KnC

Future Tech

Transforming Ideas into Reality

Internship Completion Certificate   **Date: 15-06-2025**

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This is to formally acknowledge that **Dhruv Sukhadiya** has successfully concluded their internship at KnC Future Tech, serving in the role of **Cloud Engineer** during the period from **15-05-2025** to **15-06-2025**.

The internship was carried out under the mentorship of our team, where the candidate demonstrated technical skill, professional conduct, and a strong willingness to learn.

We extend our best wishes to **Dhruv Sukhadiya** for continued success and commend their contribution to our organization during the internship.

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ACKNOWLEDGEMENT

I am sincerely grateful for the invaluable opportunity provided by KnC Future Tech. This internship has not only been a strong platform for my professional development and learning. Still, it has also connected me with a diverse network of professionals who guided me seamlessly throughout the period.

I would like to extend my heartfelt thanks to my industry mentor at KnC Future Tech, whose deep insights and professional expertise were pivotal to the successful completion of my project. Their practical advice and hands-on involvement greatly enhanced my learning experience, and I am sincerely appreciative of their support.

I also want to express my sincere gratitude to the Head of the IT Department, Dr. Purvi Prajapati, my project guide Prof. Madhav Ajwalia, and my external guide Mr. Hardeep Rathod for their unwavering support throughout the study and development phases. Their encouragement and guidance motivated me to work diligently and embrace new technologies, ultimately leading to the successful realization of this project.

Thanks,
Dhruv Sukhadiya

ABSTRACT

This report documents the work undertaken during my summer internship at KnC Future Tech, where I focused on cloud computing, serverless development, and applied AI solutions using AWS services. The internship was structured into four weeks, each contributing to the development of technical expertise and practical project implementation.

In the first week, I explored foundational AWS services including S3 for object storage, EC2 for scalable virtual servers, Lambda for serverless computing, IAM for access control, and monitoring tools like CloudWatch. Building on this foundation, the second week was dedicated to developing a Retrieval-Augmented Generation (RAG) chatbot using Amazon Bedrock (Llama 3), Titan Embeddings, and OpenSearch Serverless, with documents stored and managed in S3.

During the third week, I designed and deployed *BhashaBridge*, a serverless document translation platform on AWS. This project leveraged S3, Lambda, Transfer Family, IAM, and CloudWatch to enable automated, secure, and event-driven translation workflows. In the final week, I expanded my understanding of cloud ecosystems by exploring multi-cloud providers (Azure, GCP, and Oracle) while preparing for and successfully earning the AWS Cloud Practitioner certification.

Overall, this internship provided significant hands-on experience with cloud architecture, serverless computing, AI-powered applications, and multi-cloud exposure. It not only enhanced my technical knowledge but also strengthened my ability to design, deploy, and scale real-world cloud-based solutions.

DESCRIPTION OF THE COMPANY

KnC Future Tech is a leading digital transformation and technology services company, providing a wide array of solutions for businesses. Their expertise spans Android app development using Android Studio, which ensures high functionality and compatibility with evolving OS versions. The company boasts a skilled team of full-stack developers proficient in cutting-edge technologies, offering comprehensive web development services tailored to meet diverse business needs. Additionally, KnC Future Tech provides secure, fast, and affordable web hosting services, ensuring websites remain online and load quickly.

KnC Future Tech excels in custom WordPress design, creating websites that align perfectly with client brands and online goals. Their innovative products, such as "My Hostel" for hostel management and "TrackEm" for tracking faculty and students, demonstrate their commitment to solving real-world problems through technology.

With a mission to drive digital transformation, KnC Future Tech partners with clients from ideation to execution, delivering robust, foresighted, and high-quality IT solutions. Their agile and collaborative approach has earned them a loyal client base and a reputation for excellence in mobile app and web development.

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CHAPTER 1: PROJECT DEFINITION

1.1 OBJECTIVE

The objective of this internship project is to gain practical experience in cloud computing and artificial intelligence by designing and implementing innovative solutions using AWS services. This includes exploring core AWS components such as storage, compute, security, and monitoring, as well as developing real-world applications like a Retrieval-Augmented Generation (RAG) chatbot and a serverless document translator. The aim is to strengthen technical expertise in serverless architectures, scalable deployments, and multi-cloud exposure while preparing for industry-recognized certifications, ultimately enhancing both practical skills and professional growth.

1.2 DEFINITION

The internship project at KnC Future Tech is a cloud-based initiative designed to explore and implement modern solutions using Amazon Web Services (AWS). It involves the development of practical applications such as a Retrieval-Augmented Generation (RAG) chatbot and a serverless document translation system (*BhashaBridge*), leveraging services like Amazon S3, Lambda, Bedrock, OpenSearch, IAM, and CloudWatch. These solutions are aimed at demonstrating the scalability, automation, and efficiency offered by serverless and AI-powered cloud architectures.

Additionally, the project extends beyond AWS by providing exposure to other cloud providers such as Azure, GCP, and Oracle, ensuring a multi-cloud perspective. By integrating advanced cloud technologies and real-world workflows, the project enhances problem-solving capabilities, optimizes operational processes, and provides a foundation for building secure, reliable, and scalable cloud-based applications.

CHAPTER 2: PROJECT DESCRIPTION

During my internship at KnC Future Tech, I worked on cloud-based projects focusing on serverless computing, artificial intelligence, and multi-cloud exploration. These projects highlighted the practical use of AWS services to build scalable and automated solutions.

2.1 PROJECTS DEVELOPED

1. **RAG Chatbot Project:** Designed a Retrieval-Augmented Generation (RAG) chatbot using Amazon Bedrock, Titan Embeddings, OpenSearch, and S3. The chatbot delivered context-aware responses from custom documents, showcasing the integration of AI with cloud services.

2. **Bhasha Bridge Translator Project:** Developed a serverless document translation system leveraging S3, Lambda, Transfer Family, IAM, and CloudWatch. This project enabled secure, automated, and scalable translation workflows.

3. **Cloud Practitioner Certification:** Focused on multi-cloud learning (AWS, Azure, GCP, Oracle) and successfully cleared the AWS Cloud Practitioner certification, validating core cloud knowledge.

2.2 TECHNOLOGY USED

1. **Amazon S3:** Used for object storage and managing input/output files.
2. **AWS Lambda:** For serverless computing, executing functions in response to events.
3. **Amazon Bedrock:** Utilized with Llama 3 and Titan Embeddings to build the RAG chatbot.
4. **Amazon OpenSearch Serverless**: For vector search and retrieving context from documents.
5. **AWS Transfer Family:** Enabled secure file uploads and data transfer.
6. **IAM (Identity and Access Management**): For access control, permissions, and security.
7. **Amazon CloudWatch:** For monitoring application logs, events, and system performance.
8. **GitHub:** Used for version control and hosting project repositories.
9. **Other Cloud Providers:** Gained exposure to Azure, GCP, and Oracle for multi-cloud understanding.

CHAPTER 3: SOFTWARE AND HARDWARE REQUIREMENTS

3.1 HARDWARE REQUIREMENTS

1. **Development Machine:**
   - Processor: Intel Core i5 or equivalent
   - RAM: 8GB (16GB recommended)
   - Storage: 256GB SSD (512GB recommended)
   - Display: Full HD monitor

2. **Testing Devices:**
   - Desktop and Laptop Computers
   - Smartphones (Android and iOS)

3.2 SOFTWARE REQUIREMENTS

1. **Operating System:** Windows 10 or later / macOS / Linux
2. **Version Control:** Git and GitHub for source code management and collaboration
3. **Development Tools:**
   - **IDE/Code Editors:** Visual Studio Code
   - **Web Browsers:** Google Chrome, Mozilla Firefox, Microsoft Edge
4. **Technologies and Frameworks:**
   - **Amazon S3:** For object storage and data management
   - **AWS Lambda**: For serverless function execution
   - **Amazon Bedrock:** For building the RAG chatbot
   - **Amazon OpenSearch Serverless:** For vector search and document retrieval
   - **AWS Transfer Family:** For secure file uploads and transfers
5. **Additional Libraries and Tools:**
   - **Python**
   - **Boto3 SDK for AWS integrations**
   - **GitHub**

6. **Security Tools:**
   - **IAM (Identity and Access Management)** for role-based access control
   - **AWS CloudWatch** for monitoring and logging
   - Encryption mechanisms for data protection

These requirements ensured efficient development, secure deployment, and scalable management of the projects, enabling real-world application of serverless and AI-powered cloud solutions.
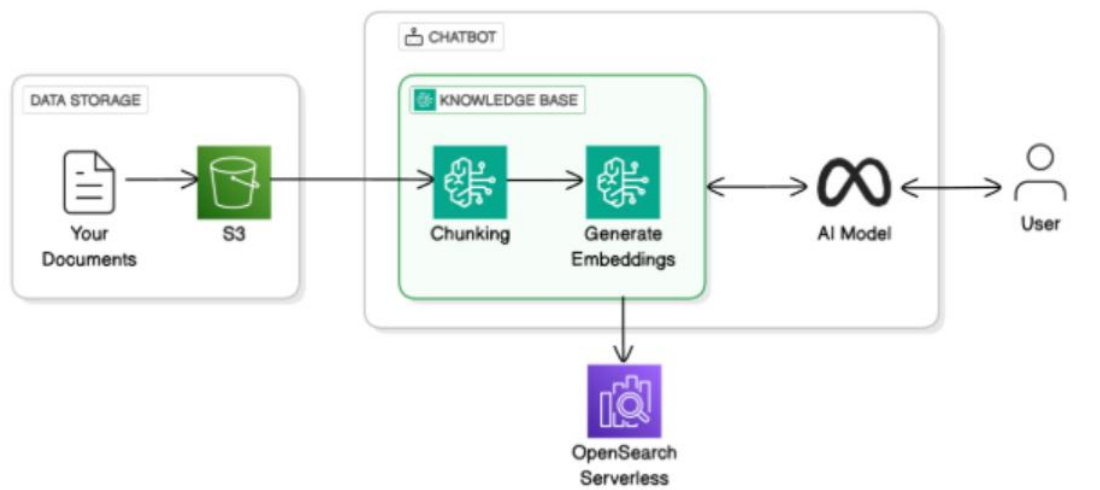
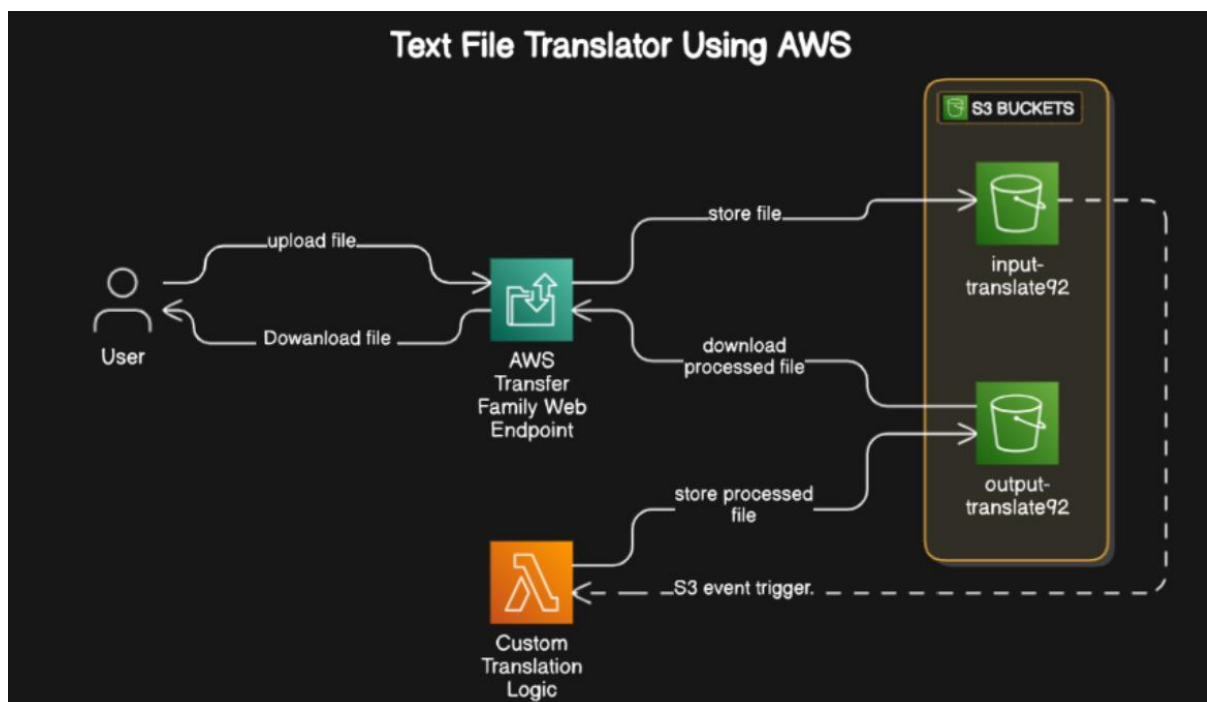# CHAPTER 4: FLOW CHART

Fig. 4.1 Flow Chart-1(RAG Chatbot)

Fig. 4.2 Flow Chart-2(BhashaBridge)

CHAPTER 5: SCREENSHOTS
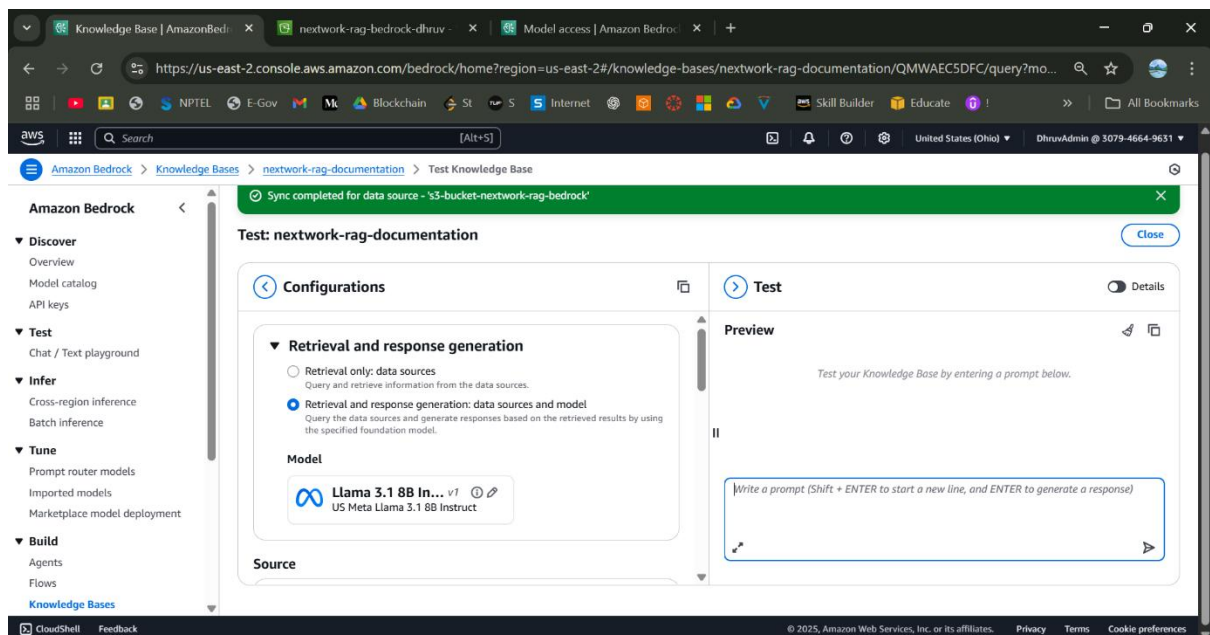
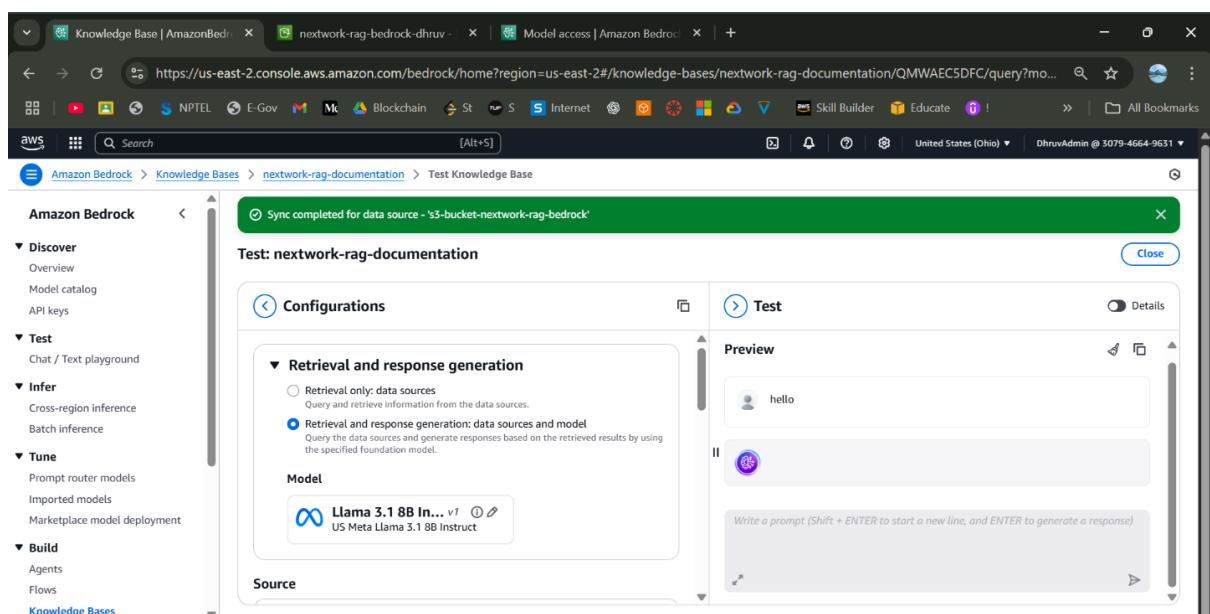**Fig. 5.1 Create Chatbot**

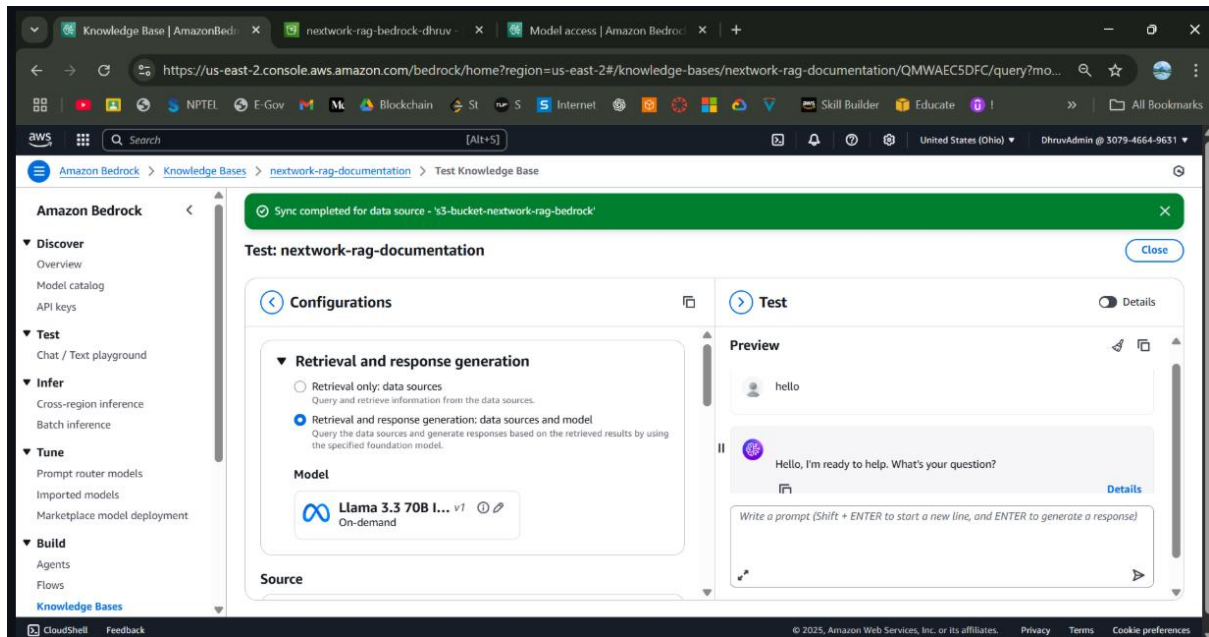**Fig. 5.2 Interaction With ChatBot**
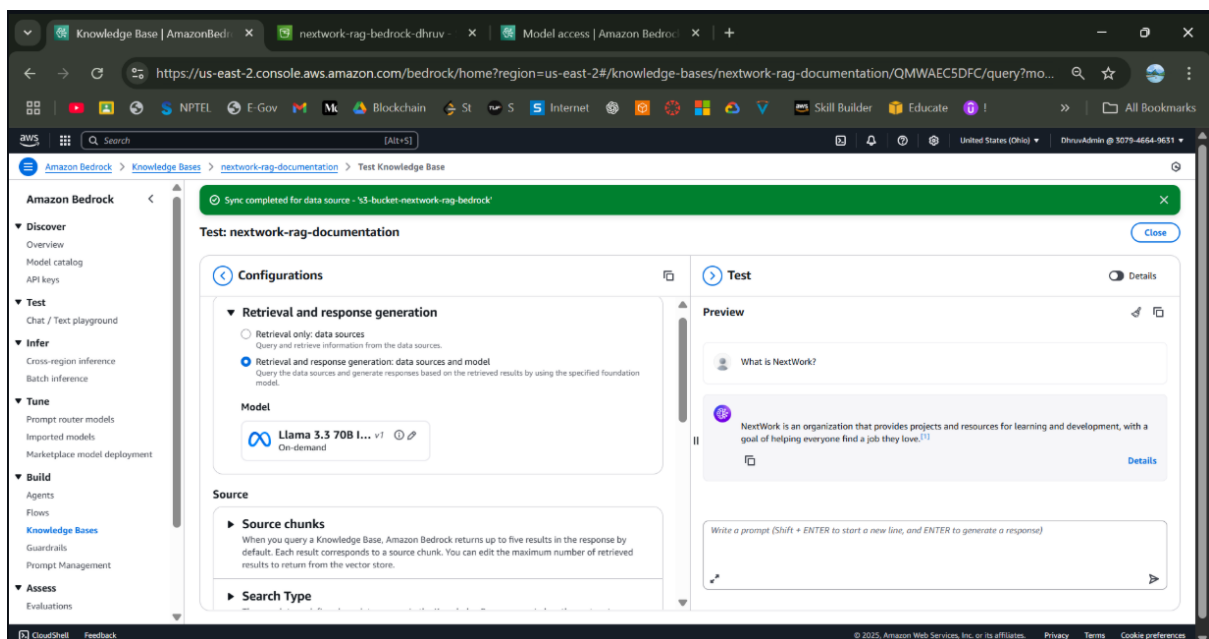
Fig. 5.3 Get Respond from ChatBot

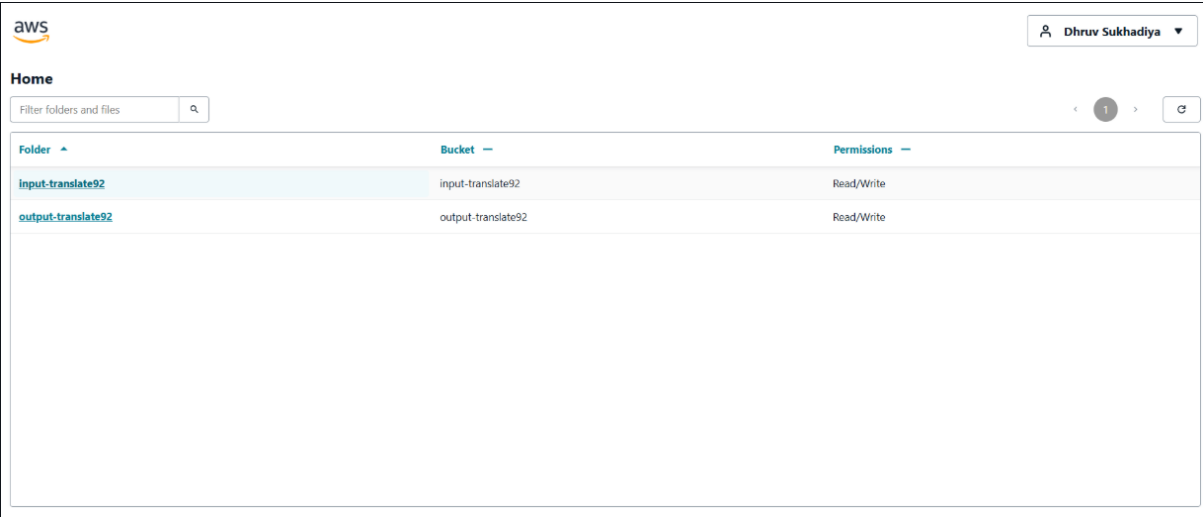**Fig. 5.4 Ask Question to Bot**

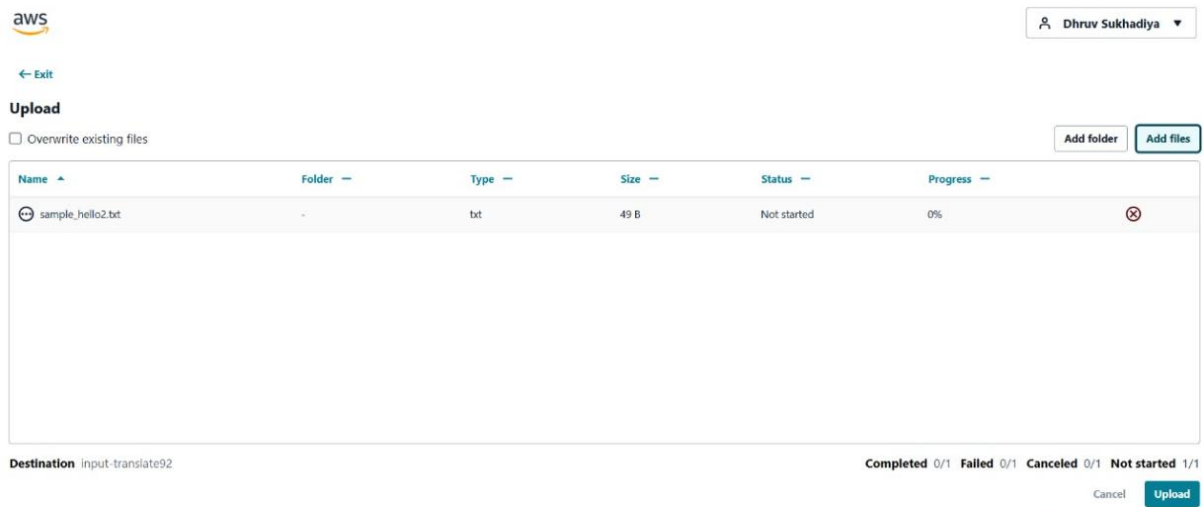**Fig. 5.5 Dashboard of AWS Transfer Family**

Fig. 5.6 Uploading file to Bucket

CONCLUSION

During my internship at KnC Future Tech, I had the opportunity to work on cloud-based projects using Amazon Web Services (AWS) and other cloud platforms. This experience proved invaluable in enhancing my practical skills and deepening my understanding of cloud computing, serverless architectures, and AI-powered applications.

Throughout the internship, I successfully applied theoretical knowledge to real-world scenarios. By developing projects such as the Retrieval-Augmented Generation (RAG) chatbot and the BhashaBridge document translator, I gained hands-on experience with services like S3, Lambda, Bedrock, OpenSearch, and IAM. These projects helped me understand how to design scalable, secure, and automated workflows in a professional cloud environment.

In addition, preparing for and clearing the AWS Cloud Practitioner certification further strengthened my grasp of fundamental cloud concepts while also exposing me to multi-cloud platforms such as Azure, GCP, and Oracle. This broadened my perspective on the cloud ecosystem and enhanced my readiness for diverse technical challenges.

Overall, my internship at KnC Future Tech has equipped me with practical expertise, improved my problem-solving abilities, and boosted my confidence in building real-world cloud-based solutions. The knowledge and skills I gained will serve as a strong foundation as I pursue a career in cloud computing and software development.

REFERENCES

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o   GitHub Repository – RAG Chatbot: https://github.com/Dhruvv025/RAG-Chatbot-in-Bedrock
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