

Scholarly Archives for Miscellaneous Videos and Educational Data (SAMVED)

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Abstract

In the present day, students prefer to acquire knowledge through videos and eBooks rather than reading a hard-bound book (Roberta Richards, 2012). To facilitate that precise need of students, to obtain quality videos and documents, authors have developed an offline video accessing web portal called 'SAMVED', a content management software that allows students and researchers looking for a one-stop spot to obtain videos and related documents created by experienced professors of IITs and IISc easily. SAMVED provides students and researchers access to video tutorials and documents provided by NPTEL via a simple, user-friendly user interface (UI) that allows users to view and download the content related to over 400 courses covering all major subject topics.

Keywords: Content Management Software, E-Learning Portal, IISc Videos, IIT Videos, NPTEL Videos, Visual Learning

1. Introduction

From the earliest days of recorded history, mankind has always been curious. Gaining knowledge and acquiring good skill sets have always been valued. To gain knowledge, educating oneself through various means has been the way of learning.

Very early in the evolution of human civilization, man used to learn by experimenting and imitating the natural forces. As civilization progressed, learning was passed down to the next generation by way of instructions by mouth. After the invention of writing, recorded knowledge has been passed down in the form of pictures, manuscripts, and books (Singh, 2010).

Manuscripts and, later, books were the main sources of recorded knowledge until the last decade. Libraries and experienced learned individuals were considered as the most trusted sources of authentic knowledge. But today, as the technologies have improved, the need to go looking for a library or a teacher who can guide and educate us has diminished. There is no need to wait in a long queue for a book to be used by another. Nor is it a requirement for a student who needs a different way of explanation

to understand a certain topic to struggle hard as the way his mentor coaches him is difficult to comprehend and digest.

The rise of the internet in the modern era has provided additional avenues for accessing books and learning resources – in addition to the conventional library and classroom teaching.

Student community and researchers can now access the internet to read, learn and enjoy the process from the place of their comfort. Information is now available in different forms – eBooks, e-Journals, e-Magazines, video tutorials and is even illustrated in bright colors.

Visual learning methods have vastly improved the understanding level of students and researchers (Haig Kouyoumdjian, 2012). Thus, tutorials in the form of videos are being sought out greatly. Many websites like Youtube.com, Udemy.com, Lynda.com, and Coursera.com provide illustrated video tutorials employing varied teaching methodologies for the same topics.

SAMVED is a web application, similar to the above-mentioned tutorial websites. But, in SAMVED, the main focus is given to the videos created by experienced, learned professors of IITs and IISc, which are collected by NPTEL.

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These videos cover subject topics that have been clearly explained by these learned scholars. The simple, user-friendly UI of SAMVED makes it possible for anyone with the most basic skills in computer handling to access and utilize the content provided online.

Background Information: Some of the relevant websites are briefly described below:

<https://nptel.ac.in/courses>

This is the official website of NPTEL. It provides all of the NPTEL Videos in course-based formats with download options. The main drawback of this website is that it is hosted on an external server – Youtube.com and links to the videos are posted on the website. When the YouTube servers are down, the videos are inaccessible.

<http://www.nptelvideos.in>

This is another website that provides the same content as the official website. It has indexed all the videos available on YouTube and provides links to be opened in YouTube.

<http://videos.gitam.edu/nptel/>

This website is built by the Gitam University for their use. Though it can be accessed by the general public, the

content available on this website is in the form of PPTs that are made from screenshots of the NPTEL Videos. Video access from this website is possible only if the user has a VLC Player installed on the system accessing the website.

<https://www.btechguru.com/>

This website is run by BodhBridge Educational Private Ltd. They provide video courses using NPTEL videos using the videos available in the Official NPTEL YouTube channel and also sell the videos in CD/DVD's and Micro SD Cards. Any user wanting to view the videos offline need to pay the specified amount for the videos and purchase a CD/DVD or Micro SD card with the videos written in them.

2. Methodology/Implementation

The website interacts with the server by querying the server using HTTP Request. The response received is streamed to the front-end and displayed on the user interface. The streamed data at the front-end creates a visual representation of the data on the user interface.

Figure 1 depicts the overview of the website, which shows

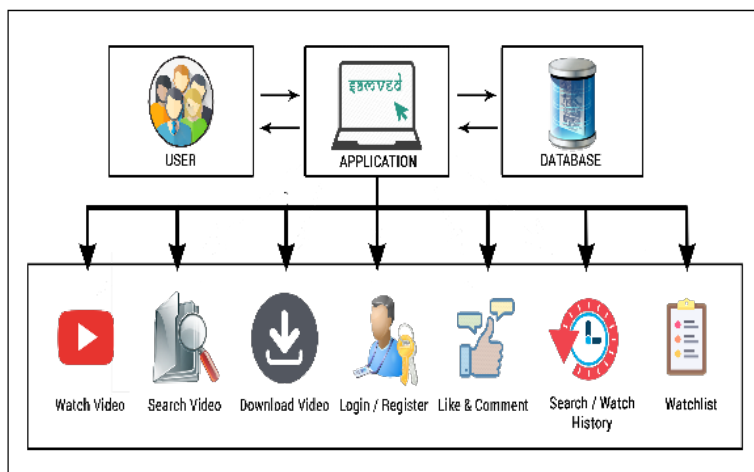


Figure 1. Overview diagram.

the functionalities and features available to the users.

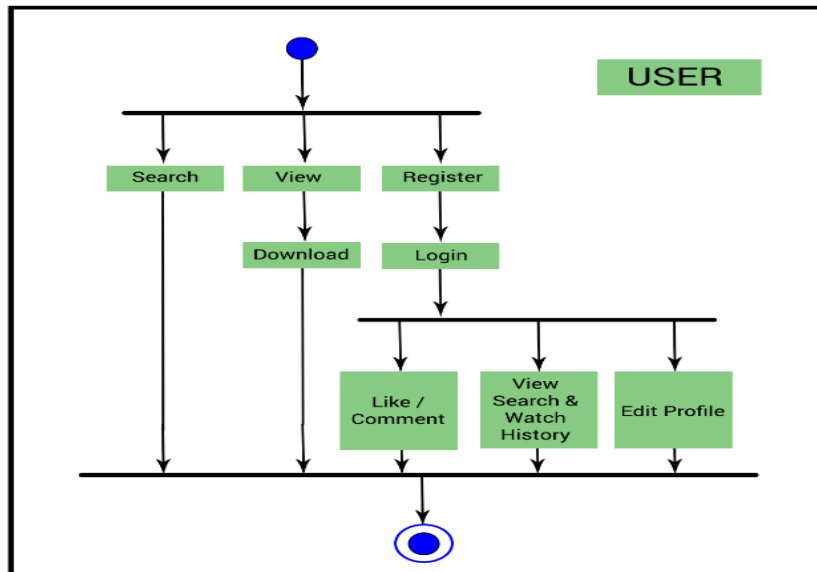


Figure 2. User activity diagram.

Figure 2 depicts the activities the user can perform in the system.

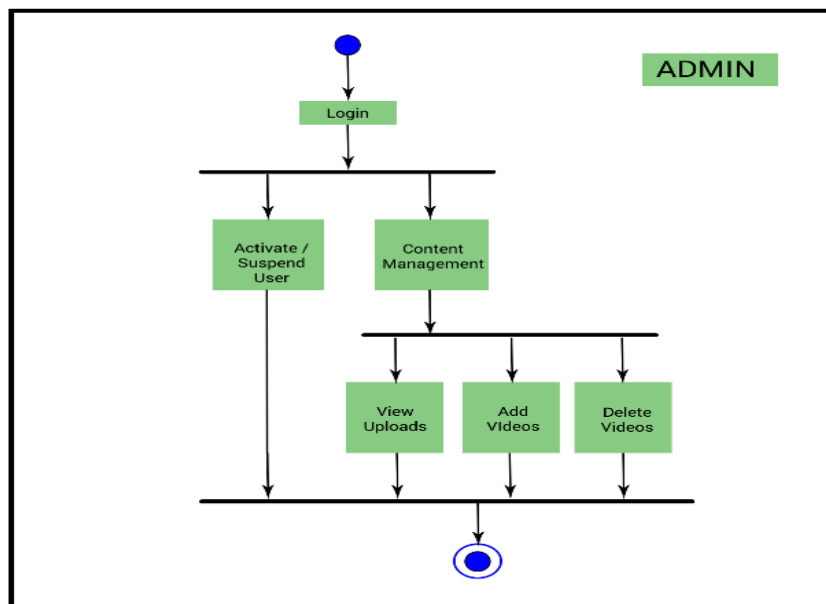


Figure 3. User activity diagram.

Figure 3 depicts the activities the admin performs in the system.

There are two ways a user can make use of the system

- As a general User, and
- As a registered user of the system.

A general User can access, view and download the videos available in the website. Whereas, registered user is privileged to all the other exclusive features of the system, such as, Commenting, Liking, and maintaining personal user activity and so on.

3. System Requirements and Implementation

The website is built using Python with the Django Framework for scripting, HTML5 for designing the frontend, and CSS3 for stylizing the frontend and PostgreSQL for database.

To start with the creation of the website, the developer machine needs to have python installed in it. Following that the latest version of Django by downloading it using pip is installed.

Pycharm is used as the IDE for the project development. The simple and specific usage features of Pycharm are very convenient for coding in python.

The backend is PostgreSQL, an open-source relational database management system (RDBMS) emphasizing extensibility and standards compliance. It can handle workloads ranging from single-machine applications to Web services or data warehousing with many concurrent users (PostgreSQL: <https://en.wikipedia.org/wiki/PostgreSQL>).

The User can access the system by entering the web address/IP address of the web server. Upon entering, the user enters the homepage of the website. Here, the user can search for the required videos in the search bar and can also browse the videos displayed on the homepage. The user can search for videos based on categories like, title, speaker, institution and department.

When the user opens a video for viewing, an option to download the video is given. Once the video is downloaded, the users have the ease to view and understand the video content at their leisure. The user can also check the likes and reviews/comments that are given by other users for the video that the user is viewing.

Once the user registers and logs into the system, the application redirects the user to the dashboard. In the user dashboard, the user can search for the videos, view and download the videos, and also can Like and Comment on the videos. The comments made by the users can be deleted if the users want it to be removed. The users are also given the feature to view their search history in the website. The search history maintains the search query given by the user which can later be referred to by the user and the watch history maintains a list of the videos watched by the users. There is a provision to add a video being watched, to the watch-list. The watch-list is a record of videos, so that the user need not have to search for those videos again and instead just access them directly from the list. The user can add new videos to the watch list. The user given the feature of editing the user profile and update the details whenever required.

The admin can login to the system through the admin link website and in the admin panel users can be suspended or activated based on the requirement. All Users are, by default, activated. Any user with an activated status, can login to the system and access all the features provided, namely, Like and Comment on Videos, maintain a Search and Watch History and also add videos to the watch-list. Any user found to be misusing the website can be suspended and access to the website will be locked. If a user is a student, and is currently not a part of the university, for example, the student might have completed the course or might have discontinued the course for some reason, then such student accounts can also be suspended. But only the Admin is authorized to suspend such user accounts based on the need. Admin can also upload new videos or delete old videos from the website database. In PES University, the Admin is managed by the librarian.

The Like count and Download count on the videos can be used by the admin to get statistical data on the usage of NPTEL videos. This statistical data will enable the Admin to identify videos that are most viewed and most accessed. The Admin will also be able to gauge the usage of NPTEL videos based on Category/Sub-Category and figure out which department makes the most use of the resources provided by the college for the betterment and knowledge enrichment of the users.

4. What the User can get from the Website

The website contains videos provided by NPTEL, which cover content generated by seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati and Roorkee) and the Indian Institute of Science, Bangalore.

It covers course lectures spanning all engineering disciplines, namely, civil engineering, computer science and engineering, electrical engineering, electronics and communication engineering, mechanical engineering, etc.

By using this website, Users can, via a single platform, access, search and view the videos provided by NPTEL, but also download them for free at a very high download speed, as, the videos are being accessed through an intranet connection.

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