

**A PRELIMINARY REPORT
ON
TEACHER MANAGEMENT SYSTEM**

**SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE
IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE**

OF

BACHELOR OF ENGINEERING (COMPUTER ENGINEERING)

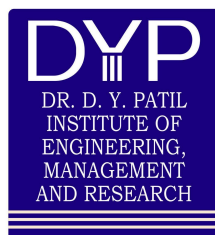
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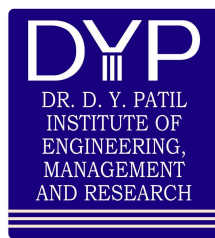


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CERTIFICATE

This is to certify that the project report entitled

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ACKNOWLEDGEMENT

It gives us great pleasure in presenting the preliminary project report on ‘Teacher Management System’.

I would like to take this opportunity to thank my internal guide Mrs. Ketaki Bhoyar for giving me all the help and guidance I needed. I am really grateful to them for their kind support. Their valuable suggestions were very helpful.

I am also grateful to Dr. P.P. Halkarnikar, Head of Computer Engineering Department, Dr. D. Y. Patil Institute of Engineering, Management & Research for his indispensable support, suggestions.

In the end our special thanks to Prof. Ishwar Kalbandi for providing various resources such as laboratories with all needed software platforms, continuous guidance, for Our Project.

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ABSTRACT

Right Now there is no such portal that provides a single-stop platform for the government to manage all the teachers under their employment.

Thereby this project proposes a portal that will be capable of helping the Institutes make the entire process of resource management more streamlined and hence, transparent. Along with resource management, it also provides a web for the teachers to engage with schemes of the government, receive official government notifications directly regarding teaching, and manage their own profiles. From Recruitment to Retirement along with service book handling the portal satisfies all the needs with three user interfaces specifically 'teacher', 'admin', and 'Institute' having separate login and permissions for Admin (Govt.), Schools/Institutes, and Teachers themselves.

This project uses the latest technologies such as MERN stack, java, and machine learning to accomplish the objective of providing a completely automated Teacher Recruitment and management System.

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LIST OF ABBREVIATIONS

ABBREVIATION	ILLUSTRATION
HTTP	HyperText Transfer Protocol
MQTT	Message Query Telemetry Transport

LIST OF FIGURES

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01. INTRODUCTION

1.1 OVERVIEW

Right Now there is no such portal that provides a single-stop platform for the government to manage all the teachers under their employment.

Thereby this project proposes a portal that will be capable of helping the Institutes make the entire process of resource management more streamlined and hence, transparent.

1.2 MOTIVATION

To provide a single-stop platform for the government to manage all the teachers under their employment from recruitment to retirement along with providing a portal for the teachers to engage with certain schemes of the government, receive official government notifications regarding teaching, and manage their own profile such as service book.

1.3 PROBLEM STATEMENT AND OBJECTIVE

Problem Statement:

Every year through the government exams plenty of teachers are hired and posted in various government schools. The tracking of teachers from recruitment to their entire service duration is done manually which makes it difficult to manage and keep track. Addressing this problem will give the government the ease of managing teachers through one single portal which will help in maintaining clear stats of the teachers currently posted.

Objectives:

- To provide a single-stop platform for the government to manage all the teachers under their employment from recruitment to retirement

1.4 PROJECT SCOPE

Project Scope:

- The proposed system will help in better management of teacher data.
- The recommendation was given on the basis of a real time updated dataset.
- The information shown on the application is for information purposes as well as analytical and decision making purposes.
- System has authority to maintain the application regularly.

02. LITERATURE SURVEY

Sr. No	Paper Title	Journal Name	Authors & Publication Date	Methodology
1	Predicting the performance of instructors using Machine learning algorithms		Panimalar Kathirolu, Vijaylakshmi v. December 2020	<ul style="list-style-type: none"> This paper concentrates on predicting the teacher's performance and explores the factors influencing student accomplishment. In this paper, some of the machine learning algorithms were utilized such as Naïve Bayes, K-Nearest Neighbor, Random Forest, Support Vector Machine, and Decision Tree.
2	Design of Distance Assistance System for Intelligent Education by Web-based Applications		Chao Yang, Jerry Chun-Wei Lin 9 February 2022	<ul style="list-style-type: none"> In order to improve the quality of distance education and solve the problem of slow data processing of the teaching system, an intelligent distance education assistance system based on WEB is developed in this paper. The auxiliary system designed in this paper can provide a stable and efficient application environment for distance education.

03. SOFTWARE REQUIREMENT SPECIFICATION

3.1.1 PROJECT SCOPE

- The proposed system will help in better management of teacher data.
- The recommendation was given on the basis of a real time updated dataset.
- The information shown on the application is for information purposes as well as analytical and decision making purposes.
- System has authority to maintain the application regularly.

3.1.2 USE CLASSES AND CHARACTERISTICS

Our system is divided into two class/modules:

- 1) user
- 2) admin

3.1.3 ASSUMPTIONS AND DEPENDENCIES

1. Users must have the knowledge of web based applications.
2. Users must have knowledge of English.
3. Users must have all required software to run the application.

3.2 FUNCTIONAL REQUIREMENTS

- It will help in better management of teacher data.
- Performance of the functions and every module must be well. The overall performance of the software will enable the users to work efficiently.
- The application is designed in modules where errors can be detected and fixed easily. This makes it easier to install and update new functionality if required.
- User information can only be viewed by the user himself/herself.

3.3 EXTERNAL INTERFACE REQUIREMENTS

1. USER INTERFACES

The requirements section of hardware includes a minimum of 180 GB hard disk and 4 GB RAM with 2 GHz or higher speed.

2. **HARDWARE INTERFACES**

As this is an online application portal we are not enabling or installing any hardware components for user interface.

It's not an embedded system

- Processor - Pentium IV 2.4 GHZ
- Speed - 1.5 Ghz and Above
- RAM - 4 GB (min)
- Hard Disk - 220 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse

3. **SOFTWARE INTERFACES**

This is the software configuration in which the project was shaped. The programming language used, tools used, etc are described here.

- Operating System : Windows
- Front End : MERN stack, Java, Python.
- Tool : Spring tool suite, eclipse, pycharm, heroku
- Database : MySQL

4. **COMMUNICATION INTERFACES**

- Users can access the web application from a remote location.
- Standard internet connection is required.
- TCP/UDP connection will be required.

3.4 **NON-FUNCTIONAL REQUIREMENTS**

1. **PERFORMANCE REQUIREMENTS**

- High Speed:

System should process requested tasks in parallel for various actions to give a quick response. Then the system must wait for process completion.

- Accuracy:

System should correctly execute the process, display the result accurately. System output should be in user required format.

2. SAFETY REQUIREMENTS

The data safety must be ensured by arranging for a secure and reliable transmission media. The source and destination information must be entered correctly to avoid any misuse or malfunctioning. Passwords generated by the user consist of characters, special characters & numbers so that password is difficult to hack. So, that user account is safe.

3. SECURITY REQUIREMENTS

Secure access of confidential data (user's details).

- Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction.
- The terms information security, computer security and information assurance are frequently incorrectly used interchangeably. These fields are interrelated often and share the common goals of protecting the confidentiality, integrity and availability of information; however, there are some subtle differences between them.
- User password must be stored in encrypted form for the security reason
- All the user details shall be accessible to only high authority persons.
- Access will be controlled with usernames and passwords.

4. SOFTWARE QUALITY ASSURANCE

- Availability [related to Reliability]
- Modifiability [includes portability, reusability, scalability]
- Performance
- Security
- Testability
- Usability[includes self-adaptability and user adaptability]

3.5 **SYSTEM REQUIREMENTS**

1. **DATABASE REQUIREMENTS**

MySQL : MySQL is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language.

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB.

MySQL is a component of the LAMP web application software stack (and others), which is an acronym for Linux, Apache, MySQL, Perl/PHP/Python. MySQL is used by many database-driven web applications, including Drupal, Joomla, phpBB, and WordPress. MySQL is also used by many popular websites, including Facebook, Flickr, MediaWiki, Twitter, and YouTube.

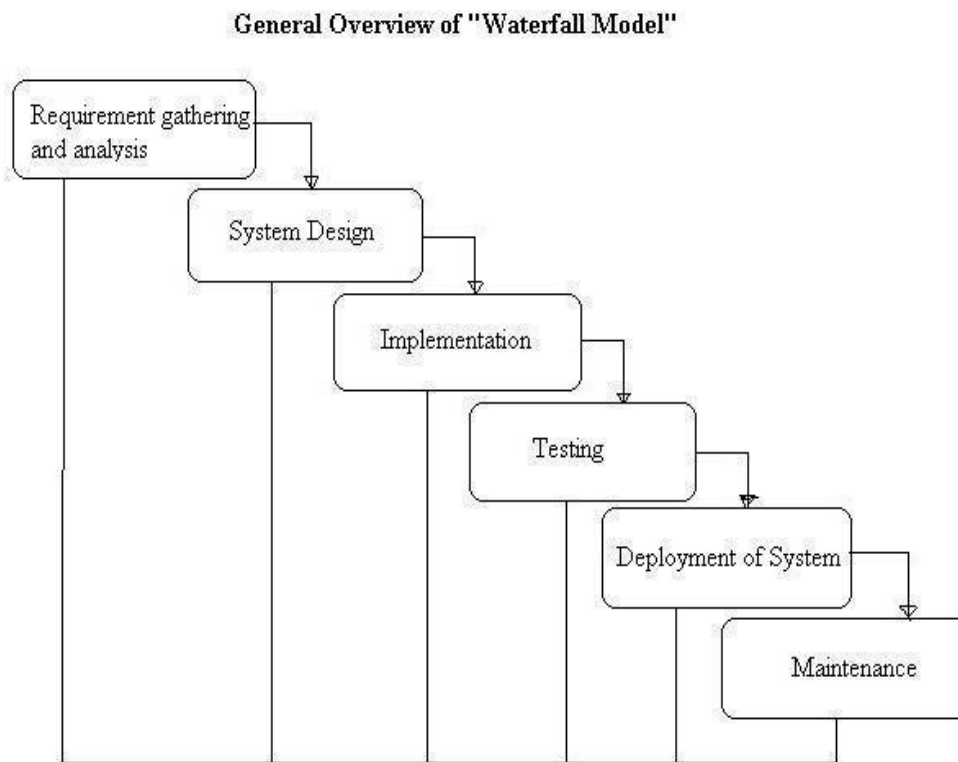
2. **SOFTWARE REQUIREMENTS**

Operating system	:	Windows 7 and above.
Coding Language	:	Python, Java, React JS
IDE	:	Sublimetext3 Pycharm

3. **HARDWARE REQUIREMENTS**

System	:	Intel I3 Processor and above.
Hard Disk	:	200 GB.
Monitor	:	15 VGA Color.
Ram	:	4 GB.

3.6 ANALYSIS MODELS : SDLC MODEL TO BE APPLIED



3.7 SYSTEM IMPLEMENTATION PLAN

1. Requirement gathering and analysis:

In this step of waterfall we identify what various requirements are needed for our project such as software and hardware required, database, and interfaces.

2. System Design:

In this system design phase we design the system which is easily understood for the end user i.e. user friendly.

We design some UML diagrams and data flow diagrams to understand the system flow and system module and sequence of execution.

3. Implementation:

In the implementation phase of our project we have implemented various modules required to successfully get expected outcomes at the different module levels.

With inputs from system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing.

4. Testing:

The different test cases are performed to test whether the project modules are giving expected outcomes in assumed time.

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

5. Deployment of System:

Once the functional and nonfunctional testing is done, the product is deployed in the customer environment or released into the market.

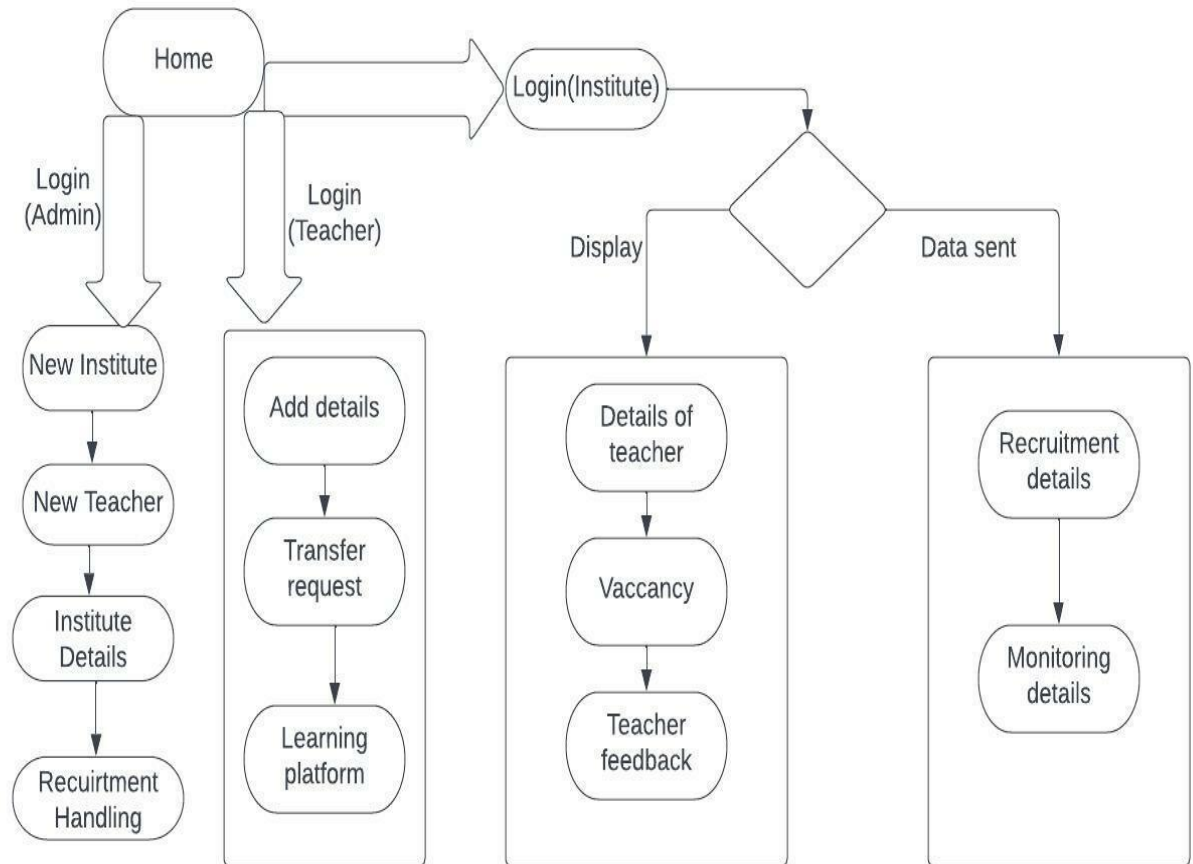
6. Maintenance:

There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

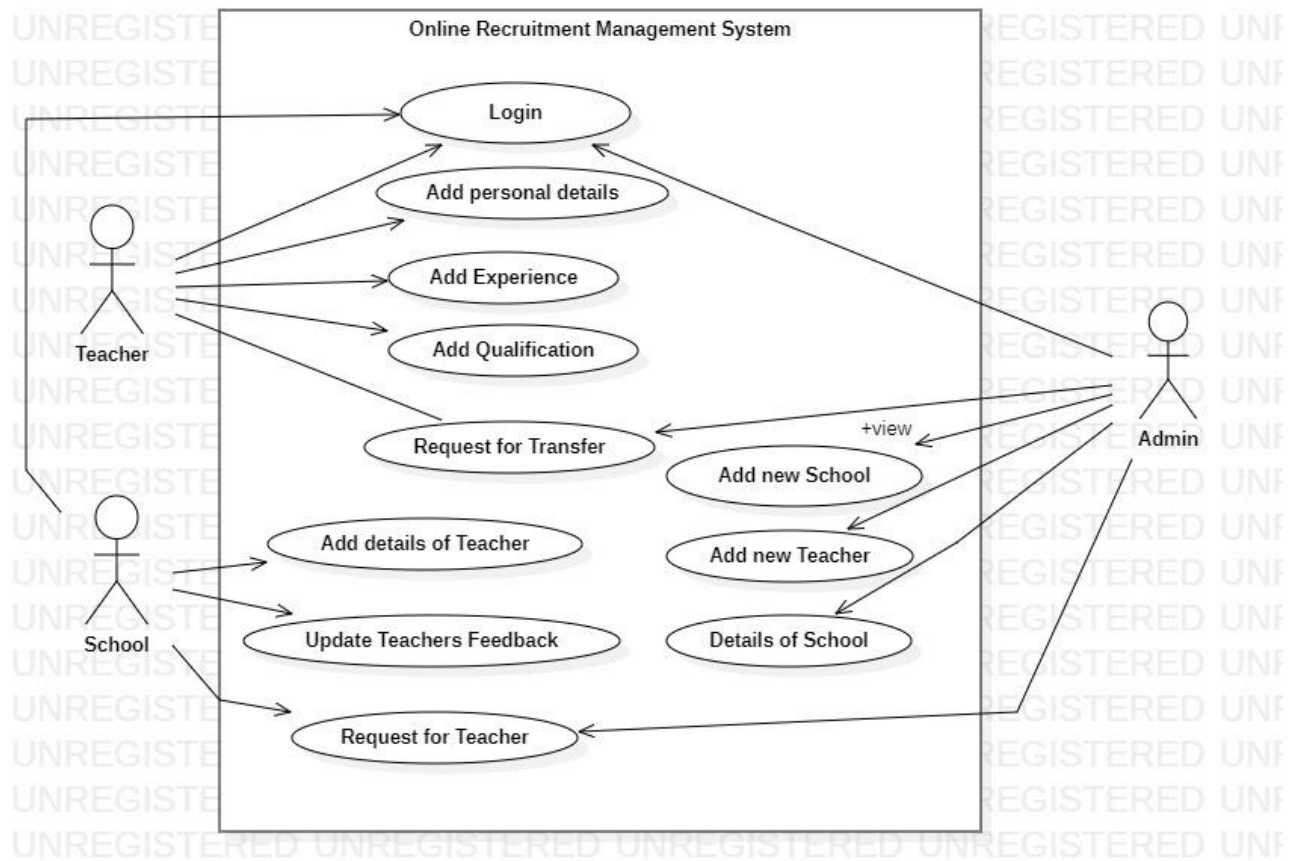
All these phases are cascaded to each other in which progress is seen as flowing steadily downwards like a waterfall through the phases. The next phase is started only after the defined set of goals are achieved for the previous phase and it is signed off, so the name "Waterfall Model". In this model phases do not overlap.

04. SYSTEM DESIGN

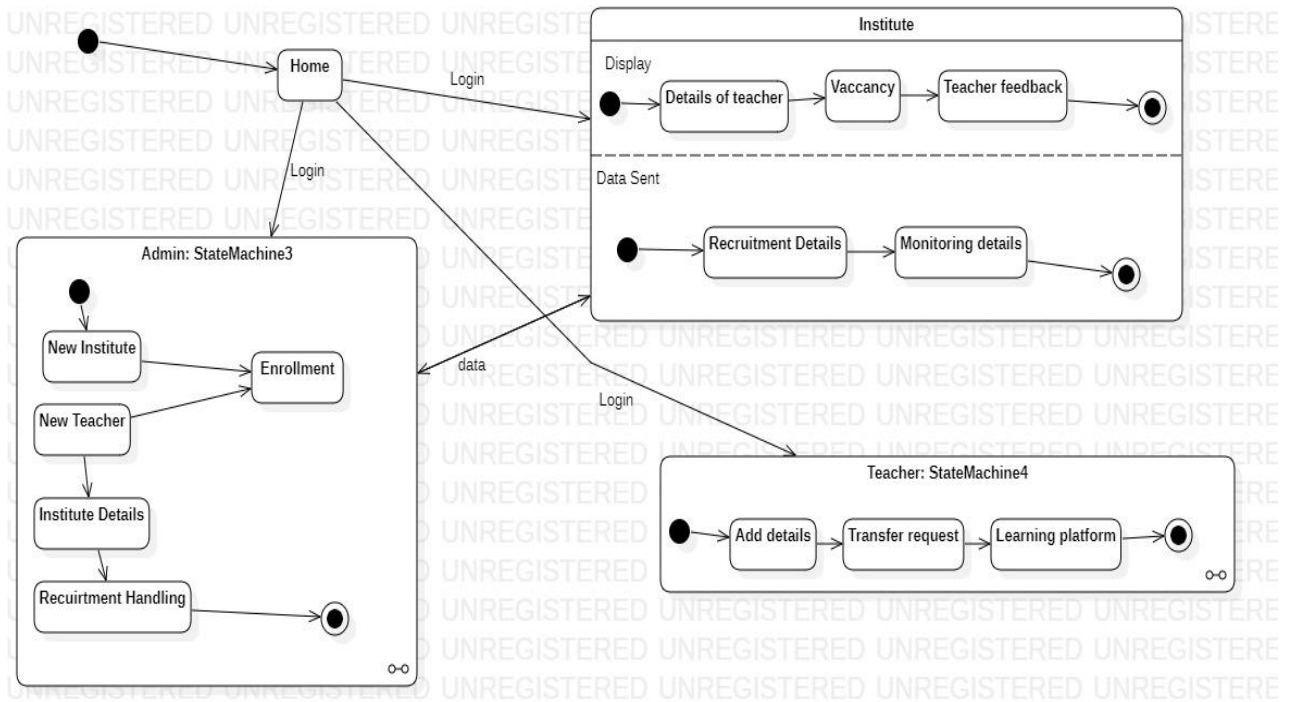
4.1 SYSTEM ARCHITECTURE



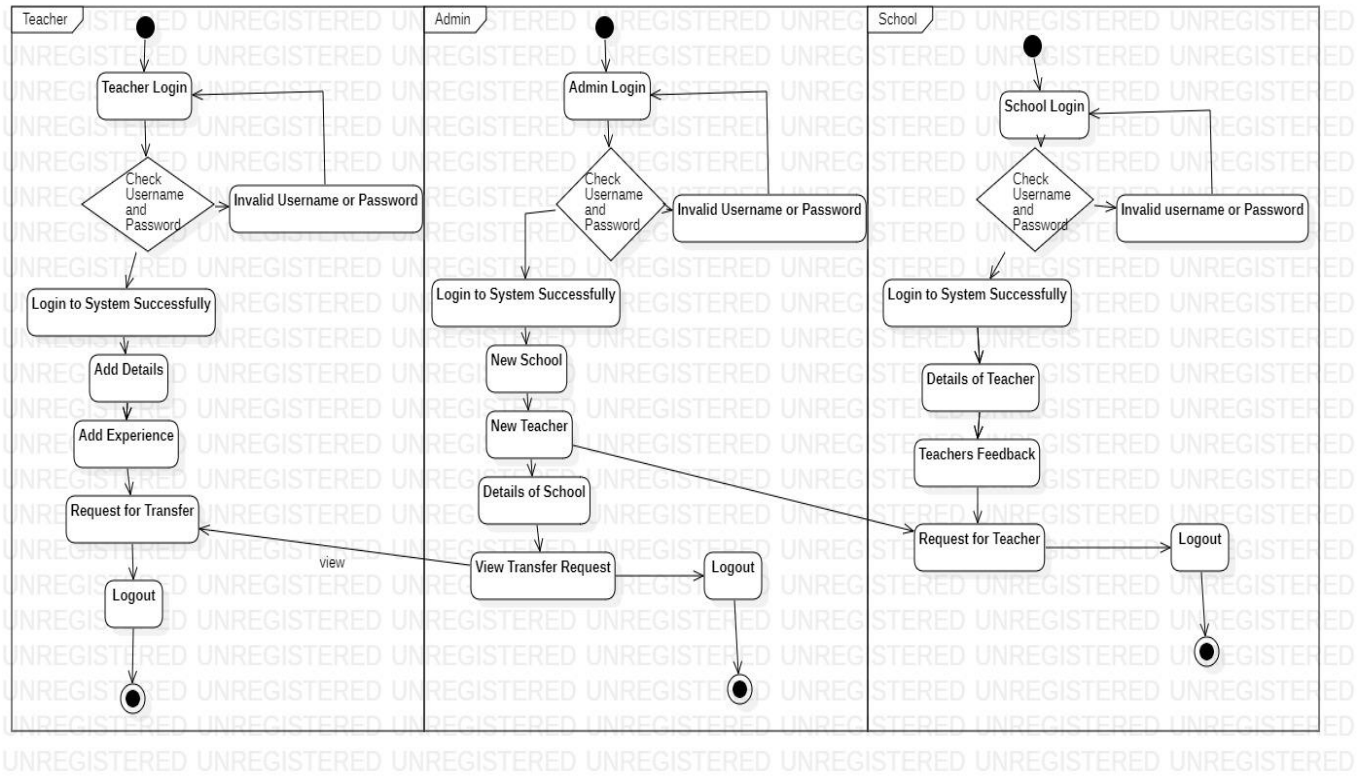
4.2 USE CASE DIAGRAM



4.3 STATE CHART DIAGRAM



4.4 ACTIVITY DIAGRAM



05. OTHER SPECIFICATION

5.1 ADVANTAGES

1. Better Management of Teacher Data
2. Effective prediction technique
3. Provide Deeper Insights to Management
4. Secure and efficient system.
5. Cost efficient.

5.2 LIMITATIONS

1. Users must have knowledge of English.
2. Users must have all required software to run the application.
3. It requires internet connection.
4. The max operator has at least two disadvantages. Firstly, it is only suitable for the instance-level approaches that require an instance classifier

06. CONCLUSION & FUTURE WORK

Conclusion:

Teacher Management System is a web application, developed to maintain the details of Teachers from their recruitment to their entire service duration which was earlier done manually and which makes it difficult to manage and keep track. This project simplifies the task of maintaining records because of its user friendly nature.

Future scope:

For Teachers: Past analysis and future prediction of institutes performance based on their filters and choices.

For Admin: To know the performance of teachers and institutes to help in the decision making process.

Technology Trends: Teachers and institutes will be able to know which are the upcoming technologies that will gain new heights in the future.

References:

- [1] Panimalar Kathioli, Vijaylakshmi v., December 2020 Predicting the performance of instructors using Machine learning algorithms.
- [2] Chao Yang, Jerry Chun-Wei Lin, 9 February 2022 Design of Distance Assistance System for Intelligent Education by Web-based Applications

07. PLAGIARISM REPORT

