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AV-Tube (An online Video Library)

Project (J-Component)

Internet & Web Programming

ITA6003

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ABSTRACT

As we know there are situation we just came up from the lockdown and one thing we learn from this lockdown that in that time we spent our most of the time on the internet by watching the videos, movies or playing the games. While watching the videos and movies can saw that many websites or video library applications are giving lots of the ads on their site in between the videos or movies which irritates the user so to overcome with this issue, We made an online video library named as “AV-Tube” where a user can play the movies or normal videos with getting any adds in between they can enjoy watching the movies without getting disturb from anything, If they like the video they can hit the like or dislike button according to the quality of the content. They can also download the video which they can play later without means of the internet they can play the video offline. This video will be saved on their local system.. A user can also upload the video, But user first have to login (if registered else he/she has to first register themselves to the application and then can upload the video) a user can also delete or edit the video which was previously uploaded by him/her. They can also see the information about themselves in the about section also can change the profile by their choice.

CONTENT

- Entity relationship diagram
- Technologies
- Implementation
- Conclusion and future work

INTRODUCTION

"AV-Tube" is an online video library where a user can watch and download the video. At present time there are lots of the website which provide video playing library but they are giving lots of the error in between the video sometimes that irritates the user while playing in the video. In this project we made module where a user can play the video if user loves the video then he/she can press the like button and if did not like the video content then he/she can dislike the video. Also a user can search the video by using the video title. If a user wants to upload a video on that website then he/she must have to login first. If the user is not register then he/she have to register themselves first in the website by giving some important data like – Name userid password confirm password and so on. After registering it will be redirected directly to the homepage. On the homepage there will be lots of the video which are already uploaded and then if any user upload the video then this video will be added to the list and then shown to the homepage, if there are lots of the video on the website then may be feel trouble while getting the video at that time user can make use of the search option where user can search the video by its title even he only know some word of the title it will be enough to search the video. User can directly download the video which will be directly saved to the user local machine which he can use without use of internet.

A user can register themselves by providing the necessary information and can create a account where the username and profile picture can be shown to all the users, If a user logged in then he/she can upload the video by giving the title about and some other related information, After uploading the video if a user want to modify the video(name, description, or video) Then he/she can use the edit section where a user can directly change and update the content of the video also if same user who uploaded the video wants to delete the video he/she can use the delete button to delete the video. If a user want that who uploaded the video then he can click on the user profile and can see all the information about the original author who uploaded the video. If a user want to add another account to the website with the same device then first he/she can use the logout button after getting logged out user can create a new account and can continue with the another account. If a user want to play the video in different speed which can be faster or slower

than the original speed then he/she can sue the playback speed option which they can get when they start playing the video there are some more interesting feature that a user can use after start playing the video.

OBJECTIVE

Av-Tube like a YouTube is a website designed for sharing video. Millions of users around the world can have created accounts on the site that allow them to upload videos that anyone can watch. Through Av-Tube people can watch videos, share-videos, Upload-videos and can even download them.

CURRENT SYSTEM

The earlier system is not computerized. The process of adding the videos is very difficult when done manually. Users face so many problems in uploading videos. Here now such type of pre-planned applications is not there for users.

Drawbacks –

- Difficulty in adding videos manually.
- Doesn't provide effective mechanism
- Difficulty in browse the all the information

PROPOSED SYSTEM

The proposed system is fully computerized, which removes all the drawbacks of existing system. In the proposed system, the users can add the videos very easily.

Advantages -

- Managing the levels is very easy
- Storing the Videos is so easy.
- Giving input is as simple as just a single mouse click

- Easy to maintain up to date information.
- Cheaper to maintain.
- No manual tracking is required.

HARDWARE & SOFTWARE REQUIREMENT

Software Requirements

OPERATING SYSTEM	:	WINDOWS XP
DATA BASE	:	MYSQL
PROGRAMMING LANGUAGE	:	PHP
SERVER	:	APACHE

Feasibility Study

Feasibility study is an important phase in the software development process. It enables the developer to have an assessment of the product being developed It refers to the feasibility study of the product in terms of outcomes of the product, operational use and technical support required for implementing it.Feasibility study should be performed on the basis of various criteria and parameters. The various feasibility studies are:

- Economic Feasibility
- Operational Feasibility
- Technical Feasibility

Economic Feasibility

It refers to the benefits or outcomes we are deriving from the product compared to the total cost we are spending for developing the product. If the benefits are more or less the same as the older system, then it is not feasible to develop the product.In the present system, the development of the new product greatly enhances the accuracy of the system and cuts short the delay in the processing of application.

The errors can be greatly reduced and at the same time providing a great level of security. Here we don't need any additional equipment except memory of required capacity. No need for spending money on client for maintenance because the database used is web enabled database.

Operational Feasibility

It refers to the feasibility of the product to be operational. Some products may work very well at design and implementation but may fail in the real time environment. It includes the study of additional human resource required and their technical expertise.In the present system, all the operations can be performed easily compared to existing system and supports for the backlog data. Hence there is need for additional analysis. It was found that the additional modules added are isolated modules as far as the operational is concerned, so the Developed system is operationally feasible.

Technical Feasibility

It refers to whether the software that is available in the market fully supports the present application. It studies the pros and cons of using particular software for the development and its feasibility. It also studies the additional training needed to be given to the people to make the application work.In the present system, the user interface is user friendly and does not require much expertise and training. It just needs a mouse click to do any sort of application. The software that is used for developing is server pages fully is highly suitable for the present application since the users require fast access to the web pages and with a high degree of security. This is achieved through integration of web server and database server in the same environment.

SYSTEM REQUIREMENTS SPECIFICATION

The following chapters contain an account of how the Technology & architecture for the system were chosen.

Introduction

According to Roger Pressman in Software Engineering: A Practitioner's Approach (McGraw-Hill Publications), the requirement specification document is produced at the end of Analysis of

the system. This document is a very comprehensive document & contains all the User requirements & Analysis diagrams. The Requirements are broadly divided into two groups:

1. Functional requirements

2. Non-functional requirements

Functional Requirements

The main purpose of functional requirements within the requirement specification document is to define all the activities or operations that take place in the system. These are derived through interactions with the users of the system. Since the Requirements Specification is a comprehensive document & contains a lot of data, it has been broken down into different Chapters in this report. The depiction of the Design of the System in UML is presented in a separate chapter. The Data Dictionary is presented in the Appendix of the system.

1. The System should allow the administrator to manage different levels of tests and their sequence.
2. It allows the administrator to manage the questions in each category.
3. It allows the administrator to manage the list of questions in each category.
4. This system finally evaluates the test, display the result and store it.
5. This system can then take the candidate to the next level.
6. It allows the administrator to generate the report bases on some cut off marks.
7. It allows the candidate the feedback
8. The User can view the lecture online
9. Administrator can present the lecture.

Non-Functional Requirements

The non-functional requirements consist of

- Analysis, Design & Data requirements (Use-case diagrams, textual analysis, sequence diagrams, data dictionary etc.)
- Constraints.
- Guidelines.

Analysis, Design & Data requirements

The use case diagrams, textual analysis and sequence diagrams & data dictionary fall into this category. Since each category above is of considerable importance, they have been dealt in separate chapters. An outline is only included here.

The Analysis & Design phases of the system yield Use Case diagrams, textual analysis, Sequence Diagrams, Class diagrams & Data Dictionary. Data dictionary consists of process statements showing how data is flowing from starting point to end point.

Constraints

These are the requirements that are not directly related to the functionality of the system. These should be considered as mandatory when the system is developed. The following Constraints were arrived at for the system:

1. The system should be available over the intranet so that the Users like the candidates can use the system from their system which was assigned to him.
2. For gaining entry into the system the users should be registered and should be able use login & passwords for gaining access to the system.
3. The users should be able to change their passwords for increased security.
4. The system should conform to the requirement specified and final deliverables of the project before some date.
5. The system should be easy to understand and organized in a structured way. The users should also receive feedback about any errors that occur.
6. There should be no limitation about the hardware platform that is to be used to run the system.
7. Data integrity should be maintained if an error occurs or the whole system comes down.
8. A user should to be registered in the system once in 6 months only.
9. A user can take-up the next level test once he clears previous level.

Guidelines

We have discussed mandatory requirements in the previous section. The requirements in this section should be taken as suggestions & they should be thought of as recommendations to further enhance the usability of the system.

1. The system should display a menu for users to choose from.
2. The system should display users' requests in a reasonable time.
3. Services of the system should be available 24 hours a day.
4. The system should be designed in such a way that it is easy to enhance it with more functionality. It should be scalable & easily maintainable.

Validation Criteria

The Validation Criteria are dealt separately in the Chapter dealing with the Test Strategy & Test cases.

ARCHITECTURE AND TECHNOLOGIES

Modules

There are some modules that are the part of this proposed project. These modules are under below.

Administrator Module

This module allows administrator to manage different videos that upload by the users. It allows him to add, modify and delete the videos

User Module

It allows the candidate to register for the website and generate the ID and password. It allows the user login into this application and see the videos. He can view all the videos upload by the admin. He can add videos as Favorites.

Registration

This module allows the users to register for the website. It allows the Users select an option for add favorites with in the stipulated time and continues generating the videos.

User Activities:

Administrator

- He can manage different videos

- He can upload the videos

Normal User

- Register for the website
- He can add videos.
- He can add favorites.
- He can view his profile and edit his profile
- He can view his favorite video details

General Methodology in Developing Project

The general methodology in developing a system in involved in different phases, which describe the system's life cycle model for developing software project. The concept includes not only forward motion but also have the possibility to return that is cycle back to an activity previously completed. This cycle back or feedback may occur as a result of the failure with the system to meet a performance objective or as a result of changes in redefinition of system activities. Like most systems that life cycle of the computer-based system also exhibits distinct phases.

These are,

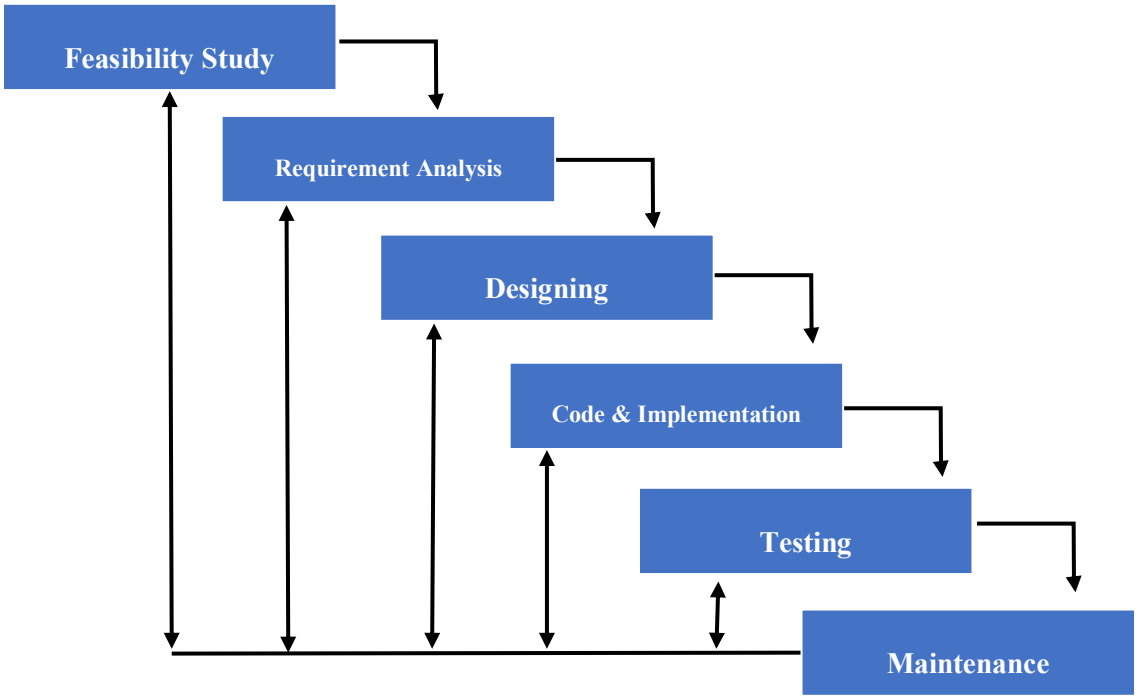


Figure : System Development Approach

Requirement Specification:

Here, the focus is on specifying what has been found giving analysis such as representation, specification languages and tools, and checking the specification are addressed during this activity. The Requirement phase terminates with the production of the validate SRS document. Producing the SRS document is the basic goal of this phase.

The purpose of the Software Requirement Specification is to reduce the communication gap between the clients and the developers. Software Requirement Specification is the medium through which the client and user needs are accurately specified. It forms the basis of software development. A good SRS should satisfy all the parties involved in the system.

System Design

Design of software involves conceiving, planning out and specifying the externally observable characteristics of the software product. We have data design, architectural design and user interface design in the design process. These are explained in the following section. The goal of design process is to provide a blue print for implementation, testing and maintenance activities.

The primary activity during data design is to select logical representations of data objects identified during requirement analysis and software analysis. A data dictionary explicitly represents the relationships among data objects and constraints on the elements of the data structure. A data dictionary should be established and used to define both data and program design.Software design is a process that gradually changes as various

new, better and more complete methods with a broader understanding of the of the whole problem in general come into existence. There are various kinds of methods in software design. They are as follows

- Use case Diagram
- Sequence Diagram
- Collaboration Diagram
- State Chart Diagram
- Object Diagram

- Class Diagram
- Component Diagram
- Deployment Diagram

UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a languagefor specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be design.

1. Use case Diagrams:

Use case diagrams model behavior within a system and helps the developers understand of what the user required. The stick man represents what's called an actor.

An actor represents an outside entity- either human or technological. In this example its human (Stick man). Notice the curved rectangle on the diagram this represents the system boundary everything inside that is part of that system, and everything outside are actors (basically not part of system).

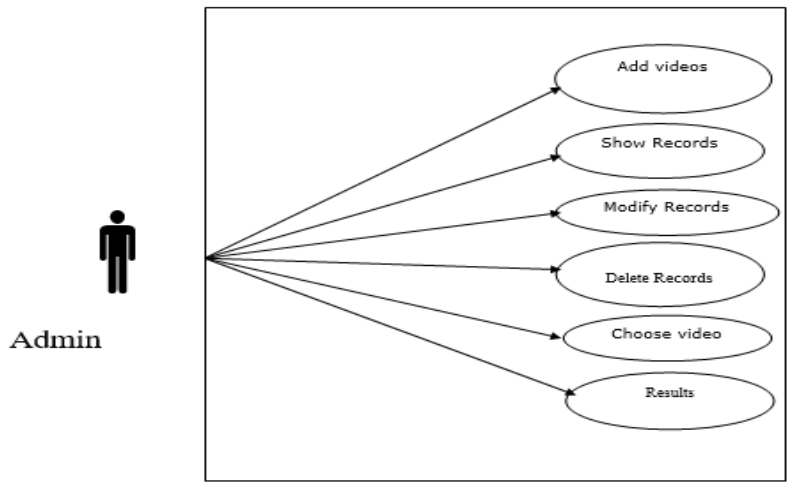


Figure 2

Use Case Diagram for Normal User:

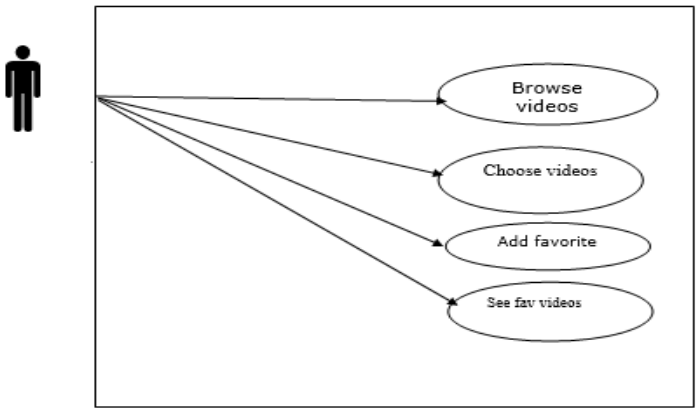


Figure 3

2. Sequence Diagram:

The purpose is to show the of functioning through a use case. In other Words, we call it mapping processes in terms of data transfers from the actor through corresponding objects.

Sequence Diagram for video streaming:

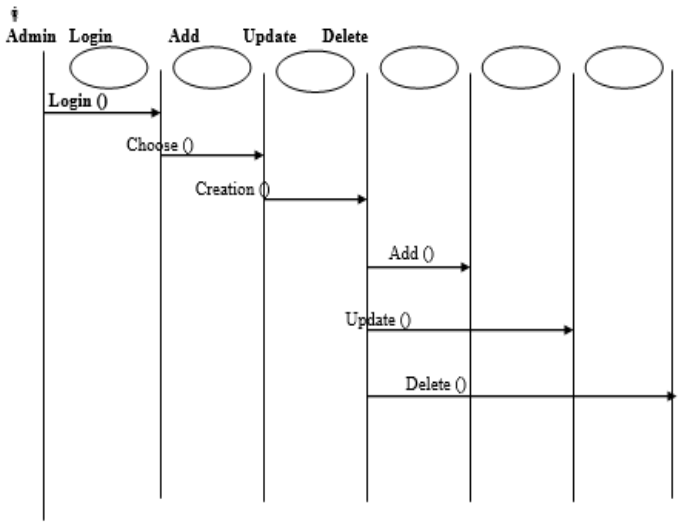


Figure 4. Sequence Diagram

Figure: Sequence Diagram for admin

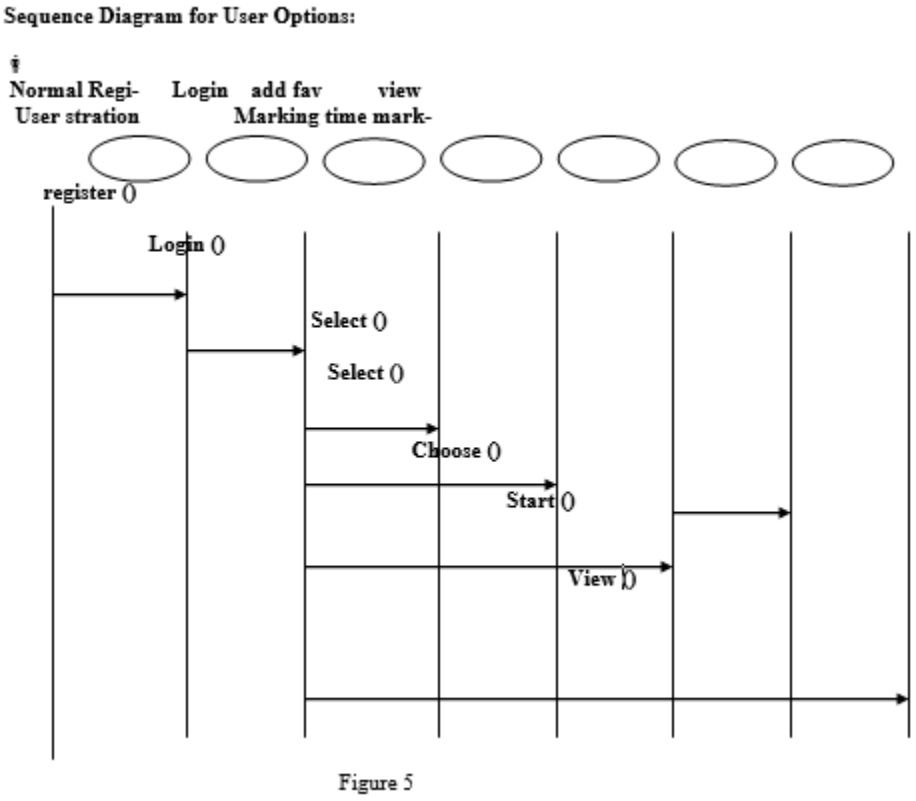


Figure: Sequence diagram for user

- To represent the logical flow of data with respect to a process.
- It must be remembered that the sequence diagram display Objects and not the classes.

Above are the sequence diagrams of the user and admin as shown in figure 4 and figure 5.

3. Class Diagram

- This is one of the most important of the diagrams in development.
- The diagram breaks the class into three layers. One has the name, the second describes its attributes and the third its methods. The private attributes are represented by a padlock to left of the name.
- The relationships are drawn between the classes.
- Developers use the Class Diagram to develop the classes.
- Analyses use it to show the details of the system.

Following is the class diagram as shown in figure.

1) Class Diagram:

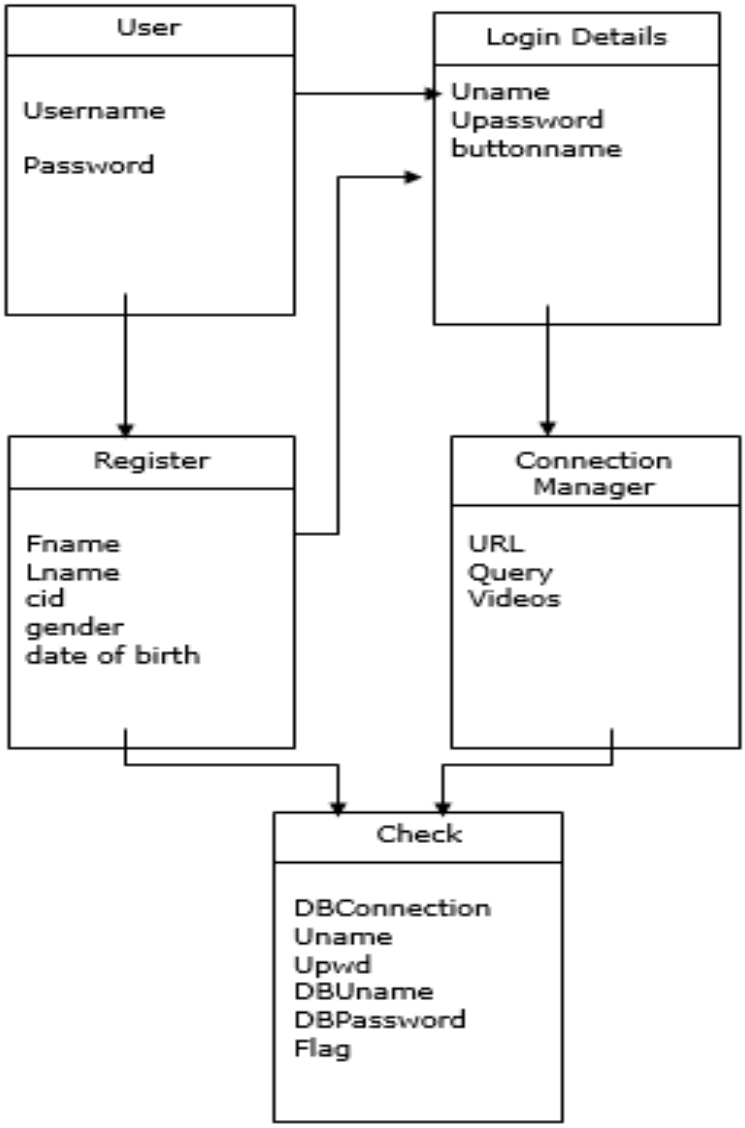


Figure: Class diagram

4. Activity Diagram

Following is the activity diagram for the admin.

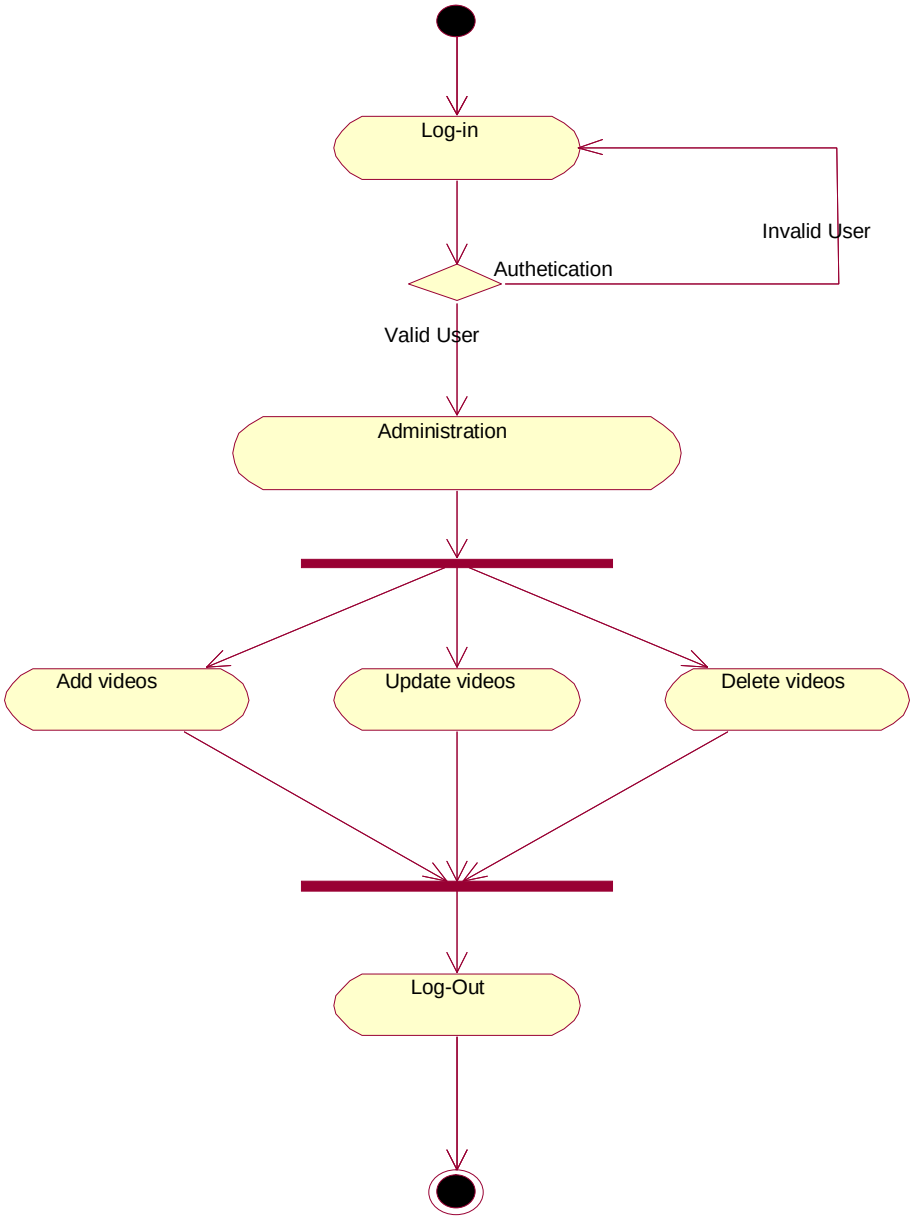


Figure: Activity diagram for admin

Activity diagram for Different options for the user.

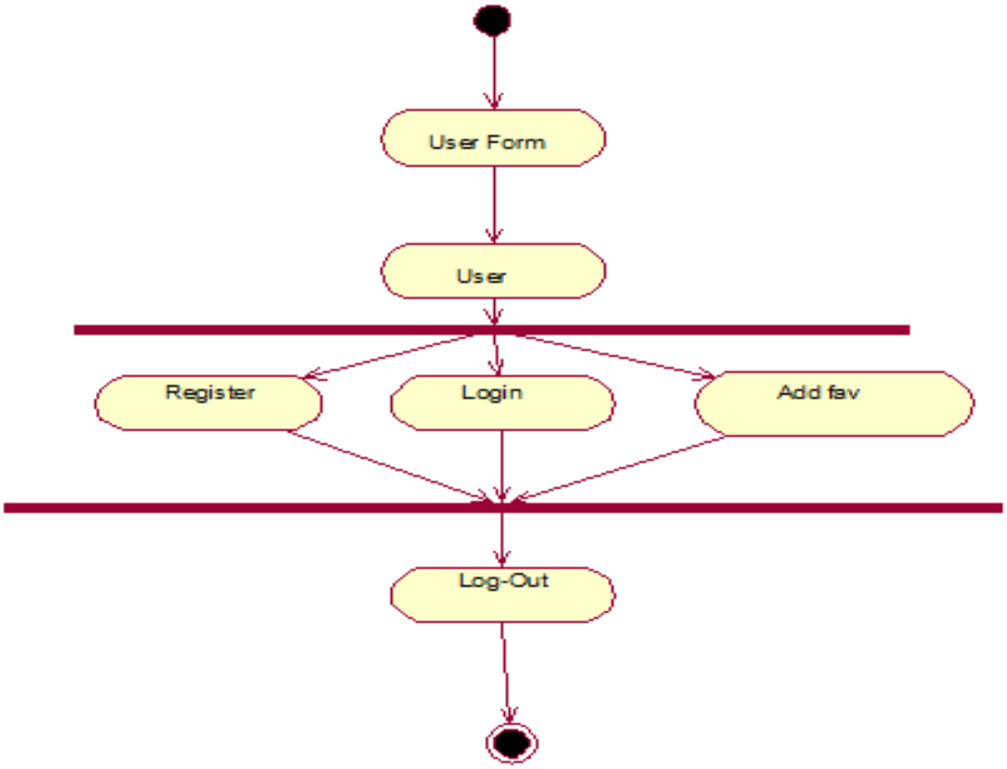


Figure: Activity diagram for user

ENTITY RELATIONSHIP DIAGRAM

An E-R model is usually the result of systematic analysis to define and describe what is important to processes in an area of a business. It does not define the business processes; it only presents a business data schema in graphical form. It is usually drawn in a graphical form as boxes (entities) that are connected by lines (relationships) which express the associations and dependencies between entities. An ER model can also be expressed in a verbal form, for example: one building may be divided into zero or more apartments, but one apartment can only be located in one building.

Entities may be characterized not only by relationships, but also by additional properties (attributes), which include identifiers called "primary keys". Diagrams created to represent attributes

as well as entities and relationships may be called entity-attribute-relationship dia- grams, rather than entity–relationship models.

An ER model is typically implemented as a database. In a simple relational database imple- mentation, each row of a table represents one instance of an entity type, and each field in a table represents an attribute type. In a relational database a relationship between entities is implemented by storing the primary key of one entity as a pointer or "foreign key" in the table of another entity.

There is a tradition for ER/data models to be built at two or three levels of abstraction. Note that the conceptual-logical-physical hierarchy below is used in other kinds of specification, and is different from the three schema approach to software engineering.

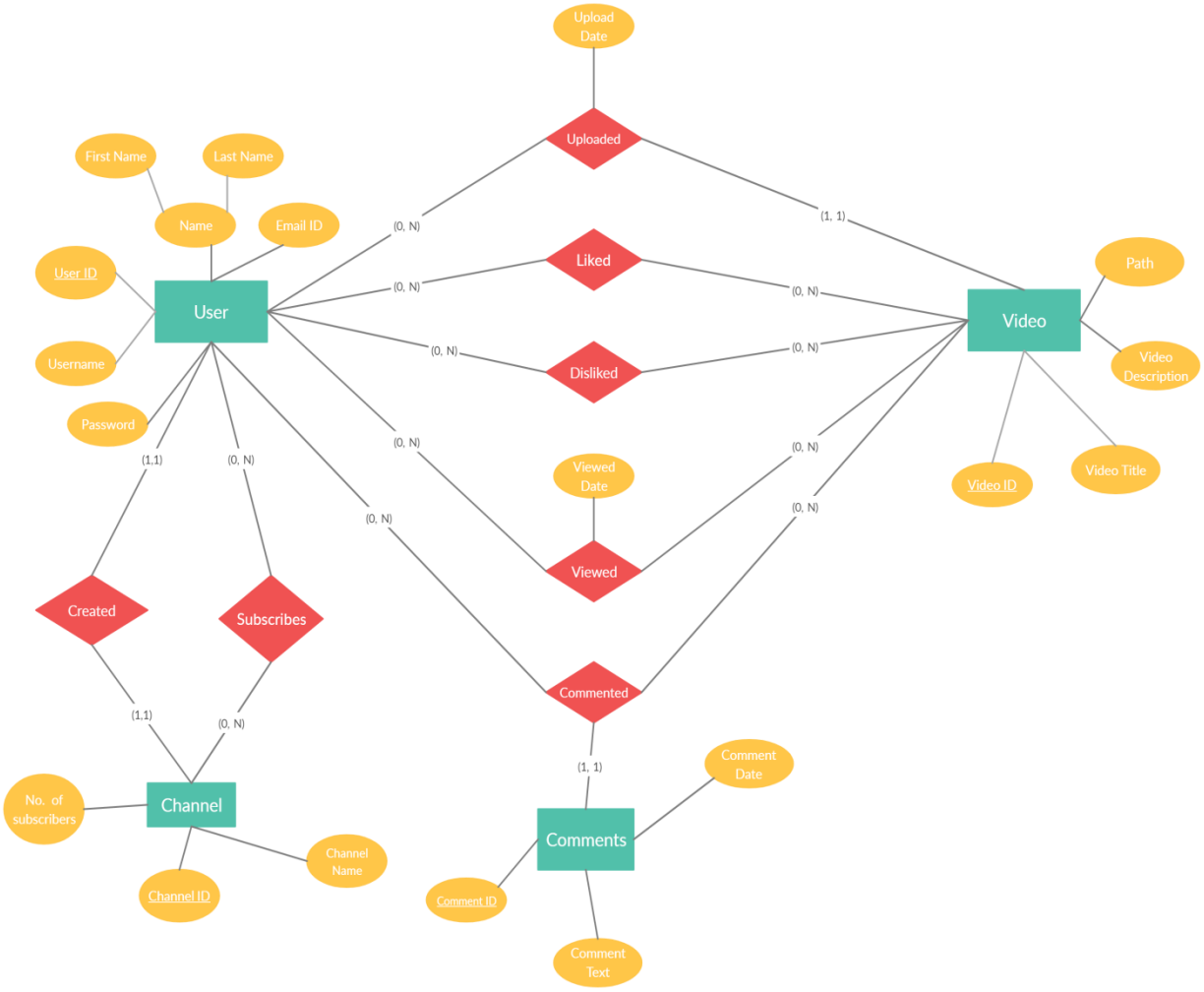


Figure: Entity Relation diagram for our streaming service

Entities and Relationships in our App

Entity Types

1. **User** : Name (first name, last name), User ID, Username, Password, Email ID
2. **Video** : Video ID, Video Title, Video Description, Video Path
3. **Channel** : Channel ID, Channel Name, Number of Subscribers
4. **Comment** : Comment ID, Comment Text, Comment Date/Time

Relationship Types

Uploaded : Upload Date/Time : Binary 1:N relationship between **User** and **Video**

Liked : Binary M:N relationship between **User** and **Video**

Disliked : Binary M:N relationship between **User** and **Video**

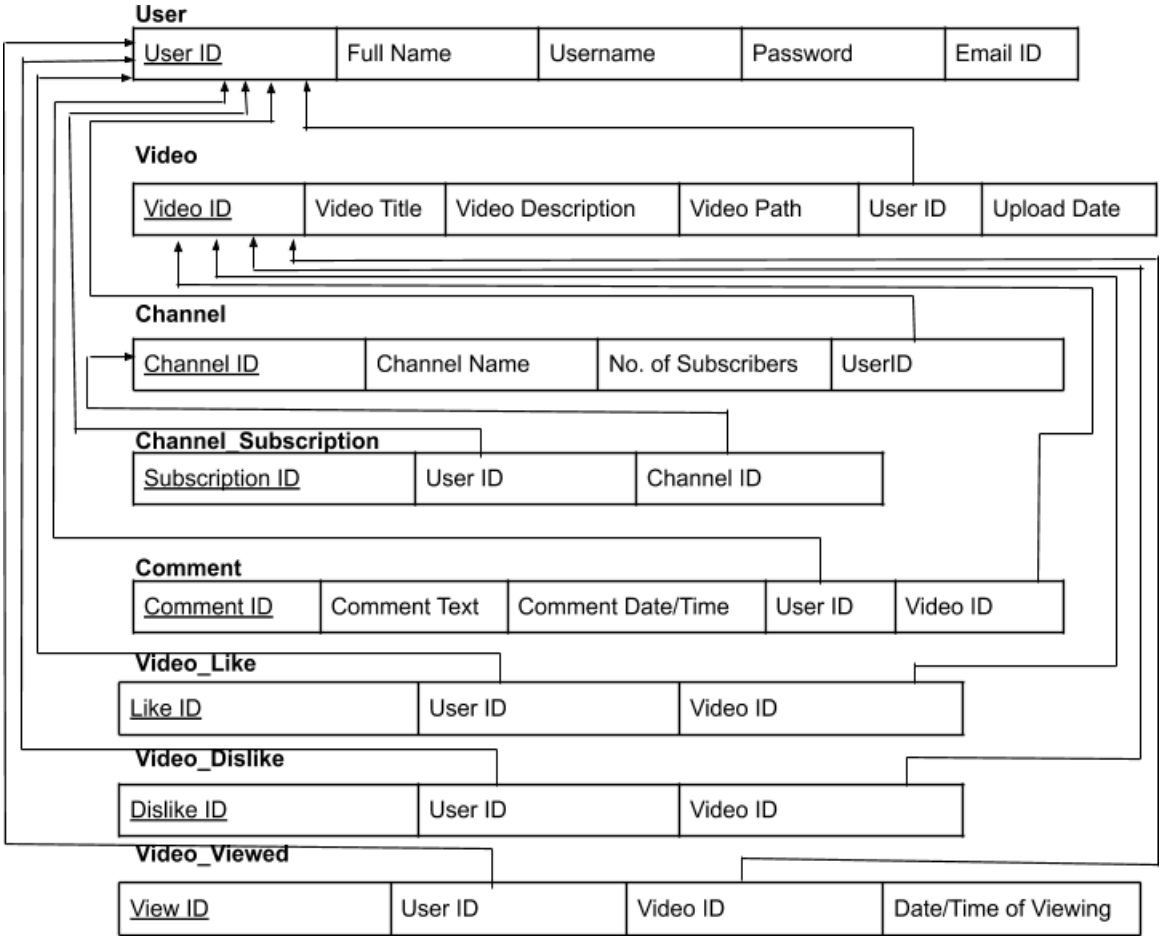
Viewed : Viewed Date/Time : Binary M:N relationship between **User** and **Video**

Commented : Ternary relationship between **Comment**, **User** and **Video**

Created : Binary 1:1 relationship between **User** and **Channel**

Subscribes : Binary M:N relationship between **User** and **Channel**

Conversion of ER Diagram to Relational schema



TECHNOLOGIES

World Wide Web – Web Technologies

The World Wide Web is an open-ended information system where the information can be retrieved and is designed to use in the Internet's distributed environment. It contains Web pages that provide information and controls. The World Wide Web initially started as a text only

medium but now ranges of features are added like graphics, sounds, animation and video. A large portion of internet is organized as the world wide web. A Web application is defined as multi –tier application based on the internet standards, using a web browser as client. The rule making body of the web is W3C. W3C stands for World Wide Web Consortium. W3C puts together specifications for Web standards. The most essential Web standards are HTML, CSS and XML. The latest HTML standard is XHTML 1.0.

Hyper Text Transfer Protocol

The standard web transfer protocol is HTTP. Each interaction consists of one ASCII request, followed by one RFC 822 MIME – like response. Although the use of TCP for the transport connection is very common, it is not formally required by the standard. HTTP is constantly evolving. Several versions are in use and others are under development.

Three – Tier Architecture

A web application follows a 3 – tier model. The first tier consists of presentation layer, the second tier consists of the application layer and the third tier provides the data. A web application will collect the data from the client and sends the request to the web server.

TCP/IP Protocol

The most basic internet standard is the TCP/IP protocol. This protocol defines the rules for establishing connections between computers, that is between client and server hardware. Following figure 9 shows the 3-tier architecture of model

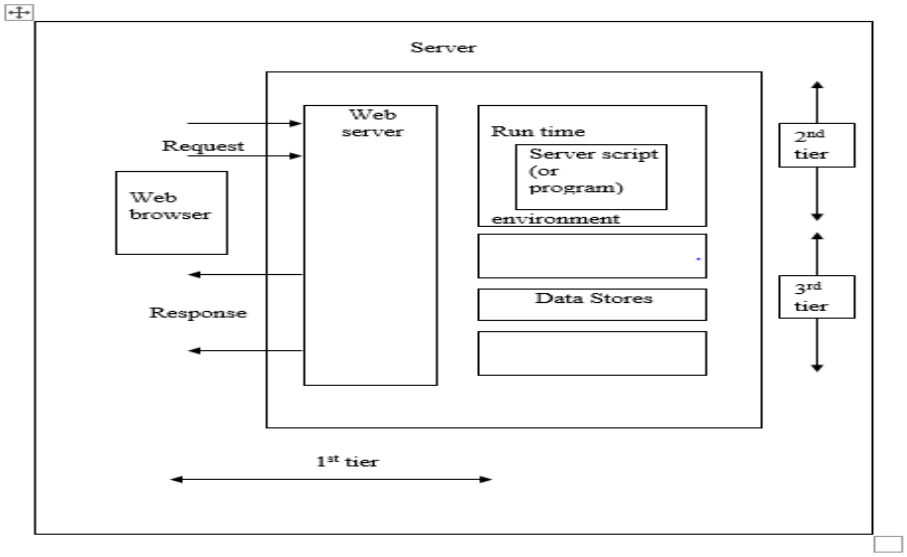


Figure: tier architecture

In a web application the first tier includes the web browser and the web server. The relevant script let program runs and gets the data (second and the third tier) and sends the data to the Web server. The web server sends the data back to the client (first tier).

Apache Web Server

Apache was originally based on the code and ideas found in the most popular HTTP server of the time. NCSA httpd1.3 (early 1995). It has since evolved into a far superior system which can rival(and probably surpass) almost any other UNIX based HTTP server in terms of functionality, efficiency and speed. Since it began, it has been completely rewritten and includes many features. Apache is, as of January 1997, the most popular WWW server on the Internet, according to the Net craft Survey.

Why Apache?

To address the concerns of a group of WWW providers and part time http programmers that http didn't as they wanted it to behave. Apache is an entirely volunteer effort, completely funded by its members, not by commercial sales. Apache has been shown to be substantially faster than many other free servers.

Hypertext Markup Language (HTML)

HTML is a collection of platform independent styles used to create a web document. Html can be used to display any type of document on the host computer, which can be geographically at different location. It is a versatile language and can be used on any platform or desktop being platform independent, HTML indicates the manner in which the document to be read by the interpreter. This can be done with the set of HTML elements and tags which mark up the document and inform the browser, such as Internet Explorer, about the action to be taken when a certain element or tag is specified.

HTML Elements and Tags

A web page is made up of elements, each of which is defined by an HTML code or a tag. A tag is always enclosed in angle brackets, and most tags come in pairs, with an opening and closing tag. The closing tag is the same as the opening tag, but starts with forward slash.

Structure Of HTML

An HTML document consists of text, which comprises the content of the document and tags, which, defines the structure, and appearance of the document. The structure of an HTML document is simple.

<HTML> tag enclosing the document header and body

Here's an example.

```
<HEAD>
    <TITLE>The title of HTML Document</TITLE>
</HEAD>
<BODY>
    This is where the actual HTML document
    Text lies, which is displayed in the browser.
</BODY>
```

</HTML>

Dynamic Hypertext Markup Language (DHTML)

With the explosion of interest in the World Wide Web, Hypertext Markup Language (HTML) has assumed a prominent place in the computer world. HTML has evolved to meet the increasing demand for eye-catching and mind-catching web sites. Until recently, however the evolutionary process mostly involved new and improved tags

and attributes. The end products, static web pages that often-required repeated time-consuming round trips between client and server machines, clearly showed a new direction was in order. Dynamic HTML is that new direction. It combines HTML with Cascading Style Sheets and scripting languages.

Java Script

JavaScript is a scripting language that was created by Netscape. It was originally called LiveScript. Despite the similarities in name and syntax, JavaScript is not related to the Java programming language. JavaScript is supported by a wide range of Web browsers, including both Microsoft® Internet Explorer and Netscape Navigator. The Internet Explorer 3.0 supports JavaScript directly through a scripting engine in the file jscript.dll.

SYNTAX

```
<SCRIPT LANGUAGE="JavaScript">
 var rtn=false;
 function push_me()  {
     alert ("Hello, World!");
 return true; }</SCRIPT>
```

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.

Nice, but what does that mean? An example:

Example #1 An introductory example

```
<!DOCTYPE html>
<html>
<head>
<title>Example</title>
</head>
<body>
<?php
        echo "Hi, I'm a PHP script!";
    ?>
</body>
</html>
```

Instead of lots of commands to output HTML (as seen in C or Perl), PHP pages contain HTML with embedded code that does "something" (in this case, output "Hi, I'm a PHP script!"). The PHP code is enclosed in special start and end processing instructions <?php and ?> that allow you to jump into and out of "PHP mode."

What distinguishes PHP from something like client-side JavaScript is that the code is executed on the server, generating HTML which is then sent to the client. The client would receive the results of running that script, but would not know what the underlying code was. You can even configure your web server to process all your HTML files with PHP, and then there's really no way that users can tell what you have up your sleeve.

The best things in using PHP are that it is extremely simple for a newcomer, but offers many advanced features for a professional programmer. Don't be afraid reading the long list of PHP's features. You can jump in, in a short time, and start writing simple scripts in a few hours. Although PHP's development is focused on server-side scripting, you can do much more with it. Read on, and see more in the What can PHP do? section, or go right to the introductory tutorial if you are only interested in web programming.

IMPLEMENTATION

Below, the snapshot of our working Project:

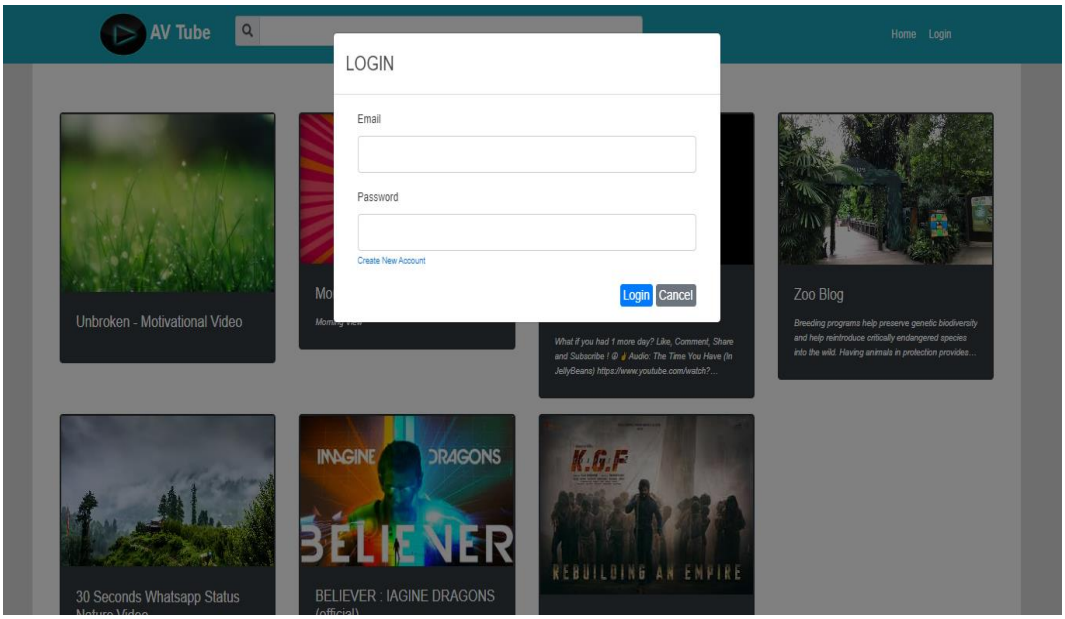


Figure: LOGIN PAGE FOR EXISTING USER

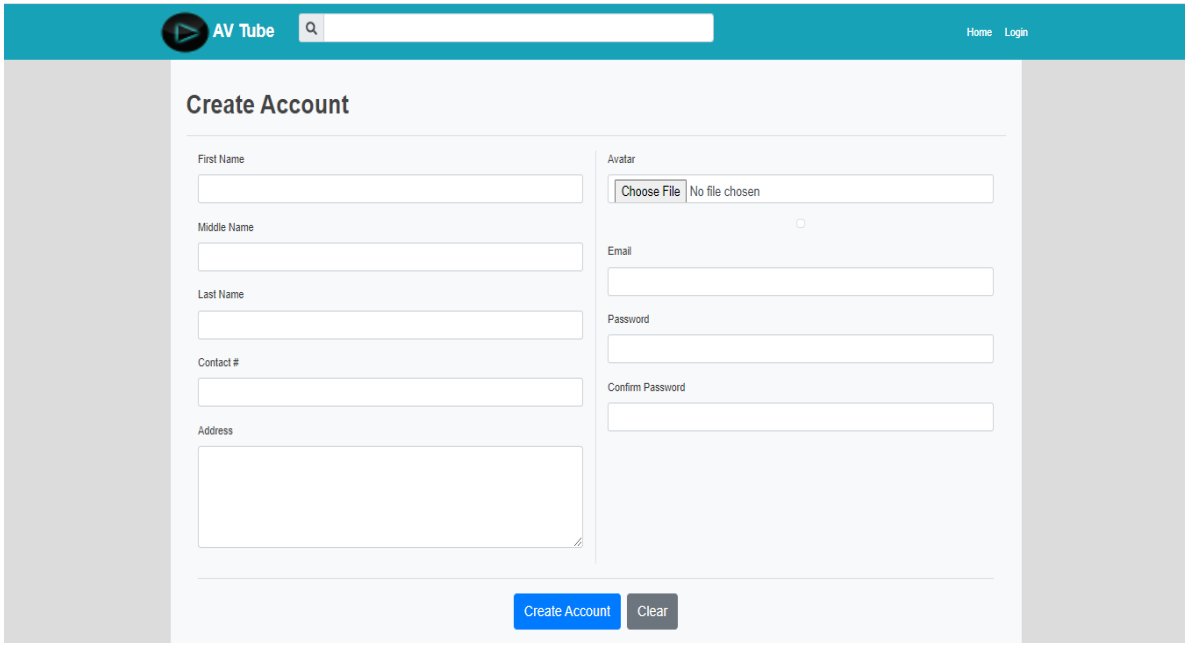


Figure: REGISTER PAGE FOR NEW USER

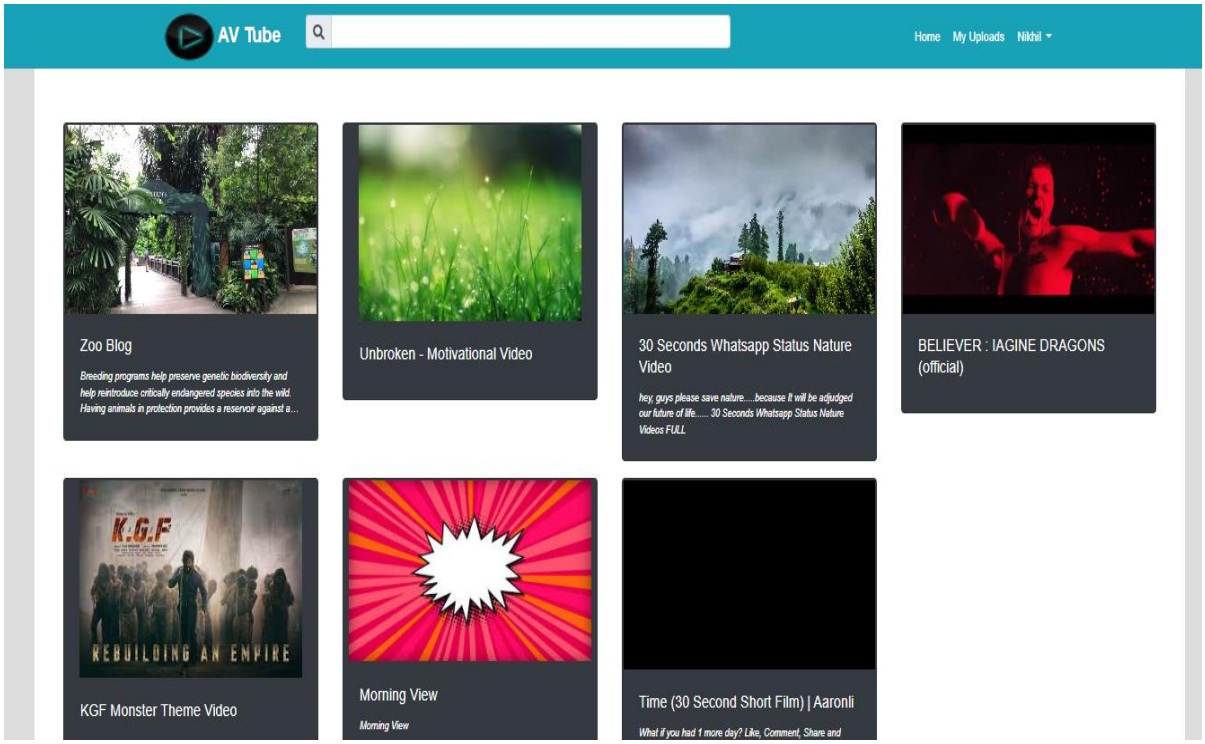


Figure: Home page after login

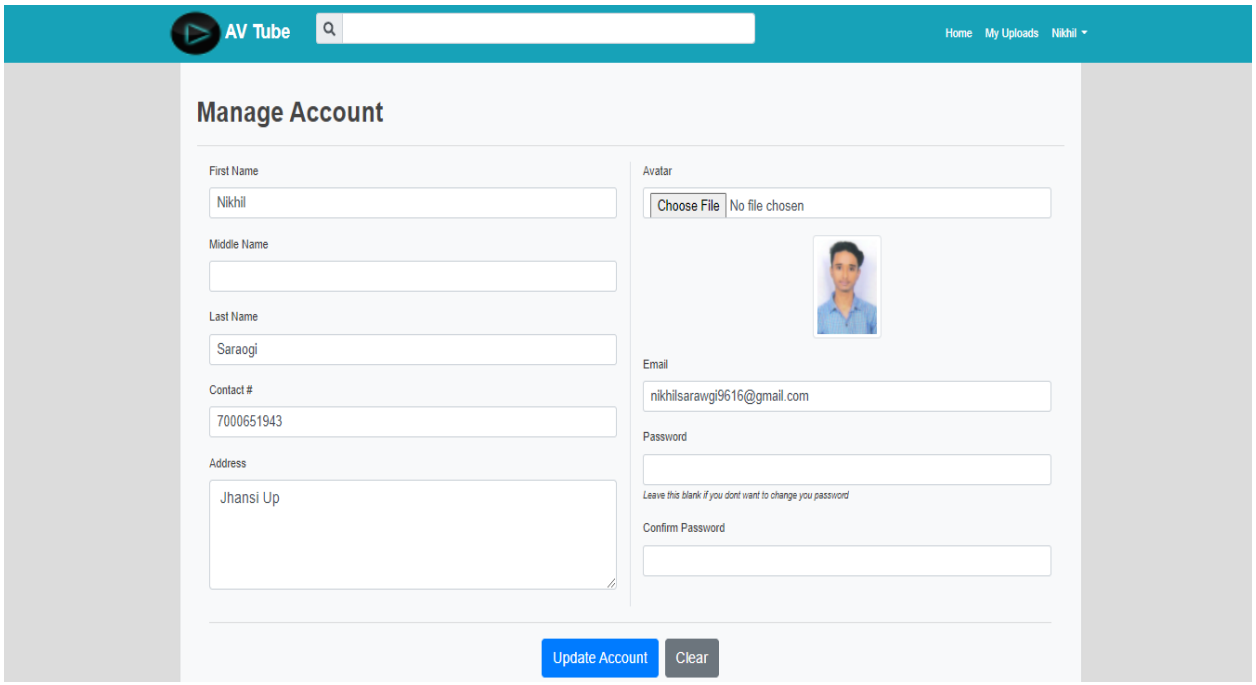


Figure: User Account Info

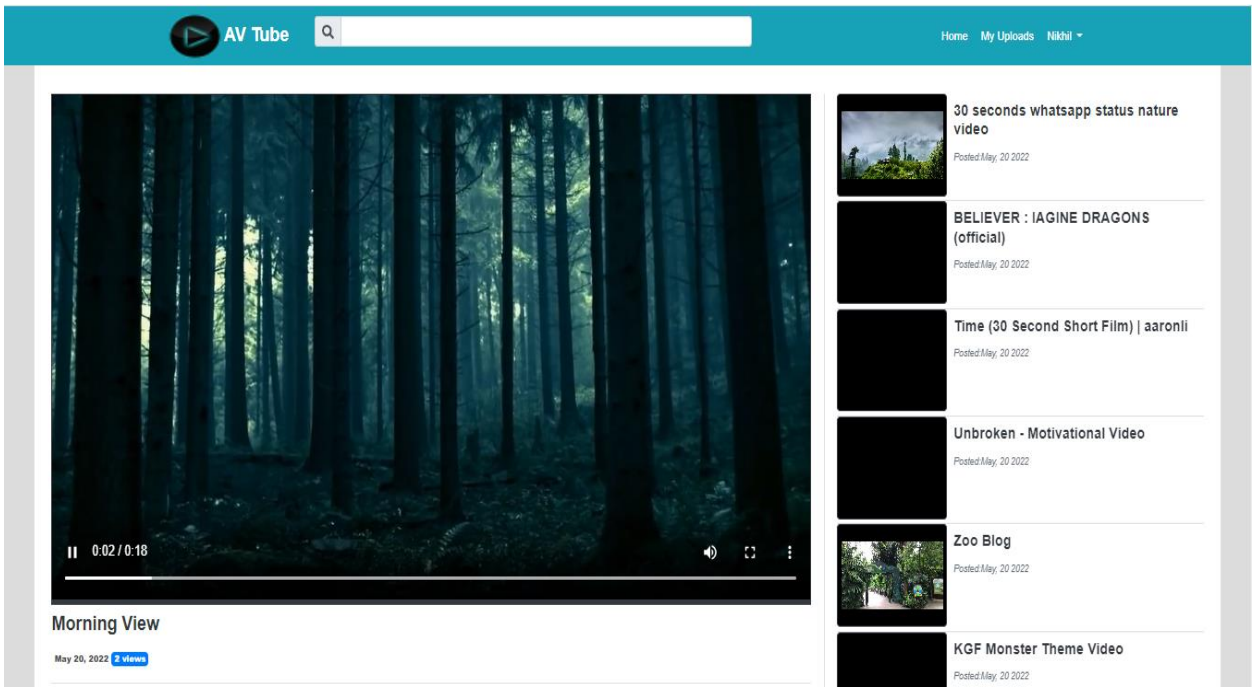


Figure: Playing video

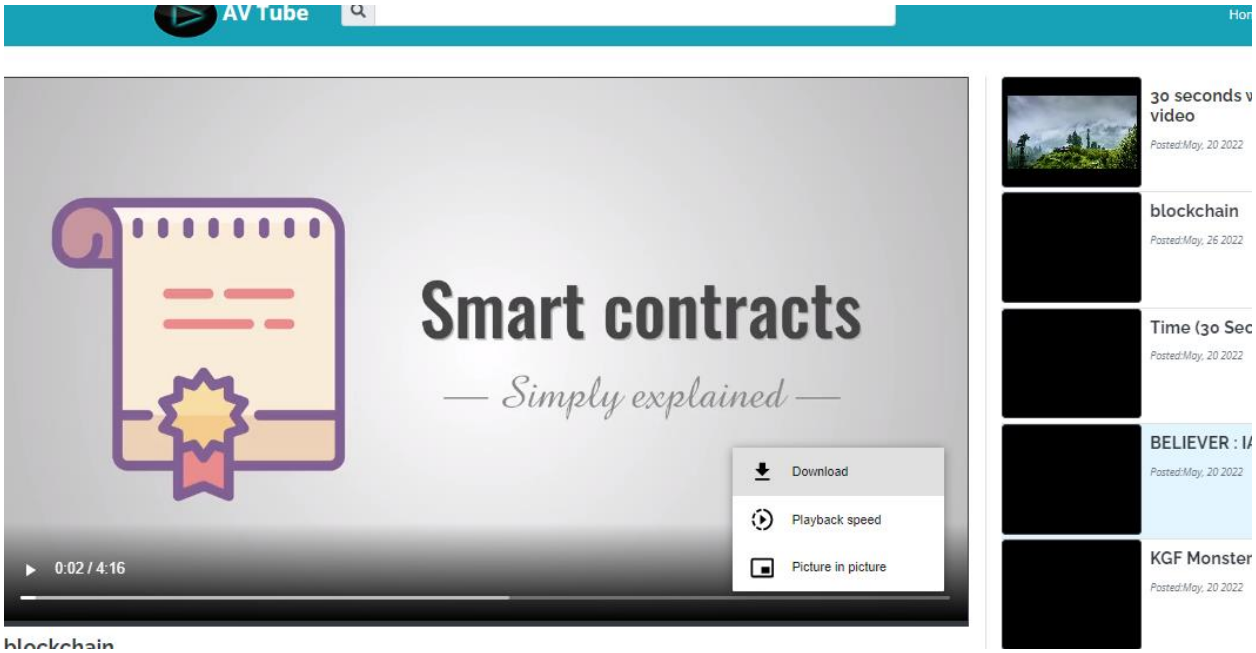


Figure: Video Playing features

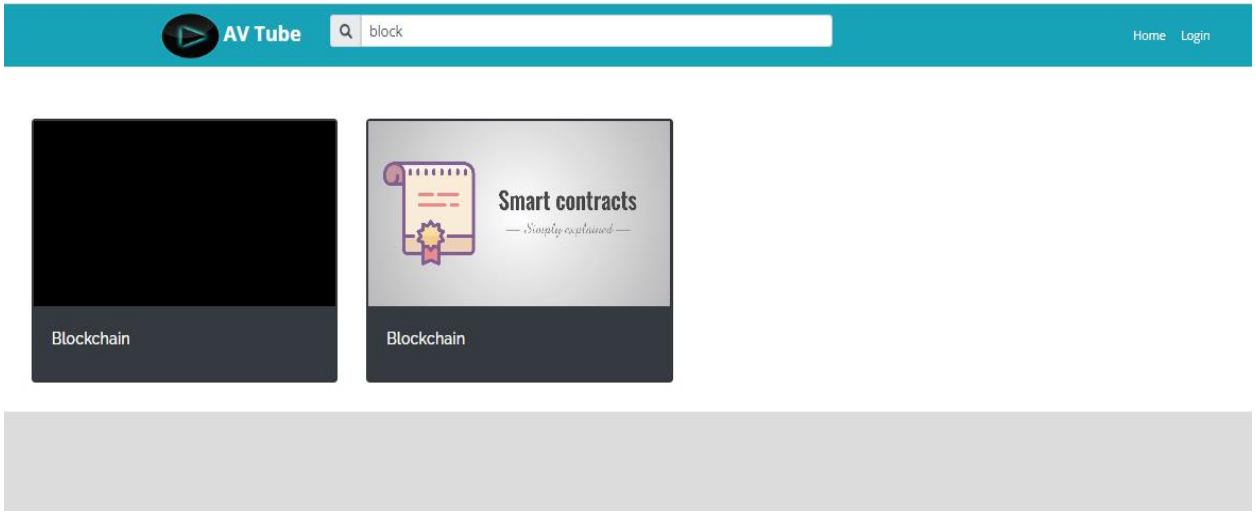


Figure: Video Search Option

CONCLUSION AND FUTURE WORK PLANS

Technology has been evolving day by day. Every day there is new products are launched. So, we have decided to change our previous traditional system with a fully functionality which include new features that are not available in existing system. We use different methods and software developing tools for developing our system. It will be useful for any college and university students who want to use and know new technology and it will be convenient for them. They will get rid from compulsory attending the classes because sometimes students may busy in urgent work and can't reach in the class on time.

There could be several future work plans to enhance our system functionality. These can be:

- Adding it into Learning management system
- Collect record of students of whole university
- Online library can also attach with this
- All staff records from administration of university.

New ideas:

- Upgradation of existing database.
- Convert this online application to an android app
- Security features enhancement such as thumb recognition, face recognition.
- Making a video gallery as in You Tube