow in order to register him to the site.

4.4.2 Based on registration

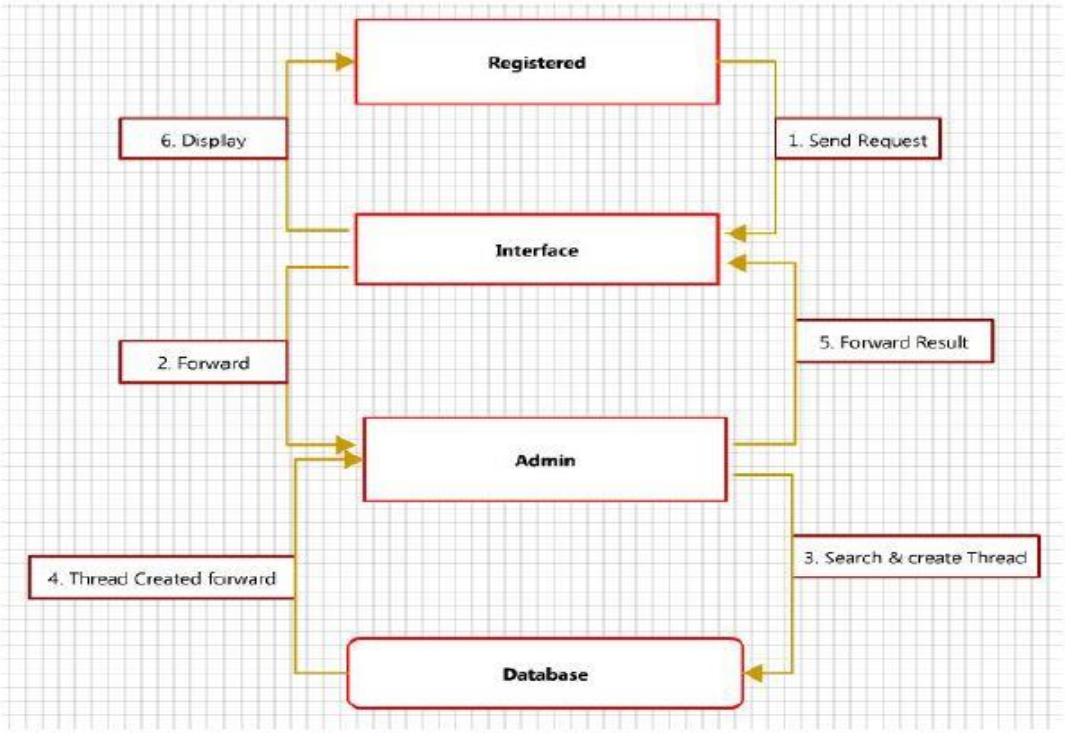


Figure 10: Collaboration Diagram for registration

This collaboration diagram represents the processes involved in the registration of the user.

4.4.3. Based on posting

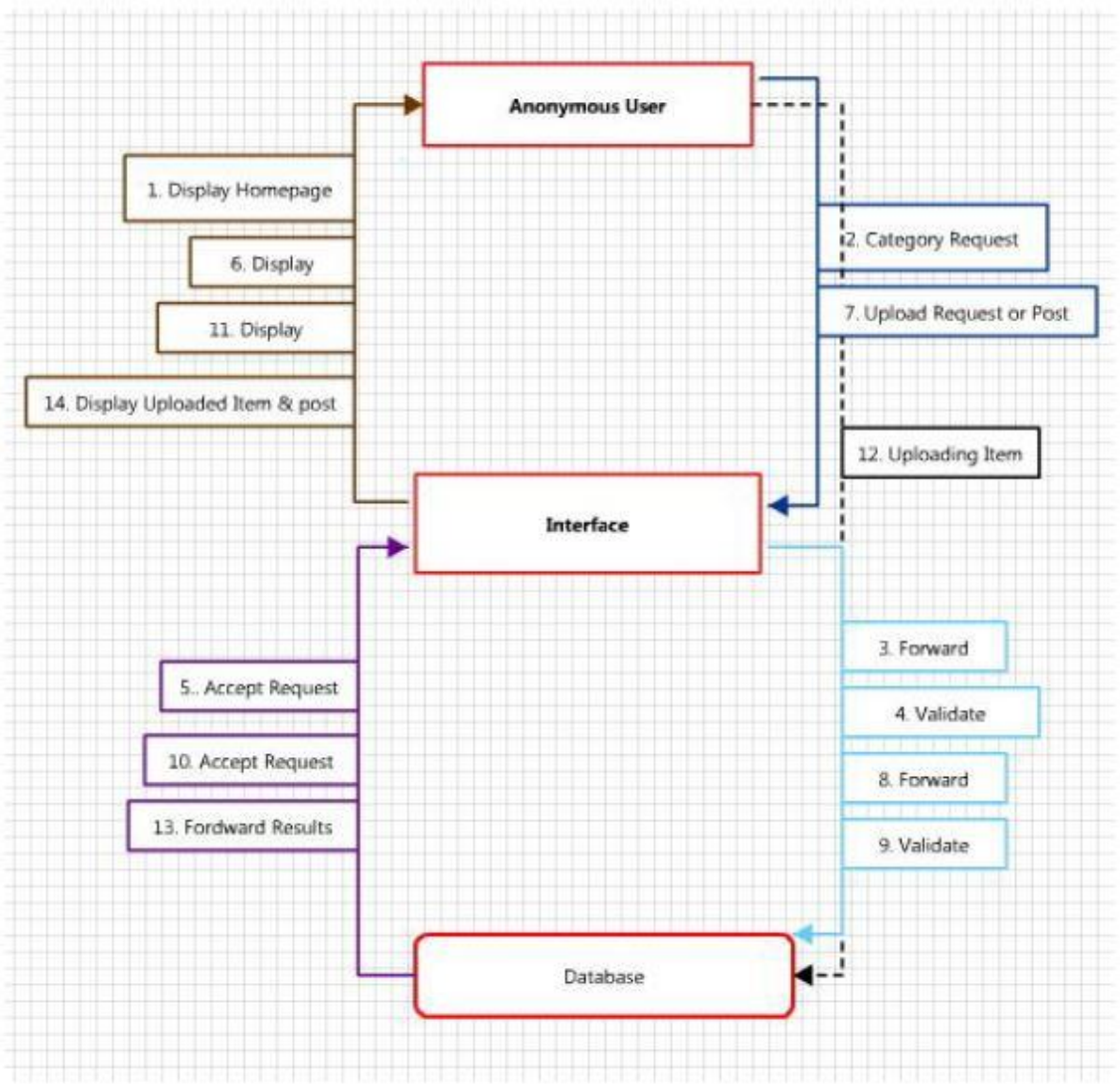


Figure 11: Collaboration Diagram for registration

The above collaboration diagram represents the processes involved in posting an article, photo or video on the website.

4.5. Activity diagrams

4.5.1. For posting (articles, photos and videos) by user

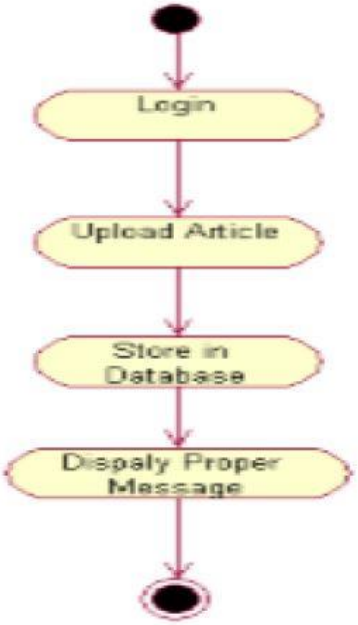


Figure 12: Activity Diagram for posting

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. The above is an activity diagram which represents posting process for articles, photos and videos.

4.5.2. For approval

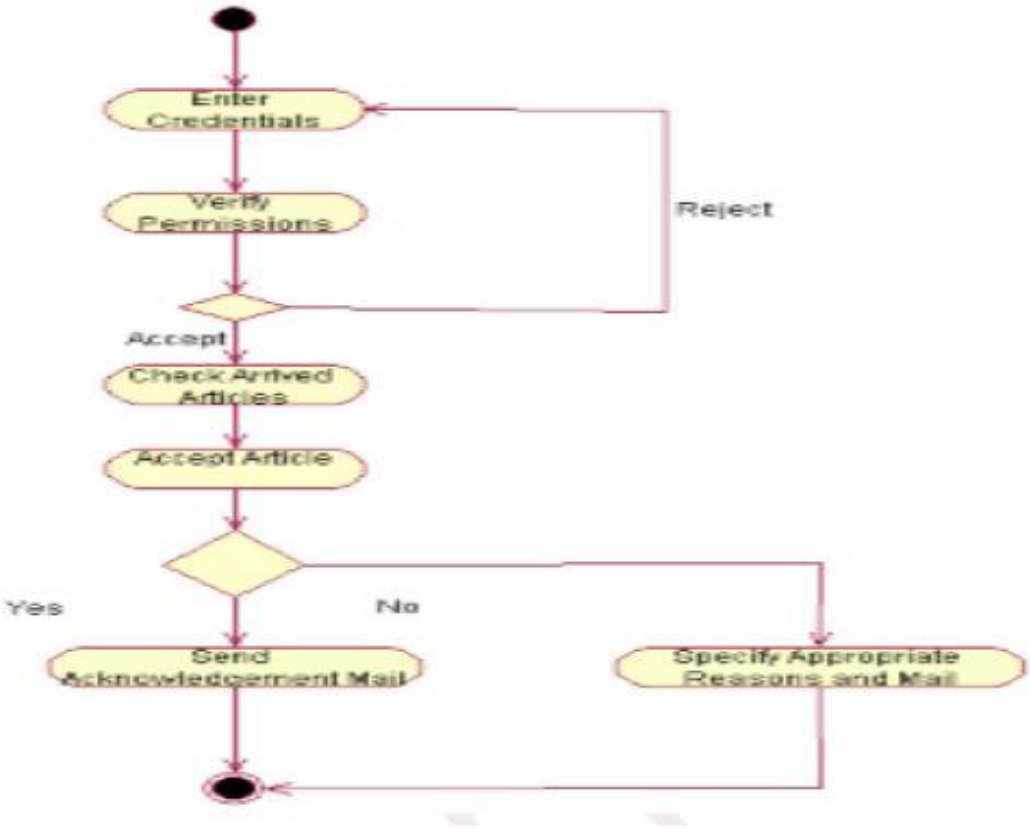


Figure 13: Activity Diagram for approval

The above is an activity diagram which represents the process of getting approval for the data uploaded on the website. If approved, then only the post will be visible on the website.

4.5.3. For login

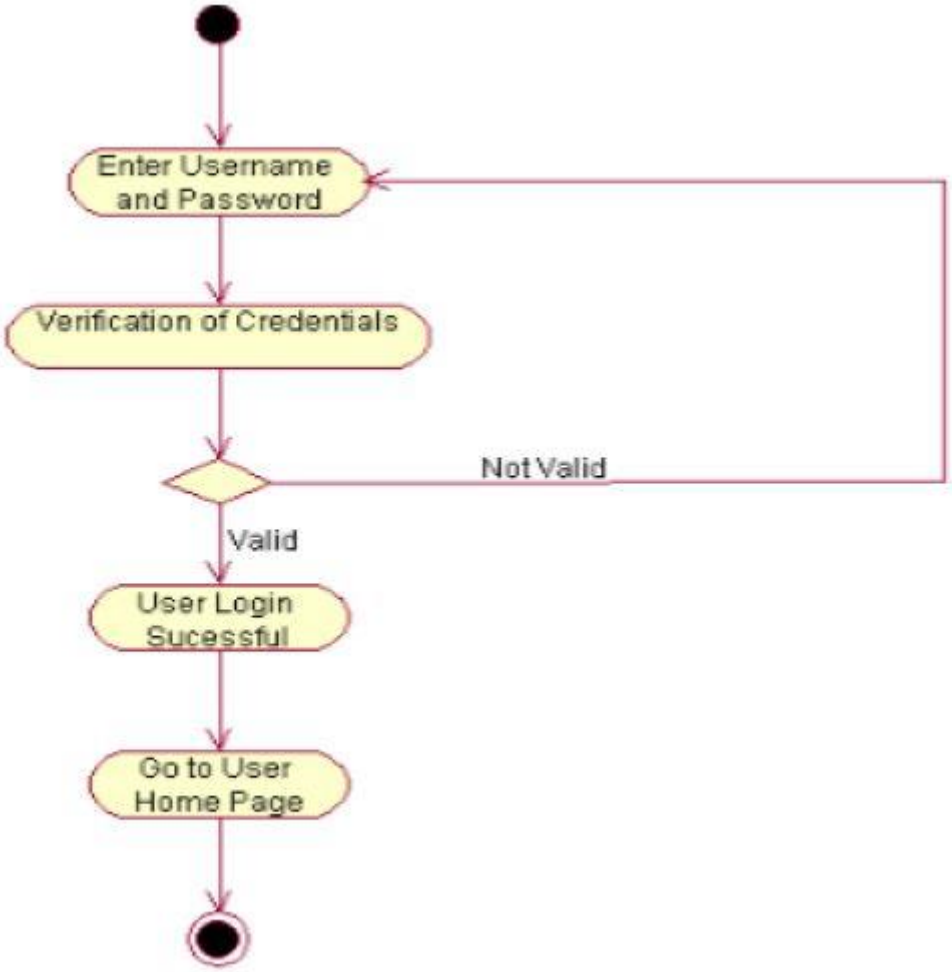


Figure 14: Activity Diagram for login

The above is an activity diagram which represents the process of login. If it is successful, then only a user can go to the homepage. Otherwise, he/she will be asked to enter username and password again.

4.5.4. For registration

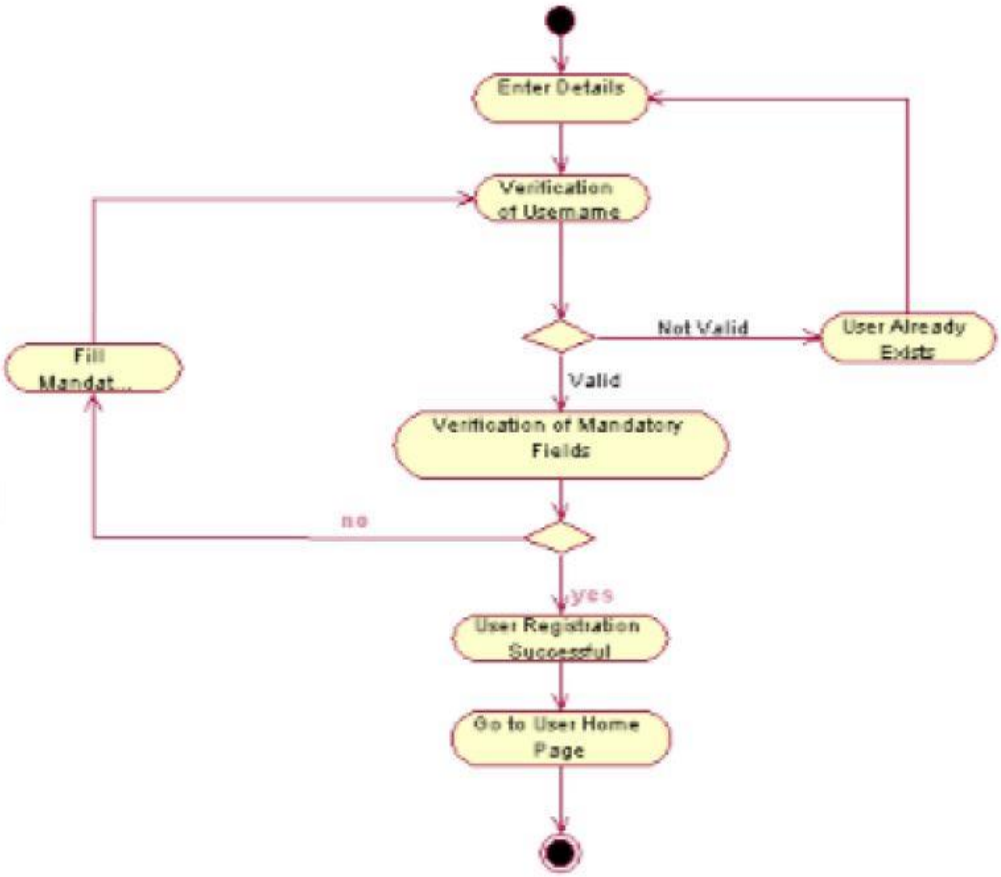


Figure 15: Activity Diagram for registration

The above is an activity diagram which represents the registration process. The user is asked for necessary details. Only after filling them, he/she can be successfully registered to the site.