



# DAYANANDA SAGAR UNIVERSITY

Devarakaggalahalli, Harohalli  
Kanakapura Road, Ramanagara - 562112, Karnataka, India

An Internship Report on

**SOFTWARE ENGINEERING INTERN**

*Submitted in Partial fulfillment for award of degree in*

**Bachelor of Technology**

**in**

**COMPUTER SCIENCE AND ENGINEERING**

**(Cyber Security)**

*Submitted by*

**Raj Utso Bhattacharyya**

**ENG21CY0031**

*Internship carried out at*

**Momenta Softwares Inc.**

**INTERNSHIP COORDINATOR**

**Prof. Sharanabasappa Tadkal**

Assistant Professor  
Dept. of CSE (Cyber Security)  
School of Engineering  
Dayananda Sagar University

**EXTERNAL GUIDE**

**Mr. Dhiren Mathur**

**CTO**

**Momenta Softwares Inc.**

**COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY), SCHOOL  
OF ENGINEERING**

**DAYANANDA SAGAR UNIVERSITY,**

**(2024-2025)**



# DAYANANDA SAGAR UNIVERSITY

## School of Engineering

*Department of Computer Science & Engineering (Cyber Security)*

# CERTIFICATE

This is to certify that the “Internship report” submitted by **Raj Utso Bhattacharyya(USN ENG21CY0031)** is work done by him and submitted during the academic year 2024 – 2025, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY), at Dayananda Sagar University, Bangalore.

**Mr. Dhiren Mathur**  
CTO  
Momena Softwares Inc..

**Prof. Sharanabasappa Tadkal**  
Internship Co-Ordinator  
Dept. of CSE (Cyber Security)  
School of Engineering  
Dayananda Sagar University

**Dr. Durbadal Chattaraj**  
Chairman  
Dept. of CSE (Cyber Security)  
School of Engineering  
Dayananda Sagar University

**Date:**

**Date:**

**Date:**



**Momenta Softwares Inc.**

8 The Green Suite R,  
Dover, County of Kent  
Delaware 19901

**August 24th, 2024**

Dear Raj,

We are pleased to offer you the opportunity to join our team as an intern for the **Software Engineering Intern position** at **Momenta Softwares Inc.**. Your enthusiasm and potential align well with our internship program's objectives.

**Appointment Details**

This internship is offered to Raj Utso residing at Kapoor Niwas, Telephone Exchange Road, Dhanbad, Jharkhand 826001 with the following terms

- Internship Title: Software Engineering Intern
- Role type: Contract
- Department: Engineering
- Start Date: 24.08.2024
- Duration: 3 months
- Stipend: INR 50000
- Performance-based bonus: Upto INR 5000/month

**Expectations and Benefits**

- Your working hours will be flexible with an expectation of clocking 50 hours per week This position is remote and contractual.
- You will not, at any time, during the employment or after, without the consent of the Management disclose or divulge or make public, except on legal obligations, any information regarding the Company's affairs or administration or research carried out, whether the same is confided to you or becomes known to you in the course of your service or otherwise.
- During the internship period and any extension thereof, your services may be terminated from either side by giving 1 week (7 days) notice or salary in lieu thereof.
- If you conceive any new or advanced method of improving designs/ processes/ formulae/ systems, etc. in relation to the business/ operations of the Company, such developments will be fully communicated to the company and will be, and remain, the sole right/ property of the Company

Please signify your acceptance of this internship appointment by signing and returning a copy of this letter by 24.08.2024.

If you have any questions or require further information, please reach out to Dhiren Mathur at [dhiren@momentum.sh](mailto:dhiren@momentum.sh) or +91 988420 2966

We look forward to your contribution and learning during the internship.

Best Regards,



Aditi Kothari

CEO

Momenta Softwares Inc.



Accepted and signed by

Raj Utso



Date : 25 November 2024

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that Raj Utso Bhattacharyya has undergone internship with Momenta Softwares Inc. from **24<sup>th</sup> August 2024 to 24<sup>th</sup> November 2024.**

During the period of internship, he has worked with the Core Engineering team and has successfully met the objectives of the internship. We found Raj Utso Bhattacharyya to be hardworking, sincere and displayed good conduct.

We wish him all success in future endeavors.

Yours sincerely,  
For Momenta Softwares Inc.

A handwritten signature in black ink, appearing to read 'Aditi Kothari', written over a horizontal line.

**Aditi Kothari - CEO**

# Declaration

I, **Raj Utso Bhattacharyya( ENG21CY0031 )**, hereby declare that the Internship titled “**Software Engineering Intern**” embodied in this report has been carried out by me during VII Semester B.Tech in **Computer Science and Engineering (Cyber Security)**, at School of Engineering, **Dayananda Sagar University**, submitted in partial fulfilment for the award of degree in **Bachelor of Technology in Computer Science and Engineering(Cyber Security)** during the academic year **2024 - 2025**. The work embodied in this report is original & it has not been submitted in part or full for any other degree in any University.

**Student**

**Signature**

**Name:** Raj Utso Bhattacharyya

**USN:** ENG21CY0031

**Place:** Bangalore

**Date:**

# Acknowledgement

Firstly, I extend my heartfelt gratitude to **Mr. Dhiren Mathur** for granting me the invaluable opportunity to undertake my internship within the organization. His trust and support have been instrumental in shaping my learning experience.

I am immensely thankful to all the individuals at Momenta Software Inc. who collaborated with me during my internship. Their patience, guidance, and openness fostered a conducive and enjoyable working environment, enriching my professional journey.

I would also like to thank **Dr. Udaya Kumar Reddy K R, School of Engineering, Dayananda Sagar University** for his constant encouragement and expert advice. I am grateful to **Dr. Durbadal Chattaraj, Department of Computer Science and Engineering (Cyber Security), Dayananda Sagar University**, for his invaluable constructive criticism and guidance, which significantly contributed to my growth during this internship period.

I extend my heartfelt gratitude to **Prof. Naveen Kulkarni**, our department's placement coordinator and **Prof. Sharanabasappa Tadkal**, our internship coordinator for their unwavering assistance in securing and ensuring the successful completion of this internship opportunity.

I am deeply grateful to our faculty members **Prof. Ranjima P** and **Prof. Vinitha V**, along with all the staff, and friends in my department, for their constant encouragement and support, which played a crucial role in my internship experience. Their guidance and mentorship have been instrumental in shaping my skills and knowledge during this period.

I would like to express my gratitude towards my friends and family for their unwavering support and encouragement throughout my internship journey. Their constant belief in my abilities, words of encouragement, have been my pillars of strength. Their guidance and moral support have played a crucial role in shaping my professional growth and success during this internship.

Thank you all for your support, guidance, and encouragement throughout this journey.

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# Abstract

During my internship at Potpie AI, I gained invaluable practical experience in developing and enhancing a sophisticated AI-powered platform. My work primarily focused on improving system reliability, optimizing performance, and expanding core functionalities. I implemented real-time error notifications via Slack webhooks, integrated application-wide event monitoring with PostHog, and refactored crucial backend services for asynchronous operations to boost efficiency. Additionally, I played a key role in developing new features like public repository support and a Share Chat functionality, which involved implementing robust access control. This hands-on experience with technologies like Next.js, FastAPI, Langchain, Docker, and various databases provided me with a comprehensive understanding of modern full-stack development and agile methodologies.

# Organization

## Overview:

Potpie AI is an open-source platform that empowers developers to create AI agents tailored to their codebases. The story of Potpie (Earlier Momenta Software Inc) begins in the year 2024 when its founding members - two of whom worked for multinational companies - decided to start a company with a vision to make custom agents for your codebase in minutes. In 2025, Potpie AI was released out of beta and it instantly went trending on github.

## Products/Services/Location:

Potpie AI offers a comprehensive platform for enhancing software development through agent-based automation. You can build custom agents using simple, context-aware prompts that understand your codebase, or leverage prebuilt agents designed for common tasks like onboarding, testing, debugging, and system design. Potpie also enables agentic workflows to automate complex engineering tasks across the entire software development lifecycle .

## Tools:

To accelerate the development of Potpie AI and streamline various aspects of its operation, I utilized a robust tech stack. For the user interface, We chose Next.js for its powerful frontend capabilities. The backend logic was powered by FastAPI, known for its speed and efficiency. Data persistence was handled by a combination of Neo4j for graph-based insights and PostgreSQL for relational data management. Docker was instrumental in ensuring seamless deployment across different environments. To orchestrate the intelligent agents and workflows within Potpie AI, I leveraged CrewAI, and for broader agentic capabilities and framework integration, LangChain served as the core orchestration framework.

## Contact Details:

E-mail ID: [hello@potpie.ai](mailto:hello@potpie.ai)

Phone Number: +1 (650) 468 5840

LinkedIn ID : <https://www.linkedin.com/company/potpieai/>

# Modern tools usage

During my internship at Potpie AI, I actively leveraged modern tools and agile methodologies, . I implemented Slack webhooks for instant error notifications from parsing statuses, ensuring rapid issue resolution and continuous monitoring. I also expanded platform capabilities by integrating public repository support, utilizing GitHub APIs, and developed automated email notifications for project status updates, enhancing user communication and workflow insights.

My contributions focused on improving both impact and efficiency. I refactored backend functions to asynchronous operations for improved responsiveness and implemented robust access control mechanisms for new features like the Share Chat. Furthermore, I integrated PostHog for event monitoring to gain deeper user behavior insights and extensively contributed to unit and integration testing to ensure the stability and reliability of APIs.

The internship provided hands-on experience with a comprehensive modern tech stack. I contributed to optimizing the development environment using Docker Compose and worked with Next.js for frontend, and FastAPI, Langchain, CrewAI, Neo4j, PostgreSQL, Docker, GCP, and Redis for backend development, demonstrating a strong grasp of contemporary development tools and practices.

# Skillsets Learnt

## Technical Skills:

My internship at Potpie AI provided a comprehensive understanding of modern software development and operations, equipping me with valuable technical skills:

- **System Reliability & Monitoring:** Implemented Slack webhooks for real-time error notifications and integrated PostHog for application-wide event monitoring, enhancing system visibility.
- **Scalability & Performance:** Refactored functions to asynchronous operations and optimized APIs, utilizing FastAPI, Langchain, CrewAI, Neo4j, PostgreSQL, Docker, GCP, and Redis.
- **Security & Access Control:** Developed access control mechanisms for features like Share Chat and contributed to extensive unit and integration testing
- **CI/CD & Deployment:** Optimized Docker Compose for easier setup and resolved critical SSL issues, streamlining development and deployment.

## Non-Technical Skills:

Being part of the Core Engineering team and working on the product a few of the non-technical skills that I learnt include:

- **Communication:** Successfully communicating the technical information to other non-technical stakeholders.
- **Problem-Solving:** Analysing and solving problems.
- **Project Management:** Acquiring, planning, and maintaining resources to accomplish projects objectives.
- **Team Collaboration:** Collaborating efficiently within teams and cross-departmentally.
- **Time Management:** Task scheduling and time administrating in order to meet deadlines.
- **Critical Thinking:** Evaluating the conditions and making rational selections to provide best possible result in the provided time frame.

# Future Skill Utilization

My internship at Potpie AI has significantly refined my technical and soft skills, preparing me for a impactful career in the IT industry, particularly within cybersecurity operations. The experience has bolstered my understanding of how automation, continuous monitoring, and robust system architecture contribute to a strong security posture. My hands-on work with implementing real-time error notifications (Slack webhooks) and integrating application-wide event monitoring (PostHog) has provided practical experience in proactive threat detection and system health assessment, directly applicable to incident response and digital forensics. Furthermore, my contributions to access control mechanisms and rigorous unit and integration testing underscore my capability in vulnerability management and securing endpoints and applications.

Beyond technical proficiencies, this experience has cultivated crucial soft skills. My ability to communicate technical concepts effectively, honed by explaining complex development work to a broader team, will be vital for conveying security risks and solutions to diverse stakeholders. The fast-paced environment at Potpie AI fostered my problem-solving skills, creativity, and adaptability, essential for navigating the ever-evolving threat landscape. Moreover, successfully contributing to various project modules has reinforced my project management capabilities, ensuring that security initiatives can be delivered efficiently. My collaborative work within the team has also strengthened my teamwork and client service orientation, qualities crucial for fostering trust and ensuring effective security operations.

These combined competencies position me to be a proactive and effective professional. I am confident in my ability to identify, respond to, and mitigate bugs and issues, contributing directly to advancement of an organization. My continuous learning mindset, coupled with strong critical thinking and time management, will enable me to make informed decisions and prioritize effectively in dynamic environments.

# Conclusion and Feedback

My internship at Potpie AI was an incredibly informative and transformative experience, providing me with invaluable practical and theoretical skills that will undoubtedly propel my career forward in the technology industry. I've gained a deep understanding of modern development principles, system reliability, and performance optimization, and I am now confident in my ability to maintain, upgrade, and ensure the robustness of complex software systems.

The entire process at Potpie AI was truly amazing. It allowed me to embrace new capabilities and recognize the skills within myself to effectively tackle future assignments. This experience has instilled in me a positive attitude towards lifelong learning and continuous self-improvement, laying a strong foundation for my professional journey in software development and engineering.

# REFERENCES

**Company Website:** <https://potpie.ai/>

## **Websites:**

- <https://github.com/potpie-ai/potpie>
- <https://github.com/crewAIInc/crewAI>
- <https://github.com/langchain-ai/langchain>
- <https://redis.io/>
- <https://fastapi.tiangolo.com/>
- <https://nextjs.org/>
- <https://neo4j.com/>