**INTERNSHIP REPORT**

**Submitted in partial fulfillment of the requirement for the award of Degree of Bachelor of Technology in Computer Science & Engineering**

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**INSTITUTE OF ENGINEERING & SCIENCE**

**(A UGC Autonomous Institute Affiliated to RGPV)**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (IOT)**

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This is to certify that the **“Internship report”** submitted by **JAYANT CHOUDHARY (Enrolment Number: 0808IO201020)** is work done by her and submitted during 2022 – 2023 academic year, in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND ENGINEERING (IOT) , (Bulwark)**

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**JAYANT CHOUDHARY (0808IO201020)**

**Abstract**

In this report, I will be discussing my work experience, which was undertaken at **Bulwark**. I've been working there since **Dec. 2022 - Present**, during which time I was involved in various activities such as **Backend Development , Database Monitoring , Website Maintenance**. The primary objective of this internship was to gain practical experience in my field of study and apply theoretical knowledge to real-world situations.

Throughout this, I was able to develop and enhance my skills in **NodeJs , Amazon Web Service AWS , Postgres SQL** which are essential in my career path. Additionally, I had the opportunity to work alongside professionals who provided me with mentorship and guidance, which helped me to learn more about the industry.

In conclusion, this internship provided me with a valuable learning experience, and I am grateful for the opportunity to have worked with **Bulwark**. I believe that this internship has prepared me to become a more competent and confident professional in my field, and I am looking forward to applying the knowledge and skills that I have gained in my future endeavors.

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**INTRODUCTION**

The primary objective of an internship program is to provide participants with hands-on experience in their chosen field, allowing them to develop skills and knowledge that will be useful in their future careers. Interns are usually assigned specific tasks or projects that are designed to help them learn and grow in their chosen field. They may also be given opportunities to observe and participate in meetings, attend training sessions, and interact with professionals in their field.

In addition to providing valuable learning opportunities, internship programs can also be beneficial for organizations. By offering internships, organizations can identify potential future employees and evaluate their skills, work habits, and potential fit within the company culture. Interns can also bring fresh perspectives and new ideas to the organization, which can help improve productivity and innovation.

Overall, internship programs are an excellent way for students or recent graduates to gain practical experience in their field, while also providing organizations with a pipeline of potential future employees.

**OVERVIEW OF THE ORGANIZATION**

**Bulwark** is a company that specializes in creating innovative solutions for businesses in various industries. The company has a team of highly skilled developers, designers, and project managers who work together to create custom solutions that meet the unique needs of their clients.

One of the areas in which Bulwark has particular expertise is in fraud detection and prevention. The company has developed a number of tools and technologies that can help businesses detect and prevent fraudulent activities, including bank loan fraud.

**Bank loan fraud** is a serious problem that affects many financial institutions. It involves individuals or groups who misrepresent their financial position in order to obtain loans from banks or other financial institutions. This can result in significant financial losses for the banks and can also harm the broader economy.

**Bulwark** has developed a fraud detection system that uses advanced algorithms and machine learning techniques to identify patterns and anomalies in loan applications. The system can analyze a wide range of data points, including credit scores, employment history, and financial statements, to determine the likelihood of fraud.

In addition to detecting loan fraud, Bulwark's system can also help banks and financial institutions identify other types of fraudulent activities, such as identity theft, credit card fraud, and money laundering. By using advanced technologies to detect and prevent fraud, Bulwark is helping to make the financial system safer and more secure for everyone.

**PLAN OF INTERNSHIP**

During my time as a **Backend Developer** at **Bulwark Company**, I had the opportunity to work on a real-world project that involved developing a web-based application for a client in the healthcare industry. The project required me to work closely with other members of the development team, including Frontend Developers, UI/UX Designers, and Project Managers, to ensure that the application was developed according to the client's requirements and specifications.

My responsibilities as a Backend Developer included developing and maintaining the backend of the application using various technologies such as **Node.js, Express.js, PostgreSQL and AWS**. I was also responsible for ensuring that the backend was secure and scalable, and that it integrated seamlessly with the frontend of the application.

During the project, I contributed to the development of several key features of the application, including a user authentication system, a database schema design, and an API integration with third-party services. I also participated in code reviews, testing, and debugging to ensure that the application was of high quality and met the client's expectations.

My contributions to the project were recognized by the development team and the client, who praised my ability to work collaboratively, my attention to detail, and my problem-solving skills. I also learned a great deal about the healthcare industry and the unique challenges associated with developing applications for this industry.

Overall, my experience as a Backend Developer at **Bulwark** Company was both challenging and rewarding. I was able to contribute to a real-world project, work with a talented and supportive team, and develop valuable skills that will be useful throughout my career as a software developer.

**PROJECT**

Role : BACKEND Developer

Team Size: 5 (including myself)

Duration: Dec. 2022 - Present

In this project, I developed a backend system for the **Bulwark** Company using **Node.js, Sequelize ORM, RESTful API, Postgres SQL, and AWS.**

Contributed to a real-world project.

The project's primary objective was to design an efficient and scalable system that can manage the company's data and provide quick access to information.

Configured and deployed the backend on **AWS**, utilizing services such as **AWS Lambda** and **S3 Bucket** for scalable and reliable hosting.

As a backend developer at **Bulwark** Company, I had the opportunity to work on a variety of projects using a range of technologies, including Node.js, Sequelize, AWS, AWS Lambda, S3, and Postgres SQL.

**Node.js** is a popular open-source server-side JavaScript runtime environment that allows developers to build scalable and high-performance applications. At Bulwark, I used Node.js to create robust and scalable backend services that could handle large amounts of traffic and data.

**Sequelize is an Object Relational Mapping (ORM)** tool that allows developers to work with databases using JavaScript syntax. I used Sequelize to interact with the Postgres SQL database and create complex queries to retrieve and store data.

**AWS (Amazon Web Services)** is a cloud computing platform that provides a wide range of services, including storage, computation, and database management. At Bulwark, we used AWS to host our applications and databases in the cloud, which allowed us to scale our infrastructure quickly and easily as our needs changed.

**AWS Lambda** is a serverless computing service that allows developers to run code in the cloud without having to manage servers or infrastructure. I used AWS Lambda to create serverless functions that could be triggered by events such as file uploads to S3, allowing us to automate complex tasks and reduce the load on our servers.

**S3** is a highly scalable object storage service provided by AWS that allows developers to store and retrieve large amounts of data. I used S3 to store user-generated content and other files that were required by our applications.

**Postgres SQL** is an open-source relational database management system that is widely used for large-scale applications. At Bulwark, we used Postgres SQL to store and manage data for our applications.

Overall, working with these technologies allowed me to create highly scalable and robust backend services that were able to handle large amounts of data and traffic. I enjoyed working with Node.js and Sequelize to interact with the Postgres SQL database and found AWS and its services to be invaluable in terms of scaling and managing our infrastructure.

**LEARNING EXPERIENCE**

Working as a Backend Developer at **Bulwark** Company was an incredible learning experience for me. I was able to gain valuable skills and knowledge that I believe will be useful throughout my career.

One of the key things that I learned at **Bulwark** was how to develop scalable and high-performance backend services using Node.js. I was able to work on a variety of projects that required me to develop services that could handle large amounts of traffic and data. This allowed me to gain a deep understanding of Node.js and its ecosystem, as well as best practices for developing scalable and performant services.

I also gained a great deal of experience working with databases, particularly Postgres SQL. I learned how to design complex database schemas and how to write efficient queries that could retrieve and store data quickly. This knowledge has been invaluable to me, as databases are a critical part of almost every application.

Another area where I gained a lot of experience was in working with cloud-based services such as AWS. I learned how to use AWS to host our applications and databases in the cloud, which allowed us to scale our infrastructure quickly and easily. I also gained experience using services like AWS Lambda and S3 to automate tasks and store large amounts of data.

Finally, I learned how to work collaboratively as part of a team. I was able to work with other developers, designers, and project managers to deliver high-quality software that met our clients' needs. I learned how to communicate effectively, how to give and receive feedback, and how to work together to solve problems and overcome challenges.

Overall, my experience at **Bulwark** Company was an incredibly valuable learning experience. I gained a deep understanding of a range of technologies, as well as practical experience working on real-world projects. I feel that this experience has prepared me well for a career as a Backend Developer, and I am excited to continue building on what I have learned at Bulwark.

**CONCLUSION**

In conclusion, my internship at **Bulwark** Company as a **Backend** **Developer** was an incredibly valuable experience. I had the opportunity to work on a variety of real-world projects using a range of technologies, including Node.js, Sequelize, AWS, AWS Lambda, S3, and Postgres SQL.

Through this internship, I gained a deep understanding of how to design and develop highly scalable and performant backend services, how to work with databases, and how to leverage cloud-based services to build and manage complex applications.

Additionally, I gained practical experience working collaboratively with other developers, designers, and project managers, which taught me valuable skills in communication, teamwork, and problem-solving.

Overall, I believe that this internship has prepared me well for a career as a Backend Developer, and I am grateful for the opportunity to have worked with such a talented and knowledgeable team at **Bulwark** Company.

**THANK YOU**