ONLINE COURSE FEEDBACK AND ANALYSIS SYSTEM FOR THE UNIVERSITY

HARCOURT BUTLER TECHNICAL UNIVERSITY

Computer Science and Engineering Department

A PROJECT REPORT

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ACKNOWLEDGEMENT

It is a pleasure and privilege for us to present this project report, before which we would like to thank all those who supported and guided us at various stages of this project. We express our sincere gratitude towards **Prof. RAGHURAJ SINGH**, Head of Computer Science and Engineering Department, Harcourt Butler Technical University, for their outstanding guidance, constant encouragement and support, apart from their ideas and approach which has helped us in completing this project. We would like to thank all the staff members of our department for their endless suggestions and guidance towards the completion of this project.

CONTENT

1.ABSTRACT

The Online Course Feedback and Analysis System is a web based system which collects the feedback from every individual student and gives an overall result about the following course,which can be analysed by the administrator directly.In this online-era, where everything is going web based, we need to develop an online portal which is very useful to maintain feedback reports by the admin. With this the university can access the feedback reports in a faster way and without any loss of data. As of now this task was done manually with the use of papers and pens which is having many drawbacks such as evaluation of these handwritten forms is a tedious process.

Students need to log in into the website and will fill online feedback using a standard form provided online.With this the student can successfully submit the feedback without any errors. Dean,CE and IQA can access the feedback given by the students and can analyse accordingly.

2.INTRODUCTION

About the Application

The aim of this system is to save time and also to decrease human load and efforts.In the existing system students are required to give feedback manually due to which report generation by analyzing all feedback forms is very time-consuming. This system provides a way for colleges to allow students to give feedback for courses for better education.

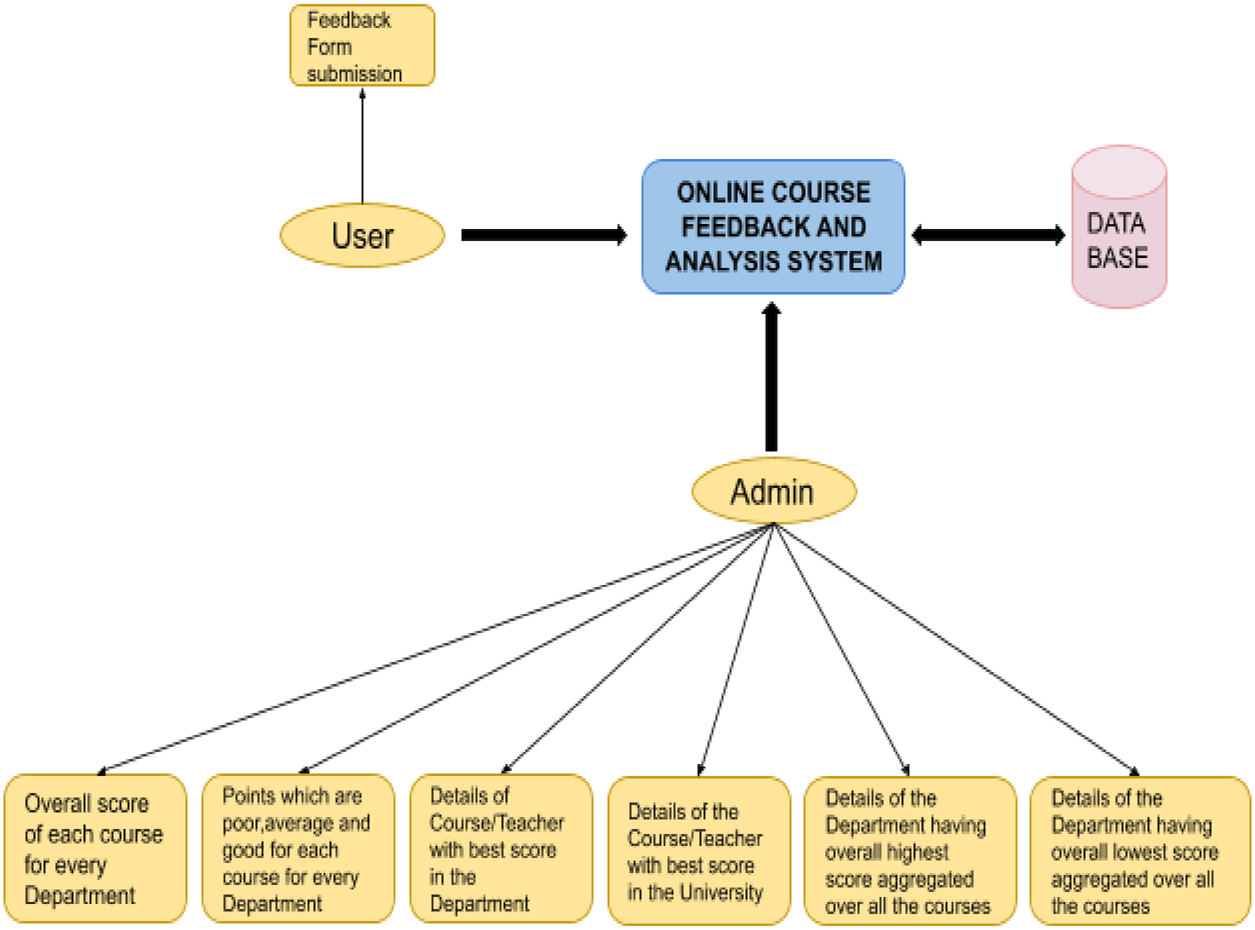

Feedback Form submission
User
ONLINE COURSE FEEDBACK AND ANALYSIS SYSTEM
DATA BASE
Admin
Overall score of each course for every Department
Points which are poor,average and good for each course for every Department
Details of Course/Teacher with best score in the Department
Details of the Course/Teacher with best score in the University
Details of the Department having overall highest score aggregated over all the courses
Details of the Department having overall lowest score aggregated over all the courses

Fig 1 : *Flowchart of Online Feedback and Analysis System*

3.Importance Of Project Problem

In today's world of online interaction, electronic education is becoming an important part of the academic domain. Faced with the strong growth of popularity of online courses, a need arises for a flexible, strengthened & easily integrated online academic feedback delivery system which is very useful to maintain feedback reports by the admin.

Since till now this task was done manually with the use of papers and pens which has many drawbacks such as evaluation of these handwritten forms. So this online system makes the tasks easier as universities can access the feedback reports in a faster way and without the loss of any data.

3.a.System Configuration

- Windows 10/Ubuntu version: 18.04.4 LTS
- CPU: 4 cores
- RAM: 8GB
- Kernel version: 5.3.0-51-generic

4.Project Architecture

Project Architecture is summarized as follows.

Overview:-

- Framework - Java Spring Boot Framework
- Database - MySQL (db4free.net)
- Deployment Server - Tomcat
- Repository Hosting - GitHub
- Artifact - WAR file

5.SOFTWARE DEVELOPMENT LIFE CYCLE

SOFTWARE DEVELOPMENT LIFE CYCLE [SDLC] or Software Development Process, defines the stages/phases in the building of software. The exact lifecycle or process varies from one model to the other. The traditional lifecycle used to have six stages like shown in the figure below.

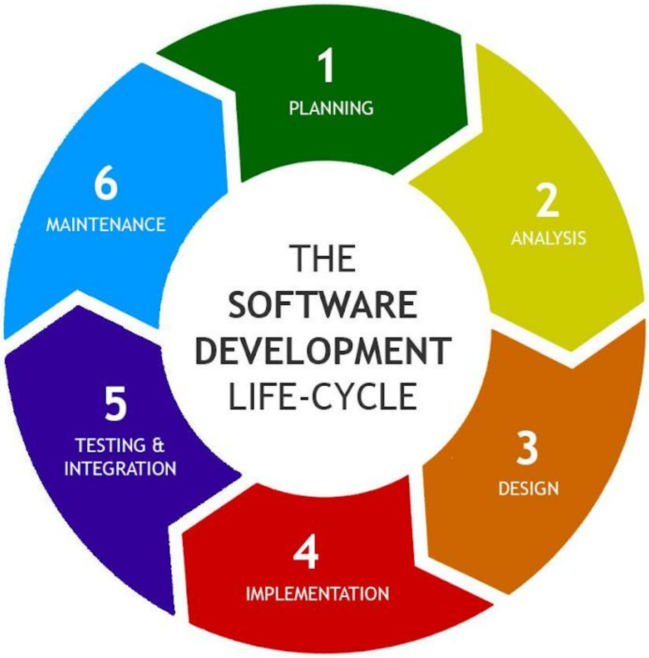


Fig 2: *SDLC Stages Source: Google*

The traditional Software Development Life Cycle (SDLC) has various barriers between developers, testing, quality assurance team and Operation teams, which causes a lot of delay in delivering software to the end user.

6.AUTOMATION TOOLS

6.a.Software Configuration Management

SCM is overall management of a software product or system. This includes technical aspects of the project, organizations and the control of modifications changes to the project plan during the development phase. Simple we can say that Software Configuration Management is the process that defines how to control and manage the changes.
The need for an SCM process came when there are many developers and many versions of the software. SCM acts as the backbone which can make this happen. Some examples include CVS,SVN Git etc.

A good source code management systems should include the following features:

- Authenticated access for commits.
- Revision history on files.
- Atomic commits of multiple files
- Versioning/Tagging

Based on these features we have chosen Git as our SCM.

Git has various benefits as VCS listed as follows :-

- Revert the code files back to their previous state.
- Recall and revert the entire project back to its previous state.
- Compare code changes over specific durations of time.
- Find who last modified a piece of code that might be causing an issue or a problem.
- Who introduced a particular issue and when.

The link to our Github repo is given below.
https://github.com/aashi-97/Online-Course-Feedback-System.git

6.b.Build

Build is the process of creating the application program for a software release, by taking all the relevant source code files and compiling them and then creating a build artifacts, such as binaries or executable programs, etc.

Maven has the following advantages :-
1. It makes a project easy to build.
2.It provides a uniform build process (maven projects can be shared by all the maven projects).
3. It provides project information (log document, cross referenced sources, mailing, list, dependency list, unit test reports etc.)
4.It is easy to migrate for new features of Maven.

Configuration

- mvn clean package
- mvn test

All the settings and configuration of the tool are specified in the pom.

6.c.Testing

Testing is the process of evaluating a system or its component(s) with the intent to find whether it satisfies the specified requirements or not. Testing is executing a system in order to identify any gaps, errors, or missing requirements in contrary to the actual requirements.

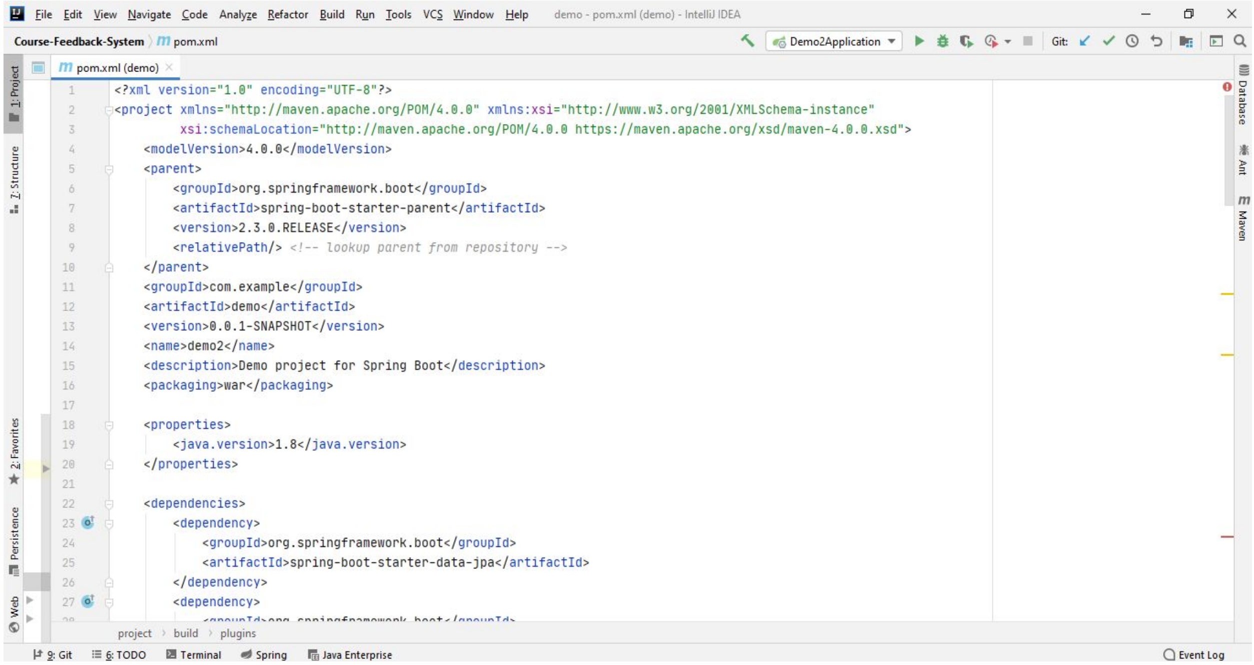
There are basically two types of testing -
Static Testing:
It can test and find defects without executing code. Static Testing is done during the verification process. This testing includes reviewing of the documents (including source code) and static analysis. This is a useful and cost effective way of testing. For example: reviewing, walkthrough, inspection, etc.

Dynamic Testing:
In dynamic testing the software code is executed to demonstrate the result of running tests. It's done during the validation process. For example: unit testing, integration testing, system testing, etc.
Some of the software testing tools are:

- Selenium
- Apache JMeter
- Appium
- LoadRunner
- JUnit

Artifact

We are packaging the project as a WAR file, the screenshot of which is attached below.



```xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.3.0.RELEASE</version>
        <relativePath/> <!-- lookup parent from repository -->
    </parent>
    <groupId>com.example</groupId>
    <artifactId>demo</artifactId>
    <version>0.0.1-SNAPSHOT</version>
    <name>demo2</name>
    <description>Demo project for Spring Boot</description>
    <packaging>war</packaging>

    <properties>
        <java.version>1.8</java.version>
    </properties>

    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-data-jpa</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
```

Fig 3: *Packaging project as WAR file*

6.d.Deployment

Deployment automation is what enables you to deploy your software to testing and production environments with the push of a button. Automation is essential to reduce the risk of production deployments. It's also essential for providing fast feedback on the quality of your software by allowing teams to do comprehensive testing as soon as possible after changes.

An automated deployment process has the following inputs:

- Packages created by the continuous integration (CI) process (these packages should be deployable to any environment, including production).
- Scripts to configure the environment, deploy the packages, and perform a deployment test (sometimes known as a *smoke test*).
- Environment-specific configuration information.

Common pitfalls in deployment :-

When you automate your deployment process, you face the following pitfalls:

- Complexity of the existing process.
- Dependencies between services.
- Components that are not designed for automation.
- Poor collaboration between teams.

6.e.Monitoring

Monitoring Automation automates the configuration of monitoring for infrastructure and composite applications. Whether the monitoring tool used is agent-based or agentless, Monitoring Automation deploys the appropriate monitoring configuration to the target instances. It offers easy-to-tune monitoring and reporting, detecting new instances of components and mapping them to management templates and aspects that model the desired configuration and resource type.

Monitoring is the generation of events if a CI behaves in an unexpected manner. Typical events are:

- A monitored value exceeds a certain threshold. Example: Used disk space on a database exceeds a predefined limit of 90%.
- A node is removed from the network. Example: A power cut causes a server to shut down so it can no longer be reached.

Monitoring Automation provides a complete management solution for an application or service, enabling you to create a management solution for the entire set of configuration items (CIs) comprising the application. The solution can be made to respond dynamically to changes in the topology, making the monitoring solution independent of the hardware and platform running the application.

7.PROJECT WORKFLOW

This flow diagram explains different functionalities of each component and connectivity of each module of this project.

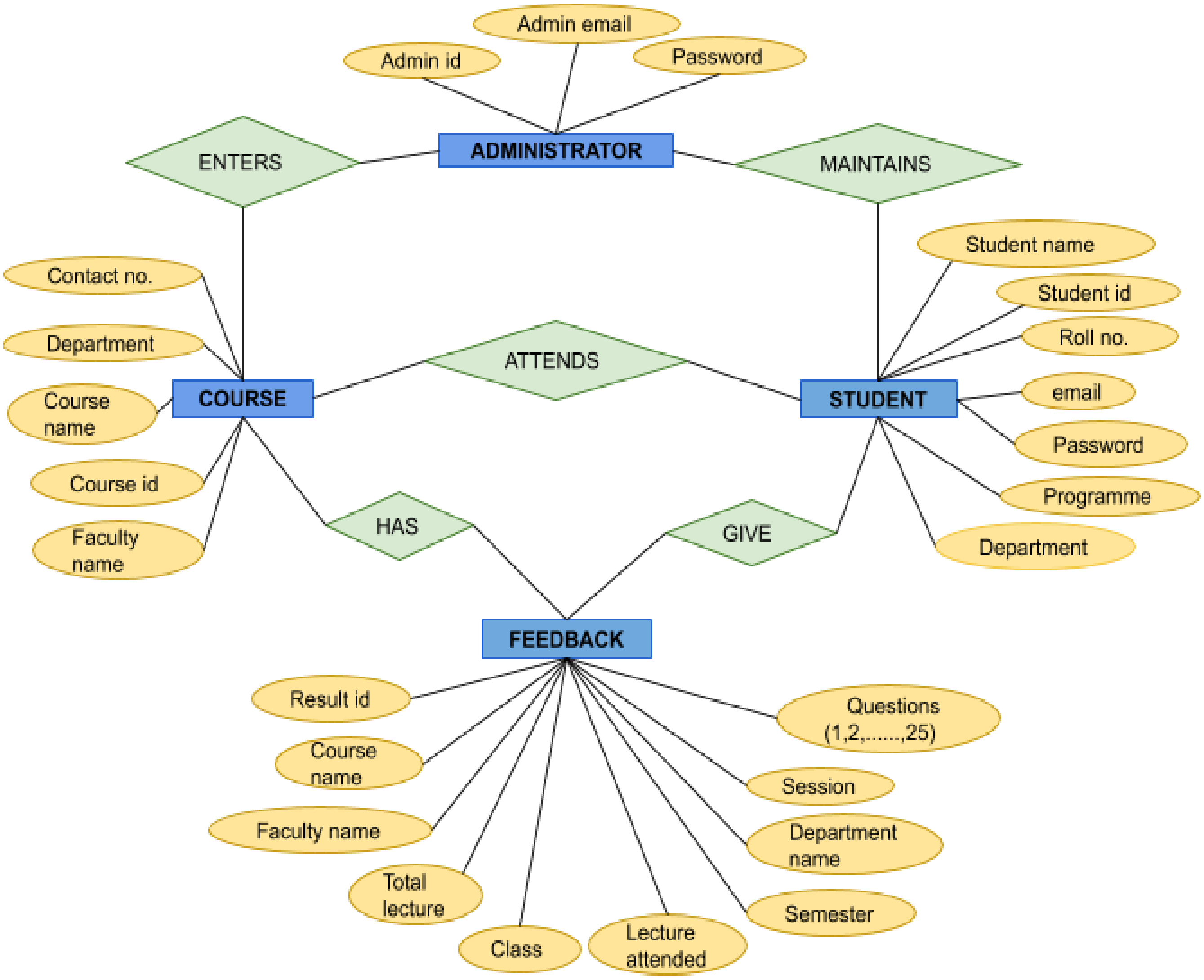
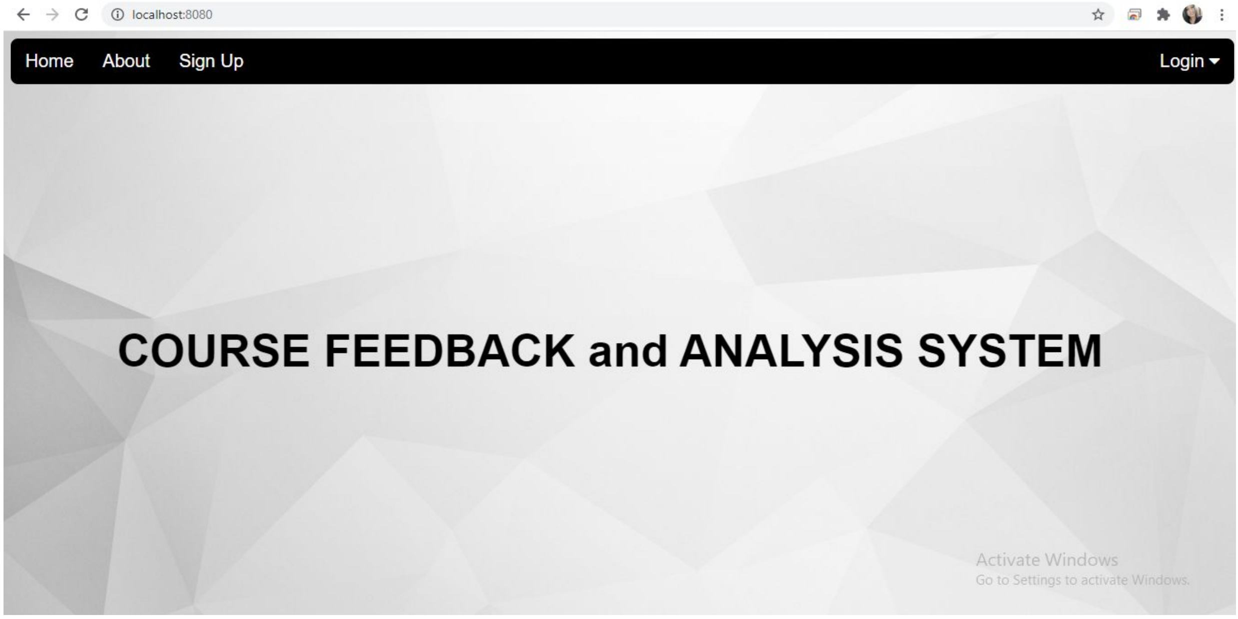


Fig 4: *Flow Diagram of Project*

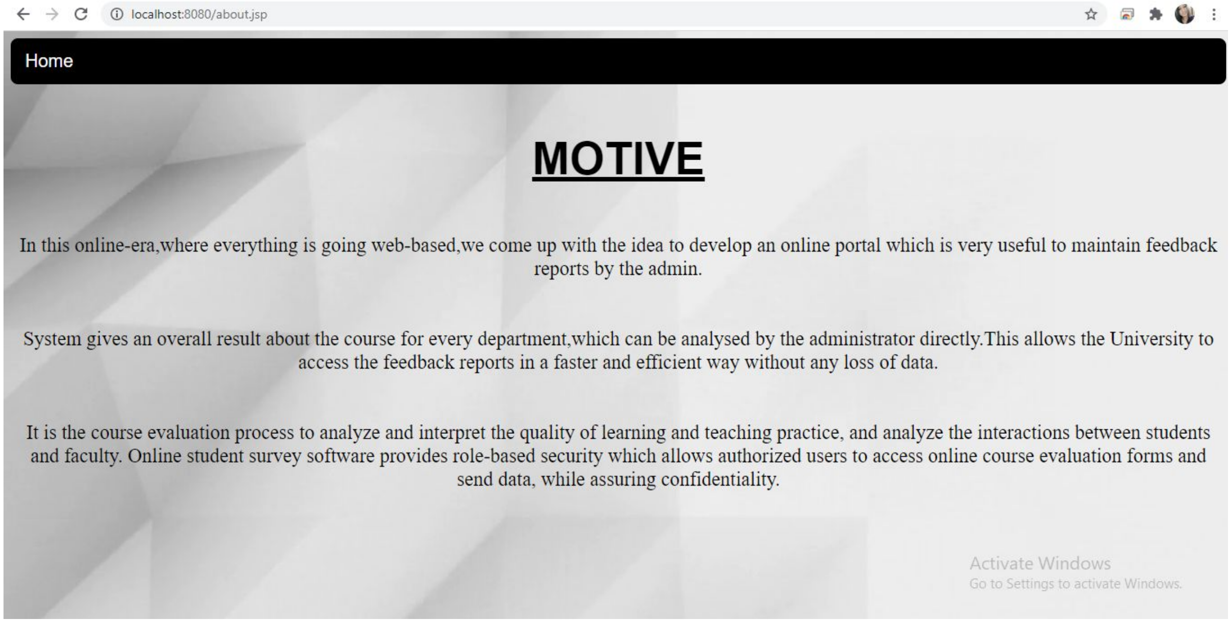
This is the Home section of our project, here we have various options added in the navigation bar such as About, Sign Up and Login.



COURSE FEEDBACK and ANALYSIS SYSTEM

Fig 5: *Home section*

This is our project About section, where we have given an overview of the Online Feedback System.



MOTIVE

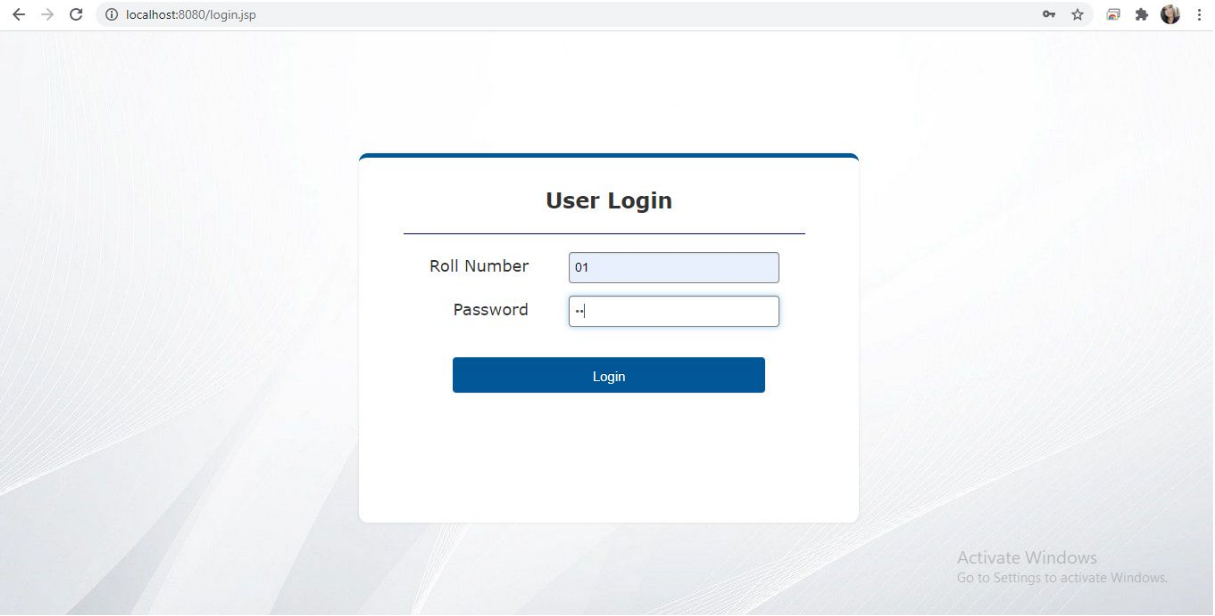
In this online-era,where everything is going web-based,we come up with the idea to develop an online portal which is very useful to maintain feedback reports by the admin.

System gives an overall result about the course for every department,which can be analysed by the administrator directly.This allows the University to access the feedback reports in a faster and efficient way without any loss of data.

It is the course evaluation process to analyze and interpret the quality of learning and teaching practice, and analyze the interactions between students and faculty. Online student survey software provides role-based security which allows authorized users to access online course evaluation forms and send data, while assuring confidentiality.

Fig 6: *About section*

Here user can input his credentials for login in Feedback System



localhost:8080/login.jsp

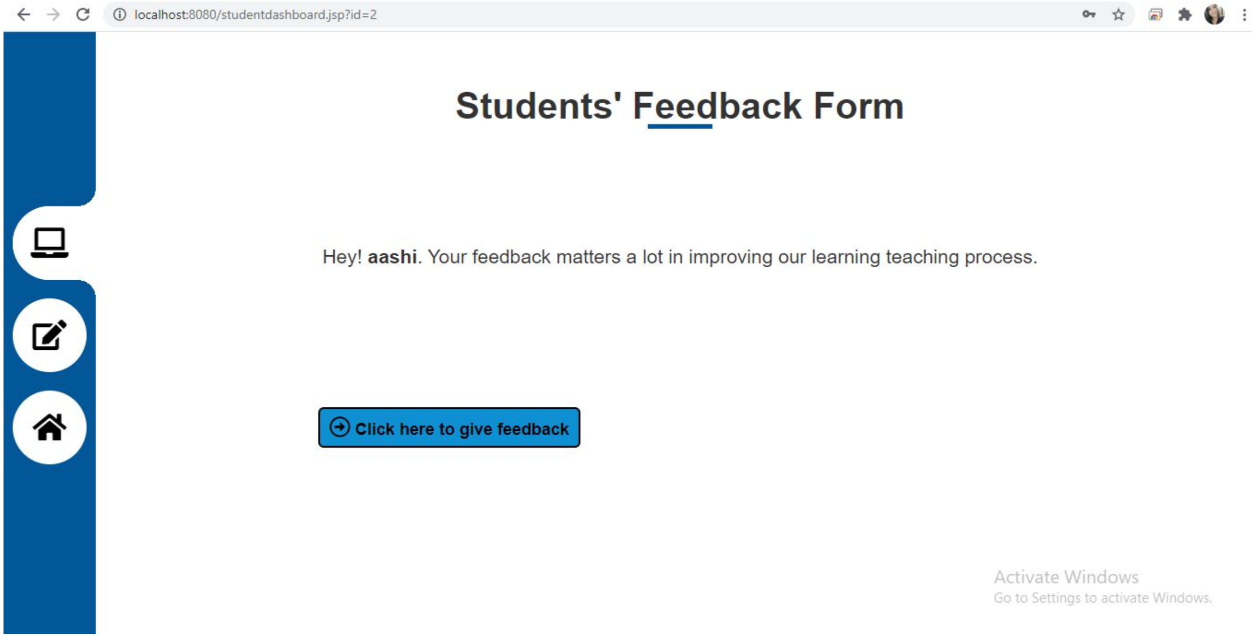
User Login

Roll Number: 01

Password: ••

Fig 7: *User login section*

This is a Student dashboard, where the user has three options -
He can give feedback



localhost:8080/studentdashboard.jsp?id=2

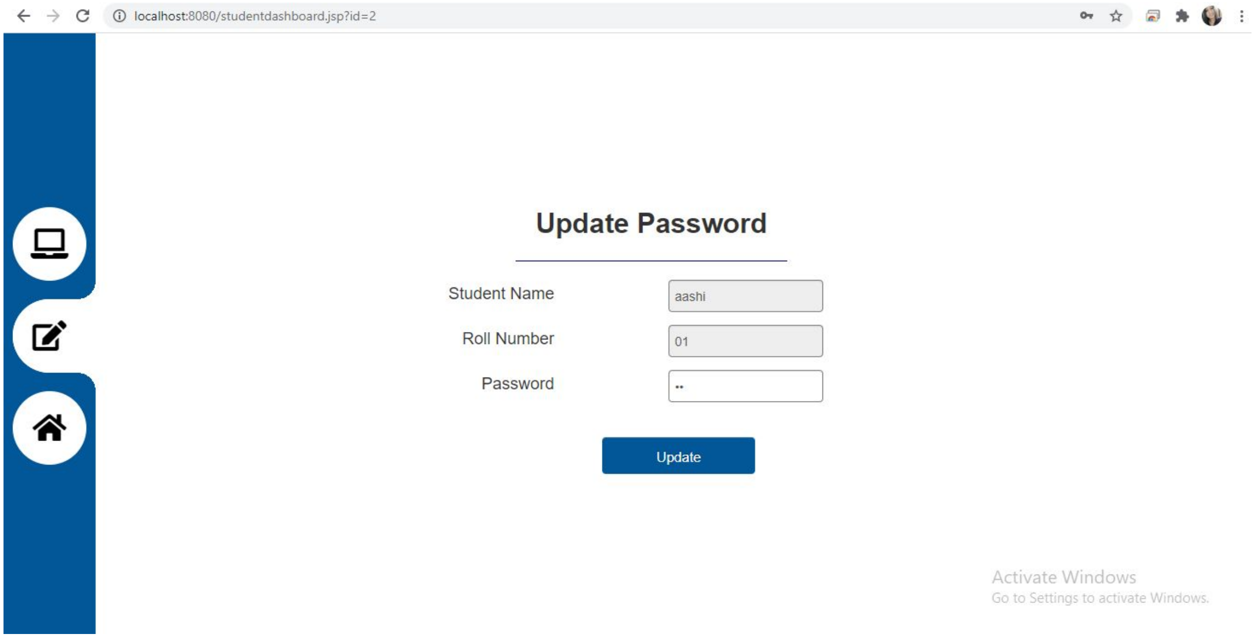
Students' Feedback Form

Hey! **aashi**. Your feedback matters a lot in improving our learning teaching process.

Click here to give feedback
Activate Windows
Go to Settings to activate Windows.

Fig 8: *Students' Feedback Form section*

Can update his password


localhost:8080/studentdashboard.jsp?id=2

Update Password

Student Name aashi

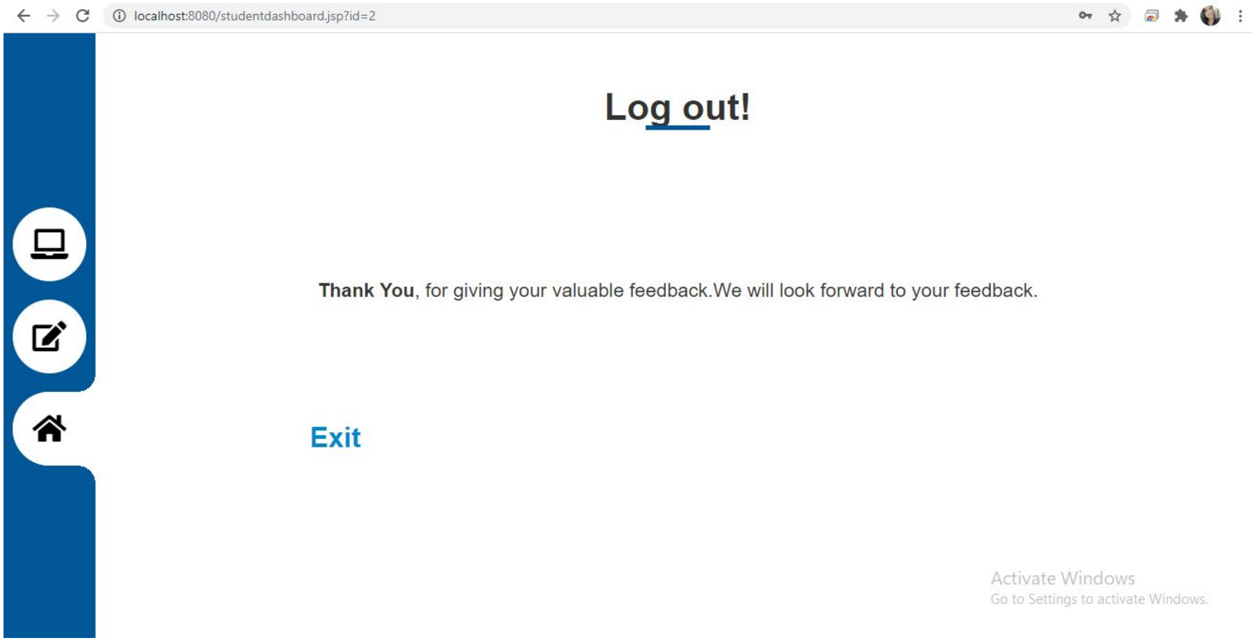
Roll Number 01

Password ••

Update
Activate Windows
Go to Settings to activate Windows.

Fig 9: *Students' Update Password section*

Can make logout


localhost:8080/studentdashboard.jsp?id=2

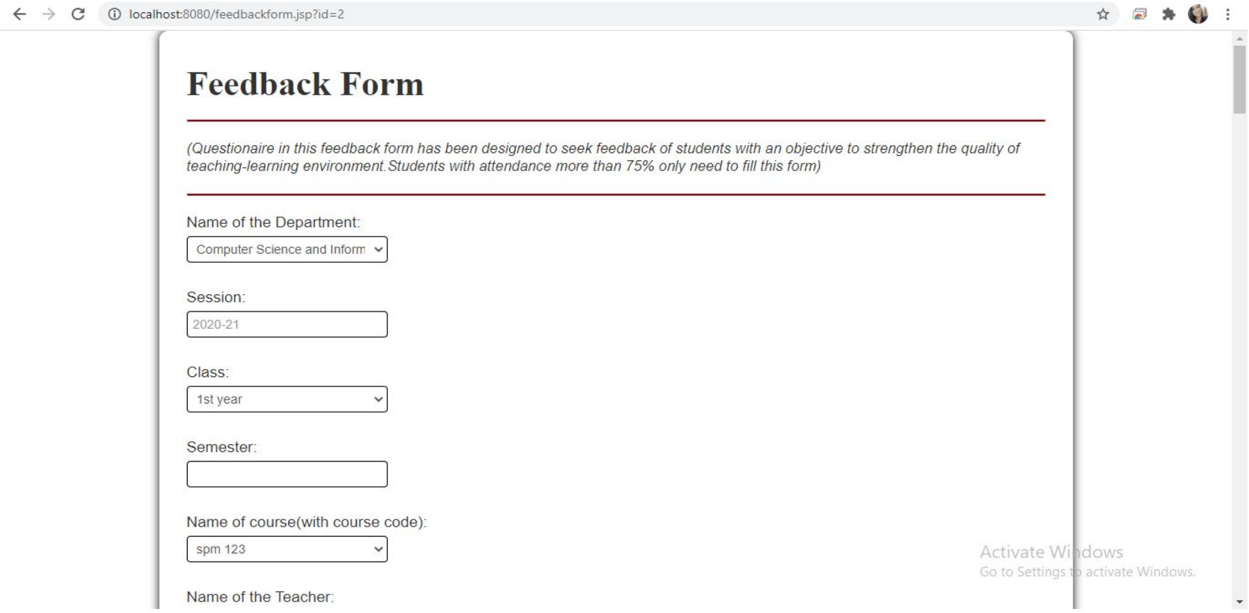
Log out!

Thank You, for giving your valuable feedback.We will look forward to your feedback.

Exit
Activate Windows
Go to Settings to activate Windows.

Fig 10: *Students' Logout section*

This is the Feedback form filled by the Students



localhost:8080/feedbackform.jsp?id=2

Feedback Form

(Questionaire in this feedback form has been designed to seek feedback of students with an objective to strengthen the quality of teaching-learning environment.Students with attendance more than 75% only need to fill this form)

Name of the Department: Computer Science and Inform

Session: 2020-21

Class: 1st year

Semester:

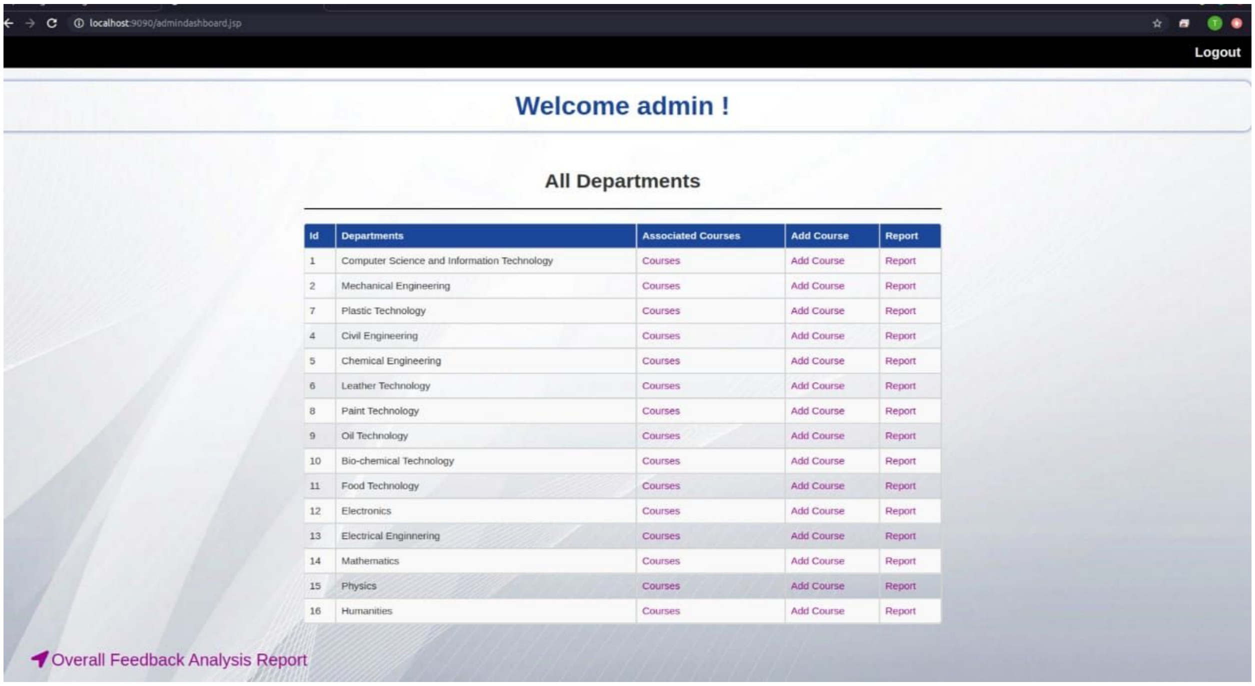
Name of course(with course code): spm 123

Name of the Teacher:

Activate Windows
Go to Settings to activate Windows.

Fig 11: Students' *Feedback Form*

Here admin can go through the reports of various courses associated with the departments, and can add new courses.



localhost:9090/admindashboard.jsp

Logout

Welcome admin !

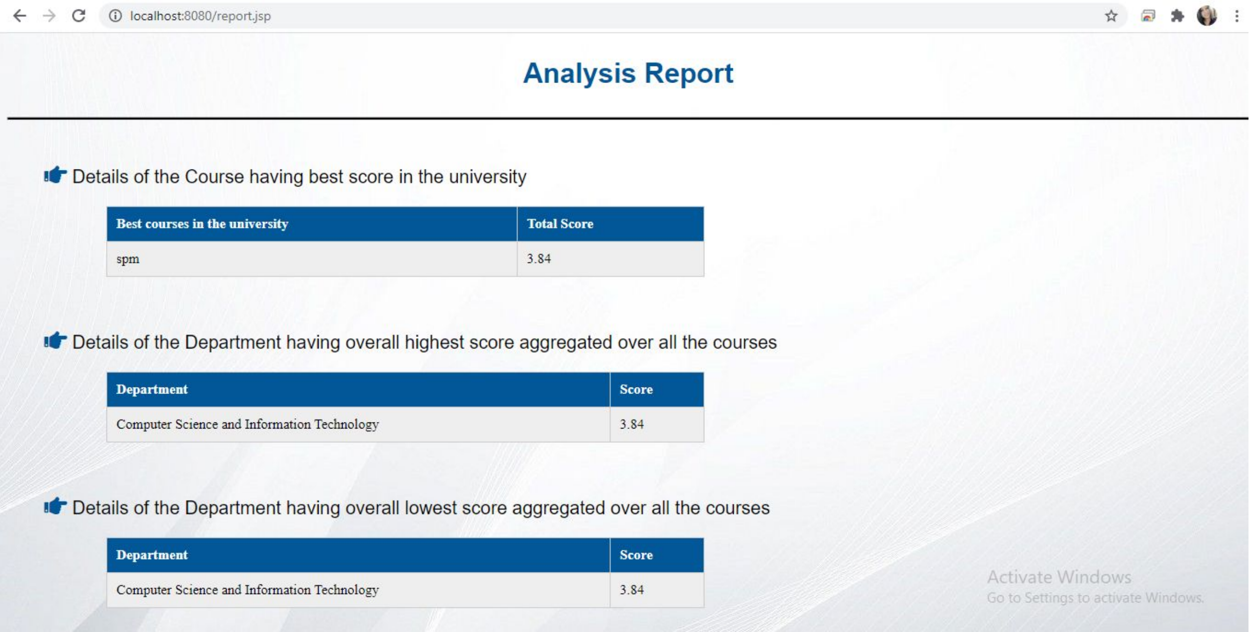
All Departments

Id	Departments	Associated Courses	Add Course	Report
1	Computer Science and Information Technology	Courses	Add Course	Report
2	Mechanical Engineering	Courses	Add Course	Report
7	Plastic Technology	Courses	Add Course	Report
4	Civil Engineering	Courses	Add Course	Report
5	Chemical Engineering	Courses	Add Course	Report
6	Leather Technology	Courses	Add Course	Report
8	Paint Technology	Courses	Add Course	Report
9	Oil Technology	Courses	Add Course	Report
10	Bio-chemical Technology	Courses	Add Course	Report
11	Food Technology	Courses	Add Course	Report
12	Electronics	Courses	Add Course	Report
13	Electrical Enginnering	Courses	Add Course	Report
14	Mathematics	Courses	Add Course	Report
15	Physics	Courses	Add Course	Report
16	Humanities	Courses	Add Course	Report

Overall Feedback Analysis Report

Fig 12: *Admin Dashboard section*

Here admin can make the overall analysis of Feedback Form



localhost:8080/report.jsp
Activate Windows
Go to Settings to activate Windows.

Analysis Report

Details of the Course having best score in the university

Best courses in the university	Total Score
spm	3.84

Details of the Department having overall highest score aggregated over all the courses

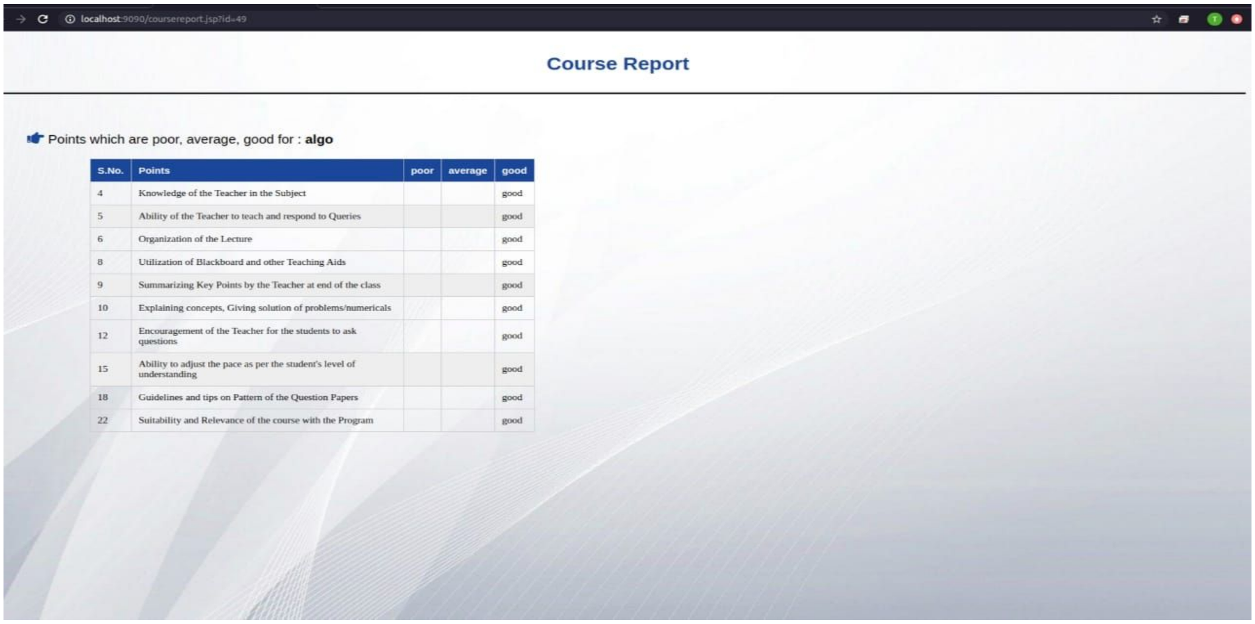
Department	Score
Computer Science and Information Technology	3.84

Details of the Department having overall lowest score aggregated over all the courses

Department	Score
Computer Science and Information Technology	3.84

Fig 13: *Analysis Report section*

Here the analysis can be made on points which are poor, average and good for the particular course.



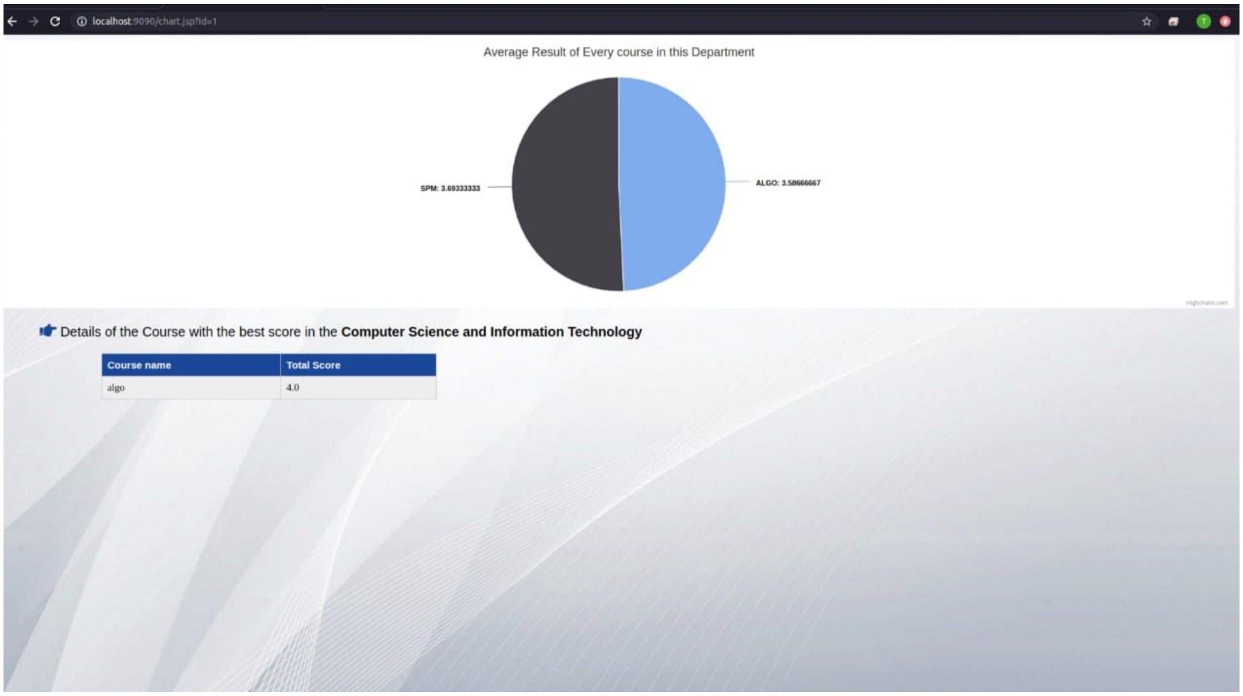
Course Report

Points which are poor, average, good for : **algo**

S.No.	Points	poor	average	good
4	Knowledge of the Teacher in the Subject			good
5	Ability of the Teacher to teach and respond to Queries			good
6	Organization of the Lecture			good
8	Utilization of Blackboard and other Teaching Aids			good
9	Summarizing Key Points by the Teacher at end of the class			good
10	Explaining concepts, Giving solution of problems/numericals			good
12	Encouragement of the Teacher for the students to ask questions			good
15	Ability to adjust the pace as per the student's level of understanding			good
18	Guidelines and tips on Pattern of the Question Papers			good
22	Suitability and Relevance of the course with the Program			good

Fig 14: *Course Report section*

This shows the average Result of Every Course in the Department in the form of Pie-chart.

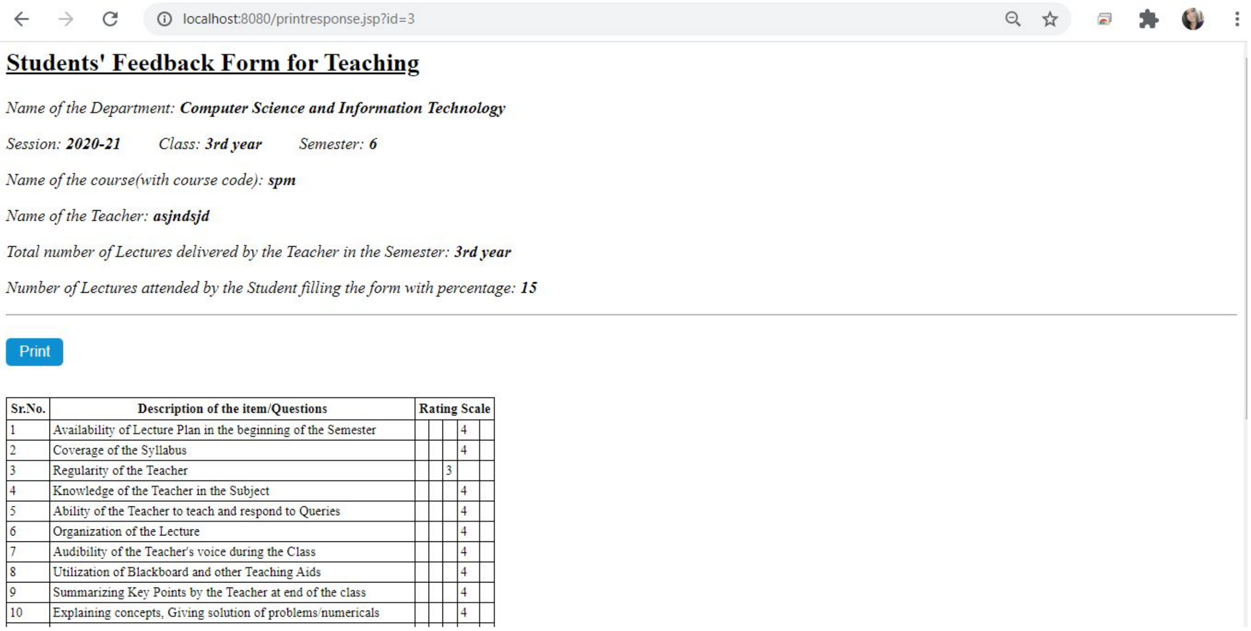

localhost:9090/chart.jsp?id=1
Average Result of Every course in this Department
SPM: 3.69333333
ALGO: 3.58666667

Details of the Course with the best score in the **Computer Science and Information Technology**

Course name	Total Score
algo	4.0

Fig 15: Average Result of Every*Course in the Department*

Here, admin can take the print of the Feedback Form submitted by the students



Students' Feedback Form for Teaching

Name of the Department: ***Computer Science and Information Technology***

Session: ***2020-21*** *Class:* ***3rd year*** *Semester:* ***6***

Name of the course(with course code): ***spm***

Name of the Teacher: ***asjndsjd***

Total number of Lectures delivered by the Teacher in the Semester: ***3rd year***

Number of Lectures attended by the Student filling the form with percentage: ***15***

Sr.No.	Description of the item/Questions	Rating Scale				
1	Availability of Lecture Plan in the beginning of the Semester				4	
2	Coverage of the Syllabus				4	
3	Regularity of the Teacher			3		
4	Knowledge of the Teacher in the Subject				4	
5	Ability of the Teacher to teach and respond to Queries				4	
6	Organization of the Lecture				4	
7	Audibility of the Teacher's voice during the Class				4	
8	Utilization of Blackboard and other Teaching Aids				4	
9	Summarizing Key Points by the Teacher at end of the class				4	
10	Explaining concepts, Giving solution of problems/numericals				4	

Fig 16: *Print section*

8.SCOPE FOR THE FUTURE WORK

This system is developed mainly for the purpose of students to give their feedback about the courses associated with the various departments. This Online Student Feedback Analysis System will be implemented in our college in all the departments.

- Students can give feedback to make improvements in the teaching system.
- In future, this application can be used in offices, hotels etc.
- Further enhancements can be made in designing the screens. Some more forms can also be added so as to retrieve the feedback details even in a better way. Some more designs can also be added in this proposed system.
- This system is developed exclusively for the college students and lecturers.
- Students have to register for the feedback process through the valid string id which is given by the admin.

9.CONCLUSION

The proposed system is designed to reduce the time and save the efforts of the faculties from maintaining a huge amount of records.

In this system, Students need to log in into the website and will fill online feedback using a standard form provided online. With this the student can successfully submit the feedback without any errors.

After this a report is generated with pie-charts showing the rating of a particular course of the department and overall feedback report is also generated showing an overall analysis of the feedback form. This analysis helps the faculty to improve the teaching system as required. Dean,CE and IQA can access the feedback given by the students and can analyse accordingly.

When compared with the existing feedback system, the proposed Online Feedback System is much easier to implement and manage. In comparison to the existing system, this system very easily saves each and every record of the individual students in the database and avoids usage of paper and saves time and effort of the workers in charge or faculties.

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10.APPENDIX

Pom.xml Configuration

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
     xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
https://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.3.0.RELEASE</version>
    <relativePath/> <!-- lookup parent from repository -->
  </parent>
  <groupId>com.example</groupId>
  <artifactId>demo</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>demo2</name>
  <description>Demo project for Spring Boot</description>
  <packaging>war</packaging>

  <properties>
    <java.version>1.8</java.version>
  </properties>

  <dependencies>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-data-jpa</artifactId>
    </dependency>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-web</artifactId>
    </dependency>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-actuator</artifactId>
      <version>2.2.2.RELEASE</version>
```

```
</dependency>

<dependency>
    <groupId>org.apache.tomcat</groupId>
    <artifactId>tomcat-jasper</artifactId>
    <version>9.0.33</version>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-test</artifactId>
    <scope>test</scope>
</dependency>

<dependency>
    <groupId>mysql</groupId>
    <artifactId>mysql-connector-java</artifactId>
    <scope>runtime</scope>
</dependency>

<dependency>
    <groupId>org.springframework.session</groupId>
    <artifactId>spring-session-jdbc</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-test</artifactId>
    <scope>test</scope>
    <exclusions>
        <exclusion>
            <groupId>org.junit.vintage</groupId>
            <artifactId>junit-vintage-engine</artifactId>
        </exclusion>
    </exclusions>
</dependency>

<dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>jstl</artifactId>
    <version>1.2</version>
</dependency>

<dependency>
    <groupId>org.json</groupId>
    <artifactId>json</artifactId>
</dependency>
```

```
     <dependency>
            <groupId>javax.servlet</groupId>
            <artifactId>servlet-api</artifactId>
            <version>2.5</version>
            <scope>provided</scope>
        </dependency>

        <dependency>
            <groupId>junit</groupId>
            <artifactId>junit</artifactId>
            <scope>test</scope>
        </dependency>

    </dependencies>

    <build>
        <plugins>
            <plugin>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-maven-plugin</artifactId>
                <configuration>
                    <finalName>csp-mysql</finalName>
                </configuration>
            </plugin>
            <plugin>
                <groupId>org.apache.maven.plugins</groupId>
                <artifactId>maven-surefire-plugin</artifactId>
                <version>3.0.0-M4</version>
            </plugin>
        </plugins>
    </build>


</project>
```