ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

DEVELOPMENT OF A STUDENT GRIEVANCE CELL APPLICATION USING MERN STACK

B.V.N. Praveena[1], Associate Professor, DVR & Dr. HS MIC College of Technology, Kanchikacherla, Andhra Pradesh, India, Email: praveena@mictech.ac.in

D. Prasad[2], Assistant Professor, DVR & Dr. HS MIC College of Technology, Kanchikacherla, Andhra Pradesh, India, Email: dprasad@mictech.ac.inv

V. Bhavya Teja[3], UG Student, Department of Computer Science and Engineering, DVR & Dr. HS MIC College of Technology, India

A. Harshini[4], UG Student, Department of Computer Science and Engineering, DVR & Dr. HS MIC College of Technology, India

G. Nandini[5], UG Student, Department of Computer Science and Engineering, DVR & Dr. HS MIC College of Technology, India

SK. Taj Vuddin[6], UG Student, Department of Computer Science and Engineering, DVR & Dr. HS MIC College of Technology, India

ABSTRACT

Grievance name suggests INJUSTICE. In college's if anyone wants to raise a complaint then one must write it on a paper and wait for the response from the authorities but as this is a time taking process we came with this solution. Here Students must sign-up to lodge complaints, we provide different categories where they can complain to their respective department. Student will also have the page where they can view the status of their compliantIn Admin side they can login into the website andcheck the complaints lodged by the students. Here the task of the respective authorized person is to verify the complaint and respond to it. After that the admin should change the status of the lodged complaint. The student can see the status of the complaint as IN PROCESS or it has been CLOSED by the Admin ON Dashboard. Students need to check the complaint status whereas Admin needs to check the complaint regularly to see whether new complaint has been filed or not. I conclude that, by this website the management can know what problems students are facing in the campus, and management can take a lead to solve the issues immediately.

KEYWORDS-ReactJS, MongoDB, Express JS, NodeJS,

INTRODUCTION

A Grievance may be any kind of discontent or dissatisfaction or negative perception, whether expressed or not. The grievance has rising in several organizations, institutes, colleges as well in universities. As seen nowadays it is not possible to solve student's issues or it is not possible to communicate with staff to solve issues. Grievance system can be handled directly by College's through their own websites. Our project is an online platform to receive and act on complaints reported by students of College's, enabling prompt actions on any issue raised by them and to avail services more effectively. Hence by this, it is easy for students to communicate with our website. The fully automated system includes a user interface for students and admin/grievance cell member's interface for managing doubts or any issues clear. This project is a web application development project in which only particular university students can access the Grievance websites for their issues. In this grievance system students can deal with complaints, issues or doubts associated with twodepartments namely WomenGrievance,Anti-ragging. This website will be safe and secure. This project is intended to maintain for students' protection and assures that it is being accessed only by particular Universities. With the help of malicious codes and programs, hackers or an intruder can gain access to the system and website. For this issue we had maintained full privacy and security for our website. This website will use by all universities but by entering student's roll number. Our website is user friendly and maintain with privacy and Security.

DOI: 10.36893.JK.2023.V13I04N16.0039-0044

ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

2.RELATED WORK:

Grievance is defined as an official statement of a complaint over something believed to be wrong or unfair. Our project focuses on developing a typical student grievance cell which works and functions for registering student issues. These issues include complaints regarding problems women face in campus and anti-ragging cell. Thus our project ensures a democratic campus environment, acquaints all the students about their rights, and also provides a qualitative and quantitative development of the university. Wedevelop an online management system for submitting complaints online. By using this complaint management system, a user can upload his complaint from anywhere by using this website on his phone or PC online. User can submit his complaint by easily creating his/her own profile; also user can check current status of their complaints and view what kind of action is taken. It is based on centralize management and only admin can check or solve the complaint.The main objective of the complaints management system is to make complaints easier to resolve and to target problem areas. It is used to record, resolve and respond to customer complaints.The existing system is completely manual. In order to write the complaint, the student eitherExisting system requires manual process (i.e., sending grievance from lower level to critical level requires manual process).Visits the related department and registers his complaint in the respective complaint register, which is monitored by the respective Department heads.

DISADVANTAGES

- Grievance paper might be replaced.
- Modifications can be done.

TECHNOLOGY:

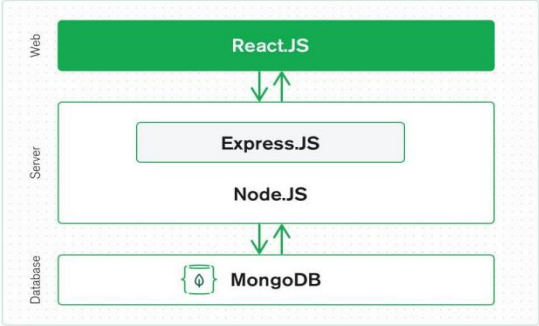

Figure 1. A basic structure of Technology.

ReactJS

ReactJS is an open-source JavaScript library used for building user interfaces. It was developed by Facebook and has gained a lot of popularity among developers due to its simplicity, flexibility, and performance.React worked by breaking down the user interface into small, reusable components, which can be easily composed to build complex user interfaces. This makes it easier to maintain and update the codebase. React also utilizes a virtual DOM (Document Object Model), which reduces the number of DOM manipulations required and makes the application faster. Some of the key features of ReactJS include: JSX: A syntax extension that allows developers to write HTML-like code in JavaScript. Components: ReactJS allows developers to create reusable components, which can be easily composed to build complex user interfaces.**Virtual DOM**: ReactJS uses a virtual DOM to update the view efficiently, which makes the application faster. Unidirectional Data Flow: ReactJS follows a unidirectional data flow, which means data flows in a single direction, from parent to child components.**React Native**: ReactJS can also be used to build native mobile applications using React Native. ReactJS is a powerful and popular tool for building modern web applications. It has a large and supportive community, which provides a lot of resources and documentation to help developers get started**.**

Steps to execute a basic ReactJS project:

1. Install Nodejs for local development
2. To create react project execute “npx create-react-app folder-name” in command prompt.
3. To run react app type “npm start” in command prompt.

DOI: 10.36893.JK.2023.V13I04N16.001-0003

ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

Node.js:

Steps to execute Backend Node.js server:

1) Open command prompt and run “npminit -y”
2) Install the required dependencies “npm install express cors”
3) Install nodemon as a development dependency “npm install nodemon –save-dev”
4) Run “nodemon index.js” to start the backend

Sample code:

```
const express = require("express");
const cors = require("cors");
const app = express();

app.use(cors());
app.use(express.json());

app.get("/message", (req, res) => {
  res.json({ message: "Hello from server!" });
});

app.listen(8000, () => {
  console.log(`Server is running on port 8000.`);
});
```

MongoDB:

Document-oriented: MongoDB stores data in a document-oriented format, which means data is stored in a way that is similar to JSON objects. This makes it easy to store and retrieve complex data structures.

NoSQL: MongoDB is a NoSQL database, which means it does not use traditional relational database structures. This makes it more flexible and scalable than traditional databases.

Schema-less:MongoDB is schema-less,which means that data can be added to the database without having to define a rigid schema beforehand. This makes it easier to adapt to changing data structures.

Scalable: MongoDB is designed to be highly scalable, both vertically and horizontally. It can handle large volumes of data and can be scaled up or down depending on the needs of the application.

ACID compliance: MongoDB is ACID-compliant, which means that it ensures that database transactions are executed reliably and consistently.

Query language: MongoDB uses a query language called MongoDB Query Language (MQL) to retrieve data from the database. MQL is similar to SQL but is designed specifically for MongoDB.

Replication: MongoDB supports replication, which means that data can be replicated across multiple nodes in a cluster. This provides redundancy and ensures that the database is always available Shading: MongoDB supports sharing, which means that data can be partitioned across multiple servers. This allows for horizontal scaling and ensures that the database can handle large volumes of data. Aggregation: MongoDB supports aggregation, which allows for complex data analysis and processing. Aggregation can be used to perform

Sample code to connect with mongoDB:

EmailJS:

```
const mongoose= require('mongoose');
mongoose.connect(`mongodb+srv://Harshini:<password>@register.uiopsdb.mongodb.net
/?retryWrites=true&w=majority`,
{
   useUnifiedTopology:true,
   useNewUrlParser:true,
}
).then(
   ()=>console.log('DB connected')
)
```

EmailJS is a JavaScript librar
y that helps send emails using only client-side technologies.

DOI: 10.36893.JK.2023.V13I04N16.001-0003

ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

Steps to install EmailJS library:

1. $ npm install emailjs-com –save
2. import { send } from 'emailjs-com';

Sample code:

```
const [toSend, setToSend] = useState({
    from_name: '',
    number: '',
    message: '',
    reply_to: '',
  });
    const onSubmit = (e) => {
    e.preventDefault();
     // eslint-disable-next-line
    {/* --- METHOD TO SEND THE MAIL --- */}
    send(
      'service_ger4h02',
      'template_gn6ol6g',
      toSend,
      'pR9XmgJ4zmMX0SJr3'
    )
      .then((response) => {
        console.log('SUCCESS!', response.status, response.text);
      })
      .catch((err) => {
        console.log('FAILED...', err);
      });
  };
  const handleChange = (e) => {
    setToSend({ ...toSend, [e.target.name]: e.target.value });
  };
```

3. PROPOSED SOLUTION

3.1 USER SIDE:

Designing a website for a student grievance cell is an excellent way to enhance communication between students and faculty members. Here are a few proposed solutions for designing a student grievance cell website:

Clear and Concise Layout: The website's design is simple, clean, and easy to navigate. The main sections should are clearly marked, and the website is easy to use for students who need to file complaints or seek assistance.

Grievance Form: The website includes a grievance form where students can submit their complaints or concerns. The form is easy to fill out.

Grievance Tracker: The website includes a tracker to track the status of complaints filed by students. This feature will help students to know the progress of their complaint and when they can expect a response.

FAQ Section: The website should has a Frequently Asked Questions (FAQ) section where students can find answers to common questions related to grievance procedures.

Contact Information: The website includes contact Information page where information about grievance cell office, including email, phone numbers, and office address is present. This feature will help students to reach out to the grievance cell office when they need assistance.

Contact Us: The website includes contact us page where student can submit any complaint/doubt related to the website. This feature helps to maintain the website free from errors.

Security: The website should be secure to ensure that students' information is protected. The website should be encrypted, and any data collected through the grievance form should be stored securely

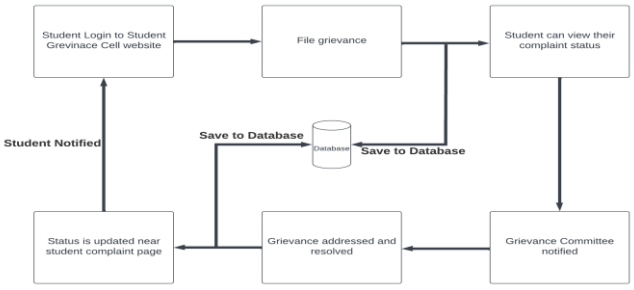

Figure 2.Flowchart for Student Grievance Cell

3.2 ADMIN SIDE:

As an administrator of the student grievance cell website, here are some things that you can do:

View Complaints: You can view the list of all complaints received by the website and sort them by

DOI: 10.36893.JK.2023.V13I04N16.001-0003

ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

date, category, or status.

Generate Reports: You can generate reports on the complaints received, investigated, and resolved by the grievance cell. These reports can provide insights into the types of complaints received, the time taken to resolve them, and the success rate of the grievance cell in resolving the complaints.

Analyse Data: You can analyse the data collected by the website in a visual representation, such as the number of complaints received, the nature of the complaints, and the response time of the grievance cell. This analysis can help you to identify the areas of improvement for the grievance cell and to optimise the workflow of the website.

Manage Complaint Status: You can update the status of the complaints as they progress through the workflow, such as "CLOSED."

WORK FLOW:

The following are the different steps that we have implemented in our project:

- The workflow of a student grievance cell website using MERN stack (MongoDB, Express.js, ReactJS, and Node.js) could include the following steps:
- **Login/Register**: The first step in the workflow is to register into the website and then login in order to lodge a complaint
- **Form Submission**: Next step in the workflow is the submission of a complaint through an online form available on the website. The form collects the necessary details of the complaint, such as the name of the complainant,Roll number, email and description of the incident.
- **Complaint History**: After submitting a complaint the user can check the status of their complaint in this page and if there is no reply from the admin within three working days then he can directly contact the admin.
- **Communication with the Parties**: The committee then communicates the action plan to the parties involved, including the complainant, faculty members, or administrators. The communication can be done through email.
- **Follow-up and Monitoring**: After communicating the action plan, the committee monitors the situation to ensure that the issue is fully resolved.
- By using the MERN stack, the website can efficiently manage the workflow of the student grievance cell by automating the data management and communication processes.
- This approach can help the committee members to focus on the investigation and resolution of complaints while providing a transparent and efficient system to the students.

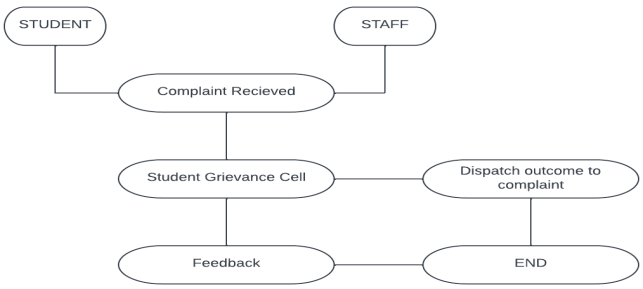

Figure 3.Workflow of Student Grievance Cell

4. Results and Discussion:

Login Page

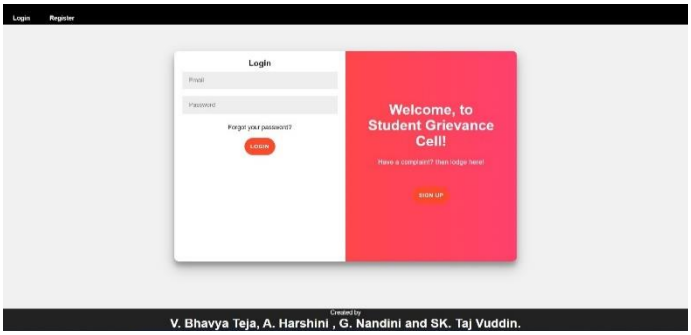

Figure 4.Login Page

DOI: 10.36893.JK.2023.V13I04N16.001-0003

ISSN: 2278-4632
Vol-13, Issue-04, No.06, April : 2023

Complain form

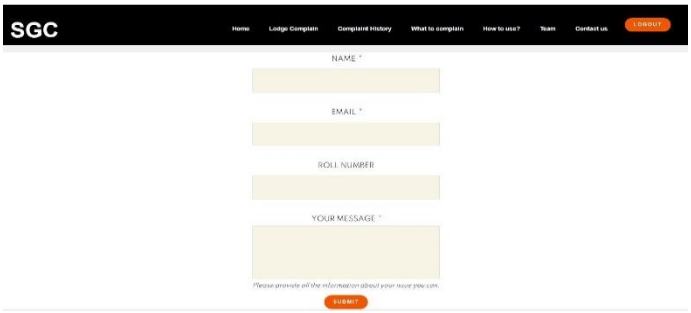

Figure 5.Complaint form

Contact us(Output)

Figure 6. When user fill the form in website then a mail is sent

5. Conclusion:

The paper proposes a solution to reduce the burden of maintaining bulk of records of all student's grievance details of who study in Educational Institution. Maintaining the project and database is also easy and manageable. The fact that there are hardly such systems prevailing curtailing to the complaint redressed for students enrolled in numerous organizations. This project has demonstrated a proposed Grievance system for the grievance redressed of students covering important domains of complaints which could be lodged easily and thus leading to easy and sure solutions to the problems being faced by a student on a regular basis. Inserting, Retrieving the details of all users are easy. "Finally, online student grievance cell comes out as better, quicker, simpler management analyzer".

REFERENCES PAPAERS:

Sen, A., & Nayak, B. K. (2018). Student grievances in higher education institutions in India: A review. International Journal of Information Research.

Mehta, S., & Singh, J. (2017). A study of student grievances and its redressal mechanism in Indian universities. International Journal of Management Studies.

"Design and Implementation of a Web-based Grievance Redressal System for Higher Education Institutions" by R. Pratap Kumar and Dr. K. R. Jayasree, International Journal of Scientific and Research Publications, Volume 6, Issue 6, June 2016.

"Development of an Online Student Grievance Redressal System using PHP and MySQL" by G. Narayanan and M. N. Giriprasad, International Journal of Advanced Computer Research, Volume 6, Issue 26, December 2016.

"Design and Implementation of a Web-based Student Grievance Redressal System" by Dr. R. Kavitha and Dr. M. Anandhavalli, International Journal of Innovative Research in Computer and Communication Engineering, Volume 3, Issue 10, October 2015.

"Design and Implementation of a Web-based Student Grievance Redressal System using ASP.NET and SQL Server" by M. R. Balaji and R. Deepika, InternationalJournal of Advanced Research in Computer Science and Software Engineering, Volume 5, Issue 5, May 2015.

"Design and Development of a Web-based Grievance Redressal System for Higher Education Institutions" by P. Senthil Kumar and Dr. V. Venkatesan, International Journal of Computer Science and Mobile Computing, Volume 3, Issue 6, June 2014.

DOI: 10.36893.JK.2023.V13I04N16.001-0003