

# E MITRA (Educator's Metadata Indexing and Transfer Request Automation)

**Group Id:** 26

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**Project Guide:** Mrs. Ketaki Bhoyar



# E MITRA (Educator's Metadata Indexing and Transfer Request Automation)

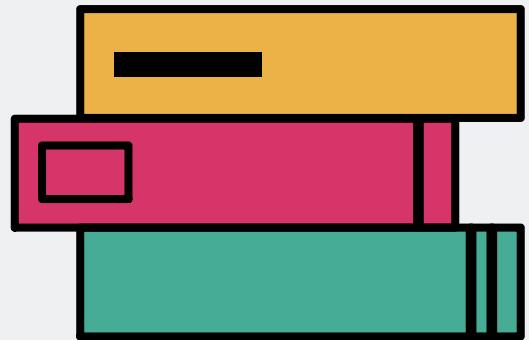
## Problem Statement:

Through the government exams plenty of teachers are hired and posted in various government schools. The tracking of teachers from recruitment to retirement is done manually which makes it difficult to manage and keep track. Addressing this problem will give government the ease of managing teachers through one single portal.



← → Q Why is it so important?

# Objective



## General Overview

Teacher Management Portal is a web application, developed to maintain the details of Teachers from their recruitment to their entire service duration which was done manually and which makes it difficult to manage and keep track .



## Importance

In this world of growing technologies everything has been automated. With large number of work opportunities the Human workforce has increased. Thus there is a need of a system which can handle the data of such a large number of Teachers in an organization..

← → Q Review of Literature

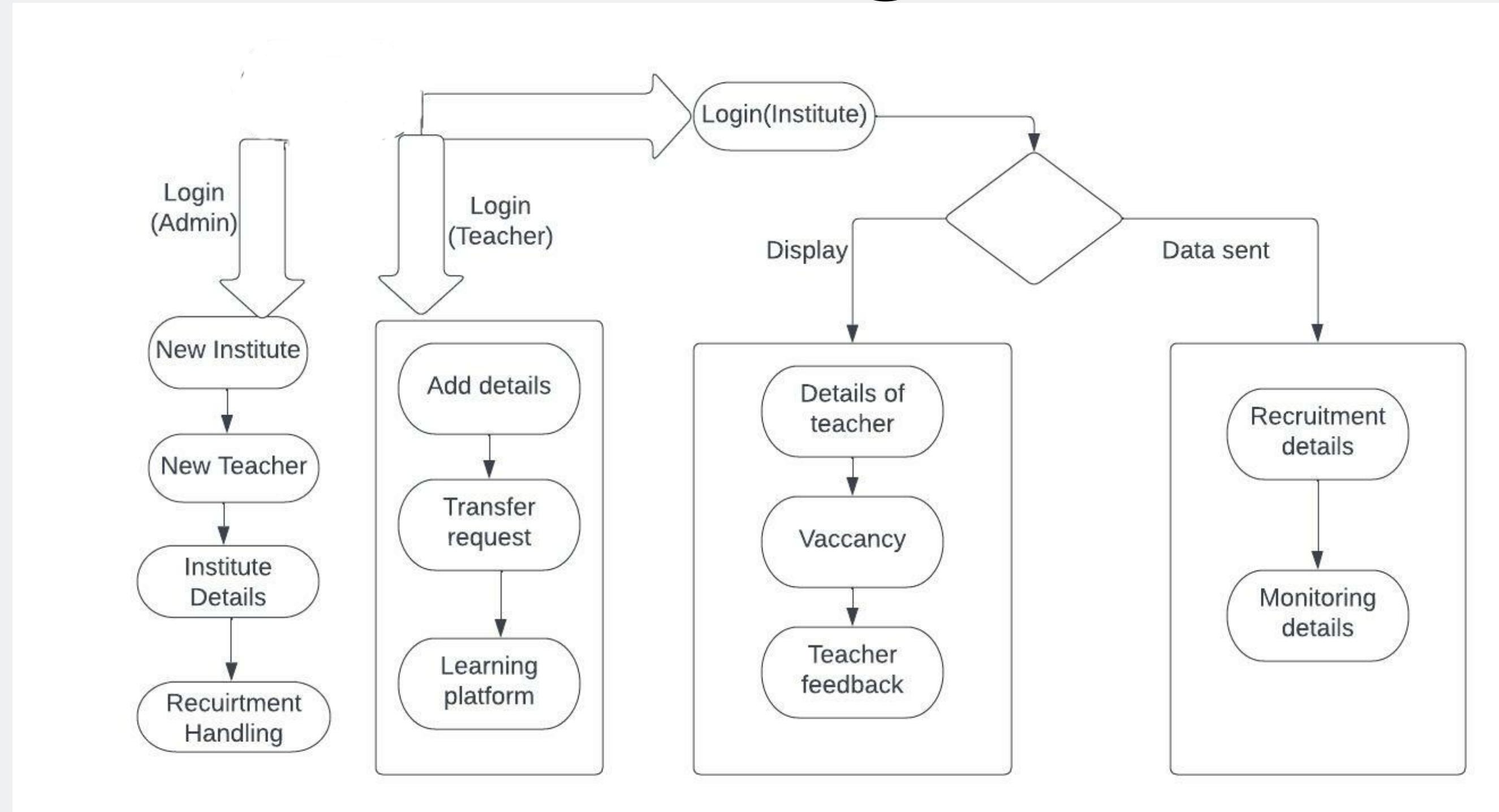
Sr . N o	Paper Title	Journal Name	Authors & Publication Date	Methodology
1	Predicting the performance of instructors using Machine learning algorithms	IEEE	Panimalar Kathiroli, Vijaylakshmi v. December 2020	<ul style="list-style-type: none"> <li>This paper concentrates on predicting the teacher's performance and explores the factors influencing student accomplishment.</li> <li>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.</li> </ul>
2	Design of Distance Assistance System for Intelligent Education by Web-based Applications	Springer	Chao Yang, Jerry Chun-Wei Lin. 9 February 2022	<ul style="list-style-type: none"> <li>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.</li> <li>The auxiliary system designed in this paper can provide a stable and efficient application environment for distance education.</li> </ul>
3	Integrating Artificial Intelligence in Teacher Management Systems	IEEE	Smith, J., Johnson, L., Thompson, R. 2022	<ul style="list-style-type: none"> <li>This paper presents an intelligent web-based system for distance education assistance, aiming to enhance the quality of distance education and address the issue of slow data processing in the teaching system.</li> </ul>

← → Q Review of Literature

Sr . N o	Paper Title	Journal Name	Authors & Publication Date	Methodology
4	Teacher Recommendation Systems: Personalized Approaches for Professional Development	IEEE	Kim, E., Park, S., Lee, J. 2021	<ul style="list-style-type: none"><li>This paper focuses on the management of teacher databases, profile administration, and forecasting teacher performance.</li></ul>
5	Machine Learning Techniques for Teacher Performance Prediction	IEEE	Gupta, A., Sharma, R., Kumar, S. 2020	<ul style="list-style-type: none"><li>This manuscript centers on the management and organization of teacher databases, profile administration, and the anticipation of teacher performance.</li><li>The core objective of this paper is to delve into the meticulous management of teacher databases, the administration of profiles, and the prognostication of teacher performance.</li></ul>

← → Q Architectural Diagram

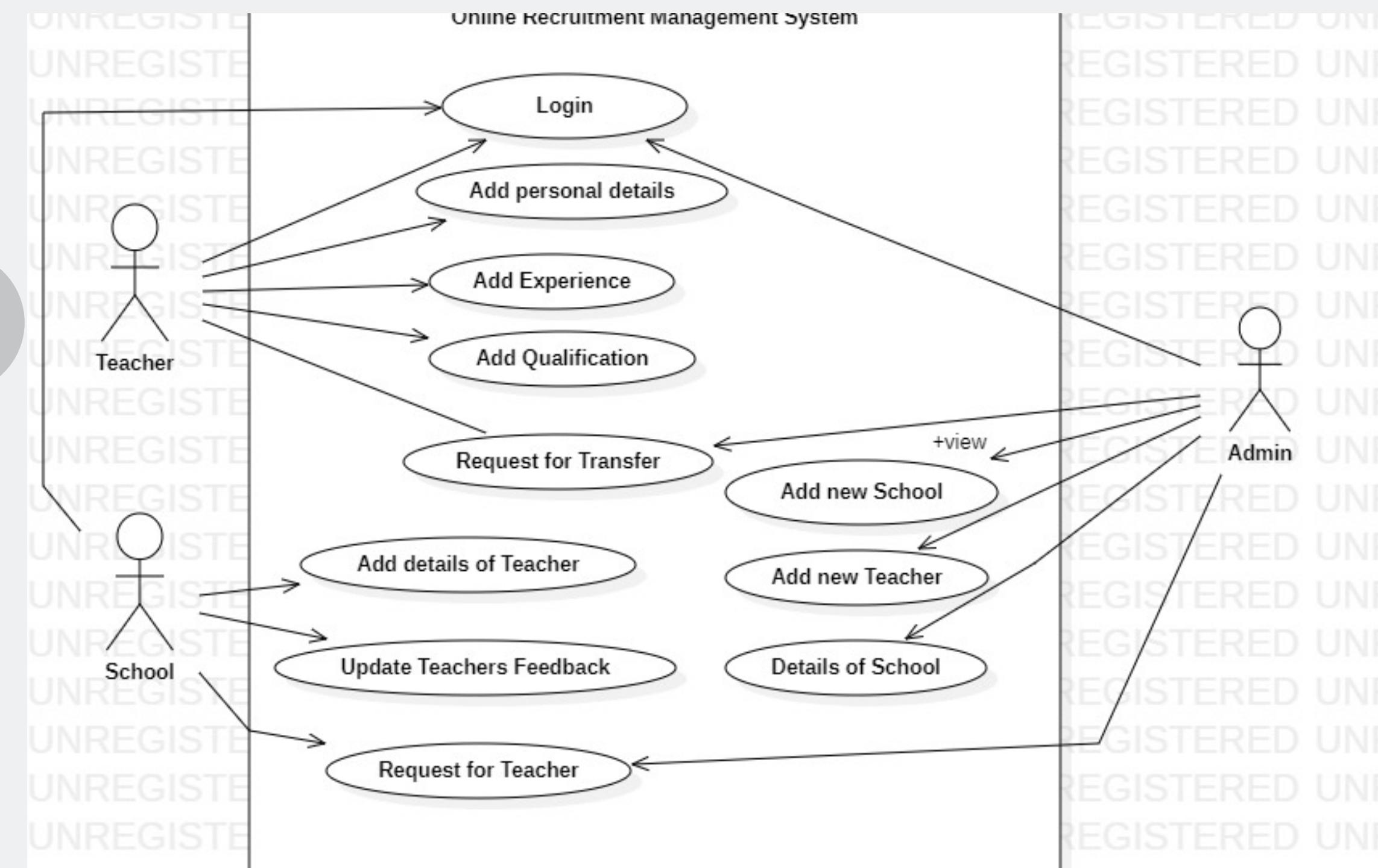
# Architectural Diagram



← → Q UML Diagram

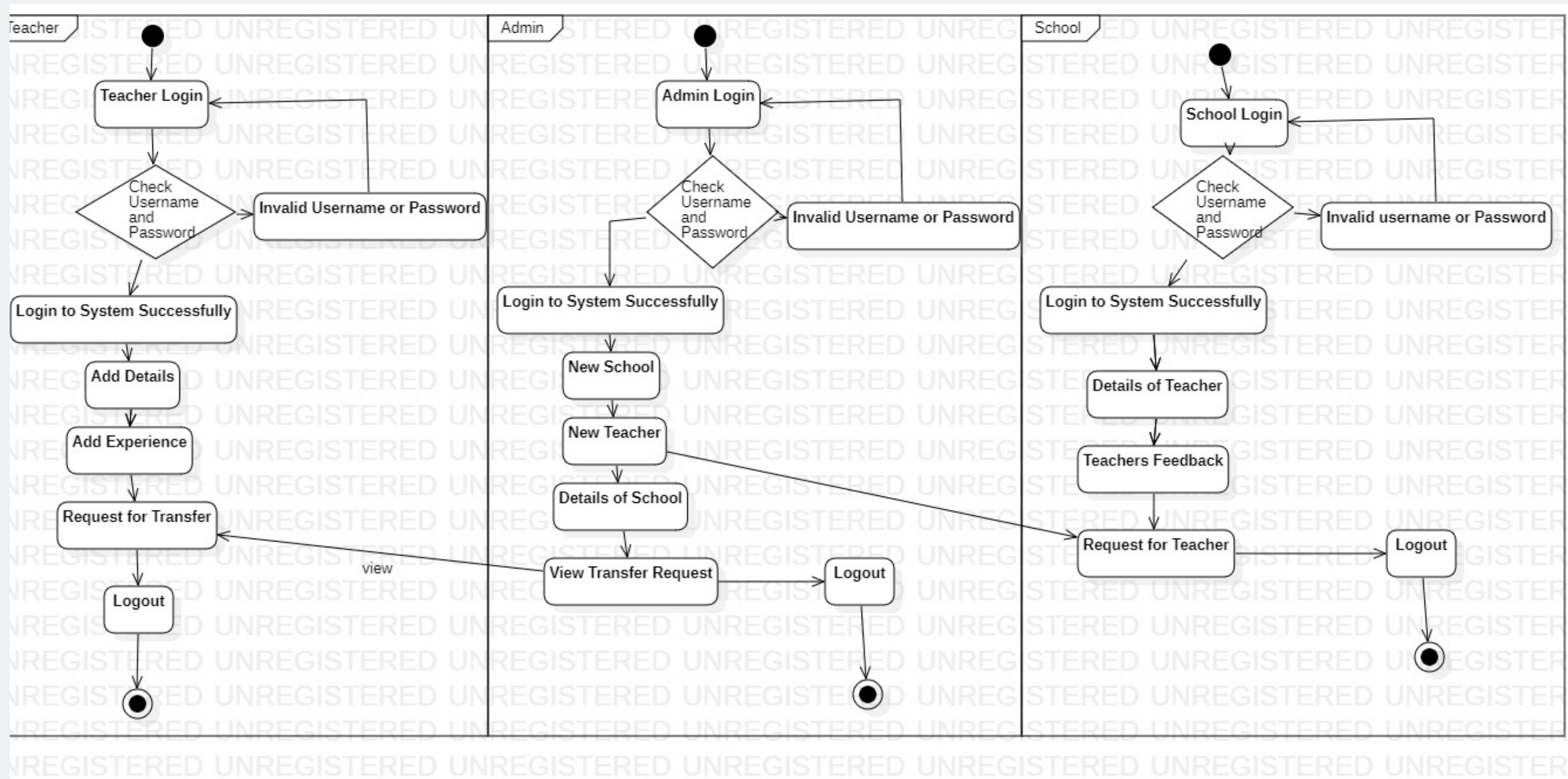
# UML Diagram

Use Case Diagram



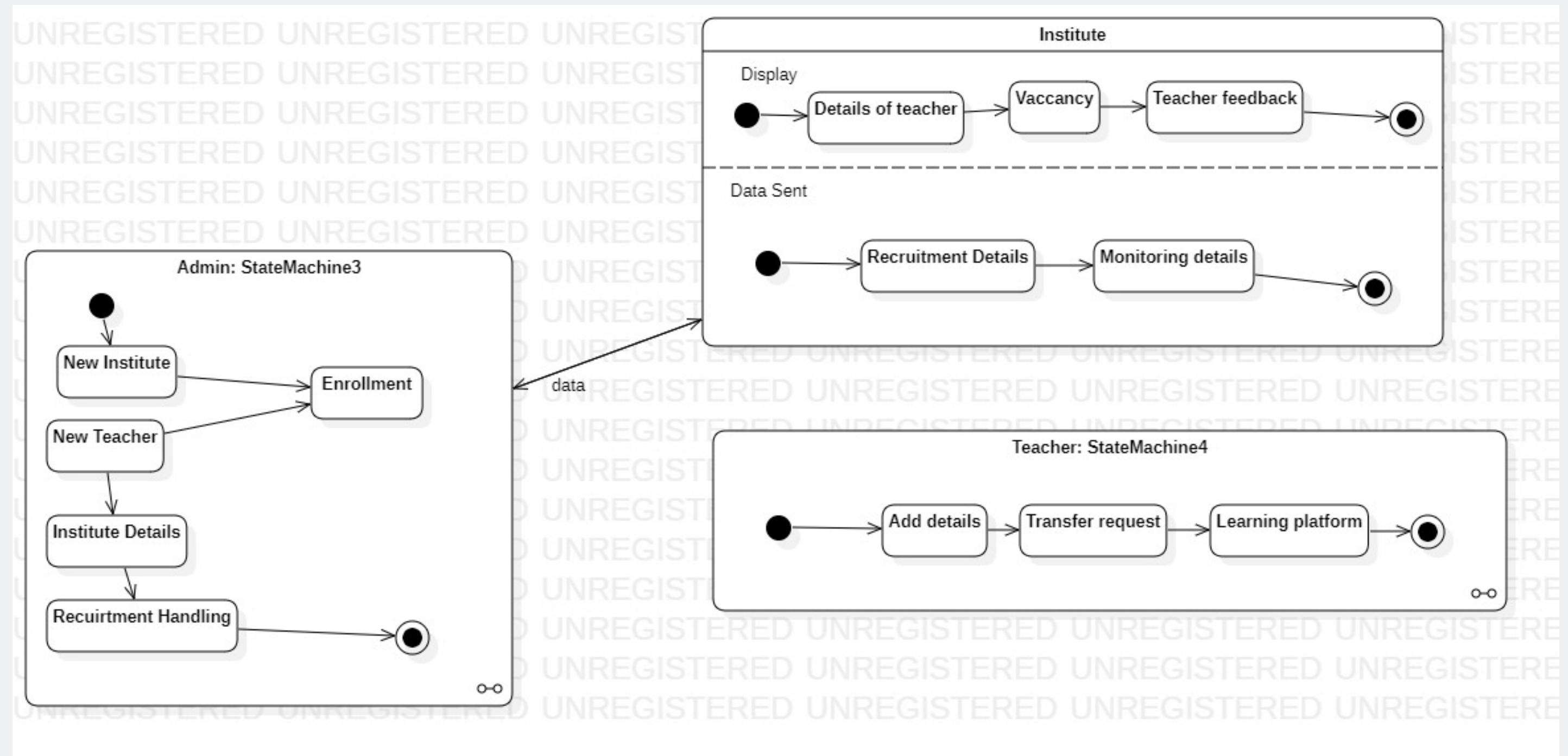
← → Q Activity Diagram

## Activity Diagram



← → Q State Diagram

## State Diagram



# Proposed System

## For Teachers

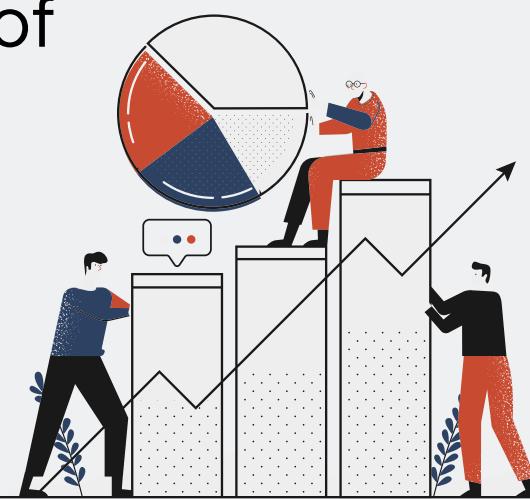
- A software that maintains all their data from recruitment to retirement along with maintaining a record book and academic calendar.
- Easy transfer request access for teachers.
- Section that will provide feed related to upskilling and important updates.

## For Admin

- Automated shortlisting of teachers application in recruitment process.
- To know the performance of teachers and institutes to help in the decision making process.
- Visual interactive dashboards to analyze teachers database and transfer requests.

## Technology Trends

- Teachers and institutes can know about the upcoming technologies that will top the list in the future through daily news feed.
- Automated performance tracker of teacher.
- Predicting upcoming vacancies or new branches in various streams



Introduction

Title

Objective

Proposed System



← → Q Proposed System

# Proposed System- Admin

The screenshot shows the homepage of the Teacher Management Portal (TMS). It features the Indian Government logo and the text "शिक्षक व्यवस्थापन पोर्टल" and "Teacher Management Portal" along with "Government of Maharashtra". Below the header, there is a navigation bar with links: Home, Manage Teachers, Manage Schools, Manage Vacancy, Calendar, and Analytics. The main content area has a blue background with the text "E MITRA" in large bold letters, followed by "(Educator's Metadata Indexing and Transfer Request Automation)". A sub-section below it discusses TMS's purpose and features, mentioning it serves both colleges and departments, provides a common system for academic staff and undergraduate students, and offers greater visibility of teaching provided to undergraduate students across the University. It also highlights managing college and department teaching across multiple teaching types.

The screenshot shows the "Teacher Management Page" of the TMS. At the top, it displays the Indian Government logo and the text "शिक्षक व्यवस्थापन पोर्टल" and "Teacher Management Portal" along with "Government of Maharashtra". Below the header, there is a navigation bar with links: Home, Manage Teachers, Manage Schools, Manage Vacancy, Calendar, and Analytics. The main content area is titled "Teacher Management Page" and includes a "Add Teacher" button. A table lists six teachers with their details: No., First Name, Last Name, Email, Salary, Date, and Actions (View Full Service Record, Edit, Delete). The data in the table is as follows:

No.	First Name	Last Name	Email	Salary	Date	Actions
1	Anita	Sharma	anita_sharma@example.com	₹90,000	2015-05-01	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>
2	Versha	Gupta	VershaGupta@example.com	₹80,000	2019-04-17	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>
3	Seema	Shinde	seemashinde@example.com	₹79,000	2019-05-01	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>
4	Paresh	Kokney	PareshKokney@example.com	₹56,000	2019-05-03	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>
5	Veena	Sapre	VeenaSapre@example.com	₹65,000	2019-06-13	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>
6	Suman	Tiwari	SumanTiwari@example.com	₹120,000	2019-07-30	<a href="#">View Full Service Record</a> <a href="#">Edit</a> <a href="#">Delete</a>

Introduction

Title

Objective



← → Q Proposed System

# Proposed System-Admin

Home Manage Teachers Manage Schools Manage Vacancy Calendar Analytics

## Service Record

### Personal Details



Name Anita Sharma  
Date of Birth 01/01/1990

शिक्षक व्यवस्थापन पोर्टल  
महाराष्ट्र सरकार  
Teacher Management Portal  
Government of Maharashtra

Home Manage Teachers Manage Schools Manage Vacancy Calendar Analytics

## Vacancy Management Page

Add Vacancy

Vacancy ID	School Name	Subject	No.of Vacant Posts	Experience Required	Qualification Required	Actions
1	Army Public School	English	2	7	M.A,M.Ed	<button>View</button> <button>Approve</button> <button>Reject</button>
2	D.A.V. Public School	Biology	1	9	M.Sc,M.Ed	<button>View</button> <button>Approve</button> <button>Reject</button>
3	Delhi Public School	Physics	2	5	M.Sc,M.Ed	<button>View</button> <button>Approve</button> <button>Reject</button>
4	Kendriya Vidyalaya Ganeshkhind	History	3	13	M.A ,M.Ed	<button>View</button> <button>Approve</button> <button>Reject</button>

Introduction

Title

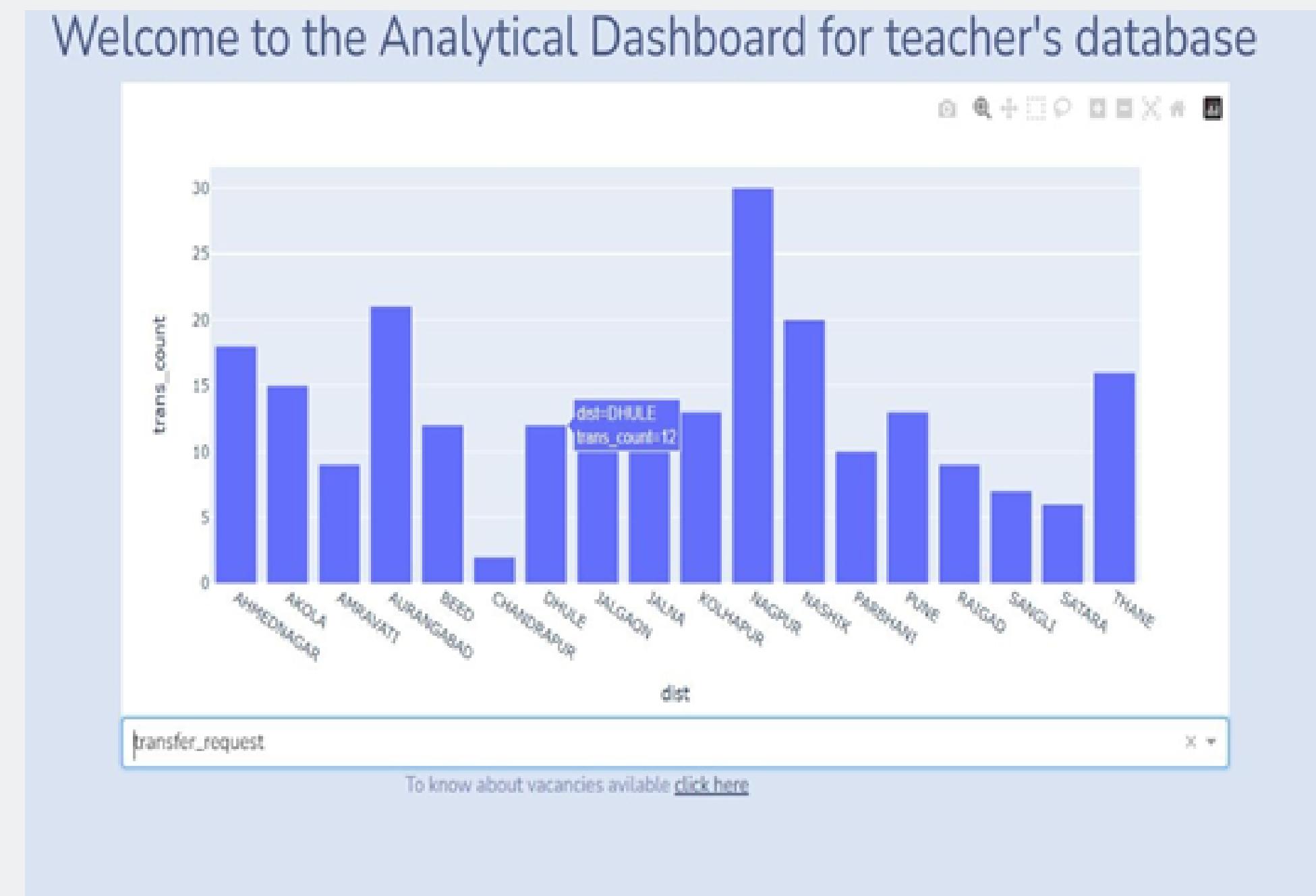
Objective

X

+

← → Q Proposed System

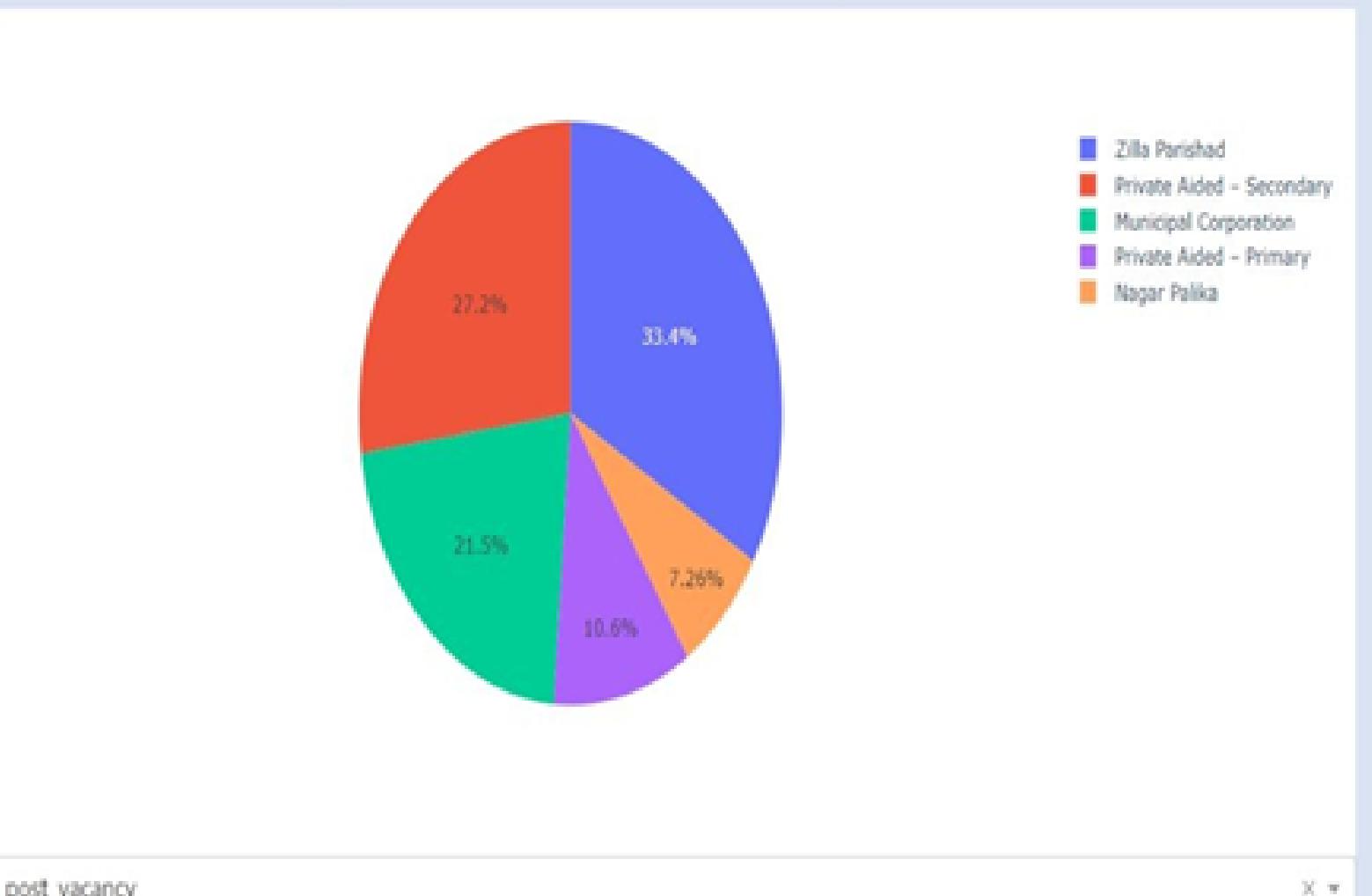
# Proposed System-Admin



← → Q Proposed System

# Proposed System-Admin

Welcome to the analytical Dashboard for database and Transfer



← → Q Proposed System

# Proposed System-School Portal

School Portal   Profile   Employee Detail   Academic Calendar   News   Create Vacancy

## WELCOME TO ARMY PUBLIC SCHOOL, PUNE

Army Public School Pune is recognized as one of the finest educational institutes in the region and among the top most Army Public Schools in the country. Ever since its inception, in 1988, it has made giant strides in academics, sports and co-curricular activities and produced city-toppers in Class XII BOARD Results and Champions on myriad platforms. Established under the aegis of AWES (Army Welfare Education Society, New Delhi), the school is affiliated to CBSE. It imparts quality education to children of defense personnel and also welcomes students from civilian background. The school has two campuses- Junior Wing, having Classes I to V and Senior Wing comprising of Classes VI to XII. Both the campuses are well equipped with all the facilities that are necessary for a holistic

School Portal   Profile   Employee Detail   Academic Calendar   News   Create Vacancy

**Army Public School**  
Zilla Parishad School(Govt.of Maharashtra)  
SSC

**About**

School Id	0001
Name	Army Public School
Email	apspune01@gmail.com
Phone	2255(ARMY), 020-29990101(CIV)
Medium of Teaching	English
Established	1988
Student Capacity	1500
Level of Studies	Senior Secondary
No. of Playground	2
No. of Auditorium	1

WORK LINK  
Website Link

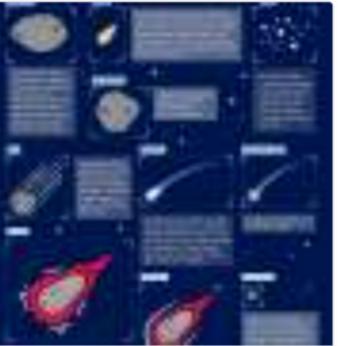


← → Q Proposed System

# Proposed System-School Portal

Teacher Portal   Profile   Vacancies   Academic Calendar   News   Logout

## Top Educational News Headlines



Madrid meteor's cometary origins unearthed  
A fireball spotted over Madrid has had its astronomical ancestry unearthed. While it ended its days burning up in Earth's atmosphere on 31 July this year, the fragment began its life as part of Comet 169P/NEAT, responsible for the annual Alpha Capricornids meteor shower.



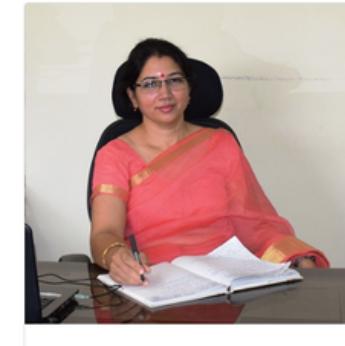
Toronto greenspaces create structural and systemic barriers for racialized residents  
Racialized residents could face structural and systemic barriers to accessing, using and navigating Toronto's greenspaces, say the authors of a new report led by York University.



Sociologist discusses the appeal of QAnon and other modern-day conspiracy theories  
Days before the events on January 6, 2021, at the U.S. Capitol, Chris Conner took a late-night phone call that would change the trajectory of his research at the University of Missouri.

School Portal   Profile   Employee Detail   Academic Calendar   News   Create Vacancy

## Employee Details



Mrs Anita Sharma  
Principal



Mrs Versha Gupta  
Vice Principal



Mrs Seema Shinde  
Physics Lecturer





← → Q Proposed System

# Proposed System-Teacher Portal

[Teacher Portal](#) [Profile](#) [Vacancies](#) [Academic Calendar](#) [News](#)

## Teacher Portal

By logging into their personal account, teachers are able to view customized information, regarding the classes assigned to them. Among other things, they're able to view student profiles, scheduled lessons and events, as well as notes added by admins. Actions involve taking attendance, creating gradebooks and assessments and communicating with students and guardians.

[Personalized Calendar](#)  
[Class related information: gradebooks, assessments and performance data](#)  
[Communication with students, parents and guardians](#)  
[Attendance tracking](#)  
[Reports and summarized information](#)

[Get Quote](#) [Our Services](#)

[Teacher Portal](#) [Profile](#) [Vacancies](#) [Academic Calendar](#) [News](#)



**Mrs Anita Sharma**  
Principal  
M.A(History) M.Ed

[About](#)

Employee Id	0001
Name	Mrs Anita Sharma
Email	AnitaSharma@gmail.com
Phone	123 456 7890
Designation	Principal
Experience	30 years
Salary	₹90000
Year in service	29 years
English Proficiency	Expert
Availability	



← → Q Proposed System

# Proposed System-Teacher Portal

Teacher Portal   Profile   Vacancies   Academic Calendar   News

**Vacancies**

Name / नाव

Reason For transfer / हस्तांतरणाचे कारण

School Name / शाळेचे नाव

Place of transfer / हस्तांतरणाचे ठिकाण

**Submit Application**

  
Army Public School

  
DAV Public School  
Pune

  
Delhi Public School

Teacher Portal   Profile   Vacancies   Academic Calendar   News

**Calendar**

Today   Back   Next   May 2023   Month   Week   Day   Agenda

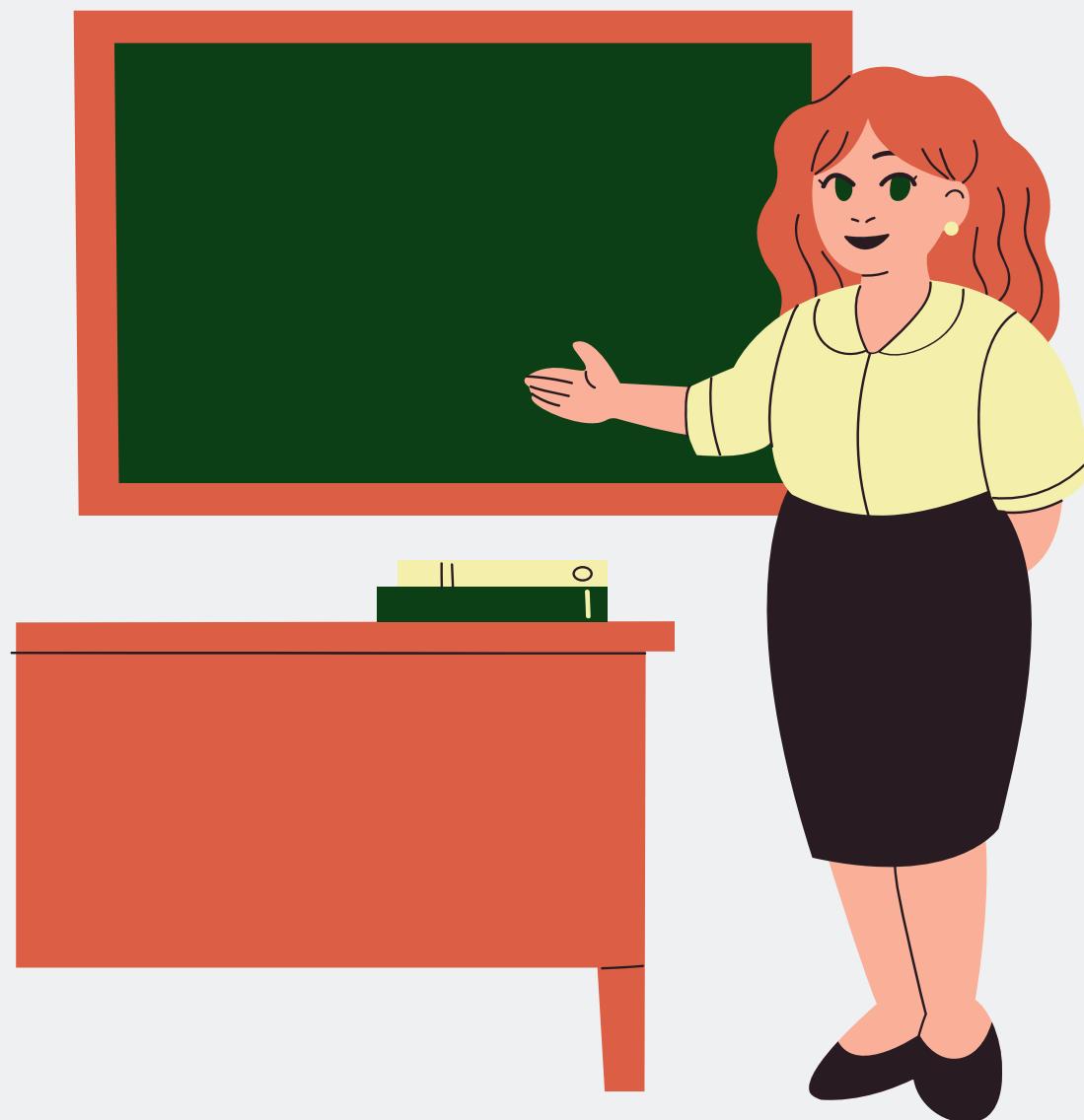
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	01	02	03	04	05	06
	Maharashtra Din			Buddha Purnima		
07	08	09	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	01	02	03



← → Q Software and Hardware Requirements

# Software and Hardware Requirements

Plotly, Dash, Python, Heroku, Power BI, MYSQL Database, React JS, Spring tool suite.



← → Q Software Testing

# Software Testing

## Functional Testing

The screenshot shows the Eclipse IDE interface with the following details:

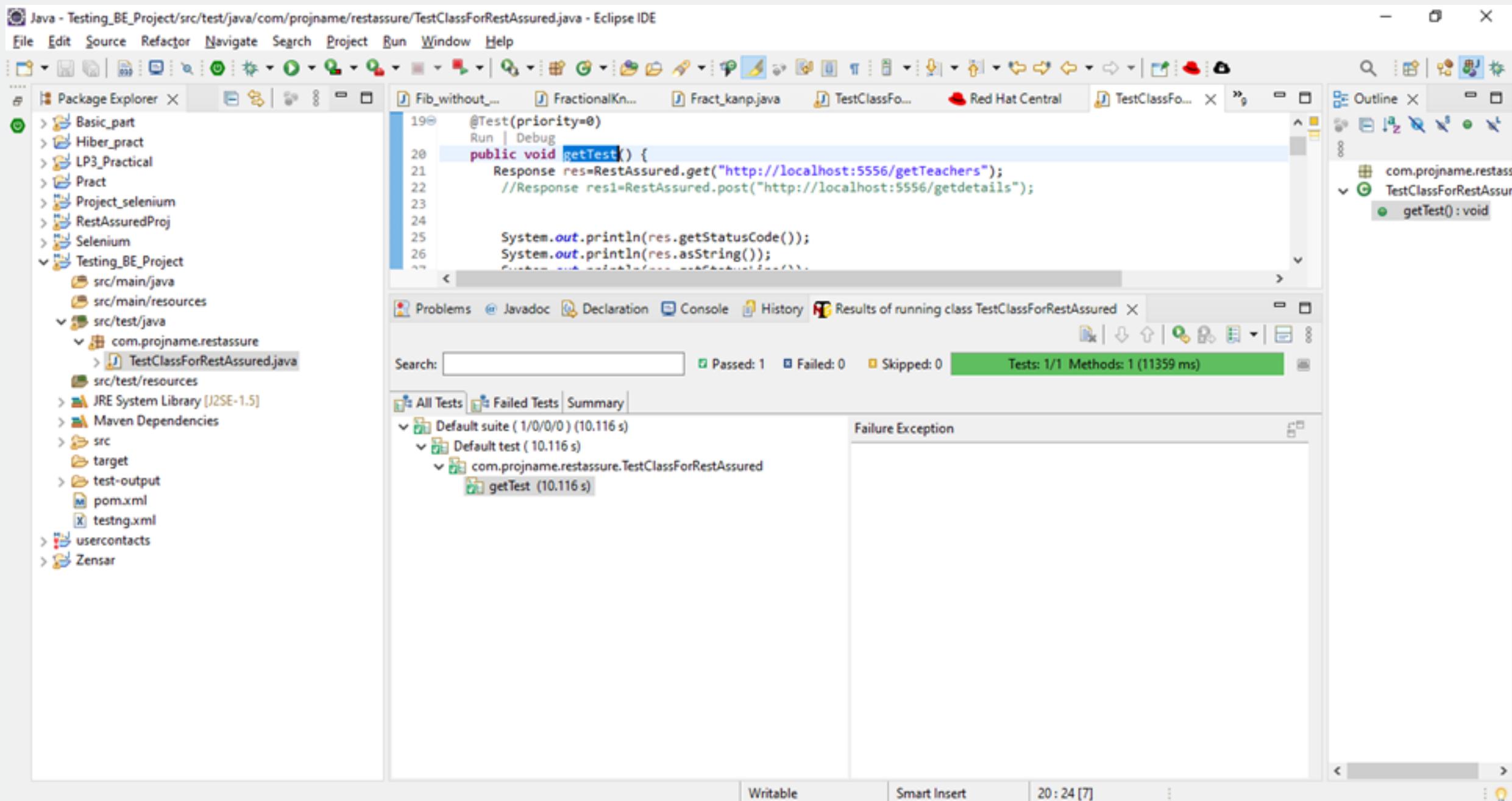
- Title Bar:** Java - Testing\_BE\_Project/src/test/java/com/projname/restassure/TestClassForRestAssured.java - Eclipse IDE
- File Menu:** File Edit Source Refactor Navigate Search Project Run Window Help
- Toolbar:** Standard Eclipse toolbar with various icons for file operations, search, and project management.
- Package Explorer:** Shows the project structure with nodes like Basic\_part, Hiber\_pract, LP3\_Practical, Pract, Project\_selenium, RestAssuredProj, Selenium, and Testing\_BE\_Project.
- Code Editor:** Displays Java code for `TestClassForRestAssured.java`. The code includes annotations and a method `getTest()` that makes a REST call to `http://localhost:5556/getTeachers`.
- Outline View:** Shows the class definition and the `getTest()` method.
- Console View:** Shows the output of the test execution. It includes the command run, SLF4J logs indicating a static logger binder was used, and the TestNG results. The results show a single test named `getTest` passed with status `PASSED`. The output also includes statistics for the default test and the entire suite.

# ← → Q Software Testing

Java - Testing\_BE\_Project/src/test/java/com/projname/restassure/TestClassForRestAssured.java - Eclipse IDE

```
File Edit Source Refactor Navigate Search Project Run Window Help  
Package Explorer X Fib_without... FractionalKn... Fract_kanp.java TestClassFo... Red Hat Central TestClassFo... X  
Basic_part Hiber_pract LP3_Practical Pract Project_selenium RestAssuredProj Selenium Testing_BE_Project  
src/main/java src/main/resources src/test/java com.projname.restassure TestClassForRestAssured.java src/test/resources JRE System Library [J2SE-1.5] Maven Dependencies src target test-output pom.xml testing.xml usercontacts Zensar  
19@Test(priority=0)  
Run | Debug  
20 public void getTest() {  
    Response res=RestAssured.get("http://localhost:5556/getTeachers");  
    //Response res1=RestAssured.post("http://localhost:5556/getdetails");  
    System.out.println(res.getStatusCode());  
    System.out.println(res.asString());  
}  
  
Problems Javadoc Declaration Console History Results of running class TestClassForRestAssured X  
Search: Passed: 1 Failed: 0 Skipped: 0 Tests: 1/1 Methods: 1 (11359 ms)  
All Tests Failed Tests Summary  
Default suite ( 1/0/0/0 ) (10.116 s)  
Default test ( 10.116 s )  
com.projname.restassure.TestClassForRestAssured  
getTest (10.116 s)  
Failure Exception
```

Writable Smart Insert 20:24 [7]



Introduction

Title

Objective



← → Q Software Testing

# TEST CASES AND TEST RESULT

The screenshot shows the Postman application interface. On the left, there's a sidebar with 'My Workspace' (Collections, Environments, History), a 'New' button, and an 'Import' button. The main workspace shows a collection named 'Deatil'. A request card for 'http://localhost:5556/getTeachers' is selected, with a 'GET' method and the URL. Below the card, the 'Tests' tab is active, displaying a JavaScript test script:

```
1 pm.test("Verify that Status code is 200", function () {  
2     pm.response.to.have.status(200);  
3 };  
4 pm.sendRequest("https://postman-echo.com/get", function (err, response) {  
5     console.log(response.json());  
6 };  
7 pm.test("Successful GET request", function () {  
8     pm.expect(pm.response.code).to.be.oneOf([200, 202]);  
9 };  
10 pm);  
11 );
```

To the right of the script, a tooltip explains: "Test scripts are written in JavaScript, and are run after the response is received. Learn more about tests scripts." Below the script, the 'Test Results' section shows two successful tests:

Test	Status
Verify that Status code is 200	PASS
Successful GET request	PASS

At the bottom, status information is shown: Status: 200 OK, Time: 146 ms, Size: 564 B. There are also buttons for 'Save as Example' and other workspace management options.

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# ← → Q Software Testing

The screenshot shows the Eclipse IDE interface with the following details:

- Title Bar:** Java - Testing\_BE\_Project/src/test/java/com/projname/restassure/TestClassForRestAssured.java - Eclipse IDE
- Menu Bar:** File Edit Source Refactor Navigate Search Project Run Window Help
- Toolbar:** Includes icons for file operations, search, and run/debug.
- Package Explorer:** Shows the project structure:
  - Basic\_part
  - Hiber\_pract
  - LP3\_Practical
  - Pract
  - Project\_selenium
  - RestAssuredProj
  - Selenium
  - Testing\_BE\_Project
    - src/main/java
    - src/main/resources
    - src/test/java
      - com.projname.restassure
        - TestClassForRestAssured.java
      - src/test/resources
    - JRE System Library [J2SE-1.5]
    - Maven Dependencies
    - src
    - target
    - test-output
      - pom.xml
      - testing.xml
    - usercontacts
    - Zensar
- Editor:** Displays Java code for `TestClassForRestAssured.java`:

```
19@Test(priority=0)
20public void getTest() {
21    Response res=RestAssured.get("http://localhost:5556/getTeachers");
22    //Response res1=RestAssured.post("http://localhost:5556/getdetails");
23
24    System.out.println(res.getStatusCode());
25    System.out.println(res.asString());
26    System.out.println(res.prettyPrint());}
```
- Outline View:** Shows the class structure: com.projname.restassure.TestClassForRestAssured with method `getTest(): void`.
- Results View:** Shows the test results for `TestClassForRestAssured`:
  - Passed: 1
  - Failed: 0
  - Skipped: 0
  - Tests: 1/1 Methods: 1 (11359 ms)

The results table shows:
  - All Tests
  - Failed Tests
  - Summary
  - Default suite ( 1/0/0/0 ) (10.116 s)
    - Default test ( 10.116 s)
      - com.projname.restassure.TestClassForRestAssured
        - getTest (10.116 s)
- Status Bar:** Writable Smart Insert 20:24 [7]

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← → Q Software Testing

Java - Testing\_BE\_Project/src/test/java/com/projname/restassure/TestClassForRestAssured.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer X Fib\_without\_... FractionalKn... Fract\_kanp.java TestClassFo... Red Hat Central TestClassFo... X

Basic\_part Hiber\_pract LP3\_Practical Pract Project\_selenium RestAssuredProj Selenium Testing\_BE\_Project usercontacts Zensar

```
1 package com.projname.restassure;
2
3 import org.testng.annotations.Test;
4 //import jackson.databind
5 Run All
6 public class TestClassForRestAssured {
7
8     @Test(priority=0)
9 }
```

Problems Javadoc Declaration Console History Results of running class TestClassForRestAssured X

Search: Passed: 1 Failed: 0 Skipped: 0 Tests: 1/1 Methods: 1 (11359 ms)

All Tests Failed Tests Summary

Tests

Test name	Time (seconds)	Class count	Method count
Default test	10.116	1	1

Excluded methods

Class name	Method name	Description

Introduction

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Objective

X

+

← → Q Software Testing

The screenshot shows a web browser window with the URL `C:/Users/Acer/Java/Testing_BE_Project/test-output/emailable-report.html`. The page displays a test summary table and a detailed test execution table.

**Test Summary Table:**

Test	# Passed	# Skipped	# Retried	# Failed	Time (ms)	Included Groups	Excluded Groups
Default suite							
Default test	1	0	0	0	10,359		

**Detailed Test Execution Table:**

Class	Method	Start	Time (ms)
Default suite			
Default test — passed			
com.projname.restassure.TestClassForRestAssured	getTest	1684336279687	10116

**Test Description:**

**Default test**

**Method Call:**

```
com.projname.restassure.TestClassForRestAssured#getTest
```

[back to summary](#)

# 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 height in the future.



← → Q Conclusion

# Conclusion

E MITRA is a web application, developed to manage records 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.

← → Q Conclusion

# References

- [1] Panimalar Kathiroli, 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.
- [3] Naumova TA, Vytovtova NI, Mitiukov NW, Zulfugarzade TE (2017) Model of distant learning educational methods for the students with disabilities. Eur J Contemp Educ 6(3):565–573
- [4] Han LQ, Zhang ZH, Cheng YQ, Liu JM, Lei KC (2018) Research and practice of computer network teaching method based on online learning platform. Softw Eng 21(01):41–44
- [5] Zhou X, Wang J, Guo M, Gao Z (2019) Cross-platform online visualization system for open bim based on webgl. Multimed Tools Appl 78(20):28575–28590

**Thank you  
for listening**

