## AI/ML Intern

ON THE ENERGY Student Roll No: 21BIT231

A summer research internship poster presented to the Department of ICT, PDEU

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Company Details: Yama Technology Pvt. Ltd.

# SCHOOL OF **TECHNOLOGY**

## **Brief Motivation & Objective**

The primary objective of this internship was to develop a comprehensive understanding of AI/ML fundamentals, work with basic libraries, and gain practical experience through hands-on projects. Key goals included mastering the application of supervised and unsupervised models and creating a functional chatbot to demonstrate the ability to implement learned concepts.

- To learn and adapt the new/upcoming technologies to enhance my knowledge.
- > To be a value creator for all our stakeholders by providing analytical solutions and make their life easy inscribing services.
- Strive to create advanced technological applications to stay ahead of the competitions.

## **Work Progress & Timeline**

Week 1 (May 20 - May 26): Onboarding and Orientation

Week 2 (May 27 - June 2): Developing a GENETIC Algorithm using Rosen Brocks Function.

Week 3 (June 3 - June 9): Learning Models

Week 4 (June 10 - June 16): Libraries for Chatbot AI

Week 5 (June 17 - June 23): Chatbot Implementation

Week 6 (June 24 - July 1): Final Review and Wrap-Up

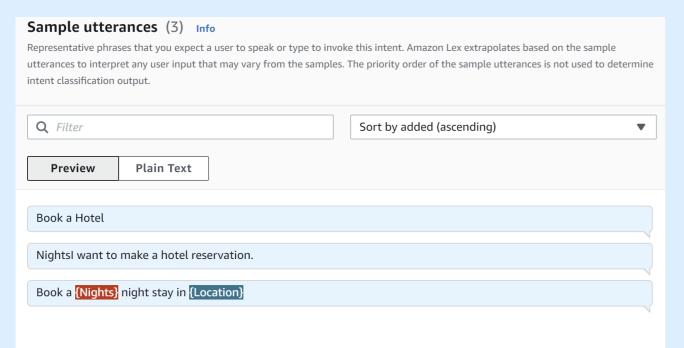
#### **Problem Statement**

## **Understanding AI/ML Fundamentals:**

Build up a clear understanding of the basics of Artificial Intelligence and Machine Learning. Learn the basic tenets, terminologies, and methodologies that set a base underpinning for these technologies.

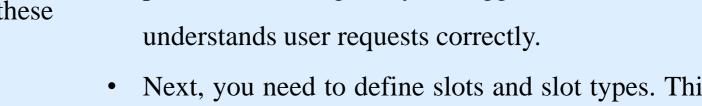
#### **Building a Chatbot AI:**

Developed a functional chatbot as a project and applied the learned AI/ML concepts. This involves designing the chatbot's architecture, implementing AWS Machine Learning services, and integrating it with a user interface. Developed a Hotel Booking chat bot. It should allow users to search for hotels, book rooms, and modify reservation. The goal is to streamline hotel booking management, enhancing efficiency and user satisfaction.



## (a) Representative Phrases

Representative phrases that you expect a user to speak or type to invoke this intent. Amazon Lex extrapolates based on the sample utterances to interpret any user input that may vary from the samples.



Add slot

 $\times$ 

 $\times$ 

 $\times$ 

 $\times$ 

• Next, you need to define slots and slot types. Think of slots as the pieces of information the chatbot needs to complete a request, and slot types as the categories or types of these pieces of information. For example, if your chatbot is booking a restaurant reservation, it might need slots for the date, time, and number of people.

Methodologies

• When building a chatbot, the first step is to set up sample utterances. These are the

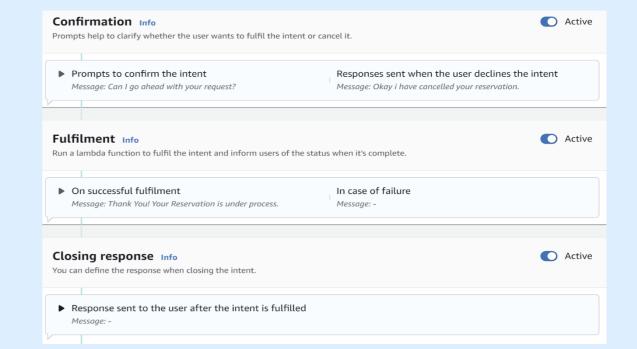
phrases users might say to trigger the chatbot's intents, so they help ensure the chatbot

There are three key phases to manage when handling user intents:

1) Confirmation

2) Fulfilment

3) Closing Response



## (b) Slots

Slot type

Slot type

Slot type

Slot type

AMAZON.City

ormation that a bot needs to fulfil the intent. The bot prompts for slots required for inten

(Information that a bot needs to fulfil the intents) Information that a bot needs to fulfil the intent. The bot prompts for slots required for intent fulfilment, in priority order below.

(c) Confirmation, Fulfilment and Closing Response Prompts help to clarify whether the user wants to fulfil the intent or cancel it. Run a lambda function to fulfil the intent and inform users of the status when it's complete. You can define the response when closing the intent.

## **Outcomes**

#### **Test Draft version Test Draft version** G Last build submitted:6 days ago Last build submitted:6 days ago Inspect Inspect What day you want to check in? Book a Hotel 05/09/2004 What city will you be staying in? What type of room do you want pune queen, king or deluxe? How many nights will you be king staying? Can I go ahead with your 3 request? What day you want to check in? yes Ready for complete testing Ready for complete testing Type a message

## **Hotel Booking Chat Bot**

Knowledge Acquisition: Developed a strong understanding of AI/ML principles. The learning process involved theoretical study complemented by practical exercises.

Chatbot Development: Built and deployed a functional chatbot capable of understanding and responding to user inputs. The chatbot demonstrated effective communication abilities, providing relevant responses.

## **Skills Acquired**

## > Technical Skills

▼ Slots (4) - optional Info

Prompt for slot: Location

Prompt for slot: Nights

Prompt for slot: CheckInDate

Message: What type of room do you want queen, king

▶ Prompt for slot: RoomType

lessage: What city will you be staying in

Conceptual Understanding: Gained a comprehensive grasp of core AI/ML principles, including supervised and unsupervised learning.

Performance Evaluation: Learned to evaluate model performance.

## > Practical Skills

End-to-End Development: Developed skills in implementing AI/ML models.

Hands-On Coding: Enhanced coding skills through practical exercises and real-world projects.

## > Analytical Skills

Problem Solving: Applied algorithms to solve specific problems and improve model performance. Data Analysis: Enhanced ability to analyse datasets, generate insights, and make data-driven decisions.

## > Soft Skills

Presentation Skills: Improved ability to present technical work clearly and effectively.

Teamwork: Gained experience working in a team environment, contributing to group discussions, and supporting. Project Planning: Improved ability to plan and execute projects within the given timeframe.

## Bibliography/Acknowledgement

Completing a task is never a single person's effort. Several prominent people have helped in the present work. A journey is easier when you travel together whereby I have been accompanied and supported by many people. It is a pleasant aspect that I have now the opportunity to express my gratitude for all of them. I would like to thank Yama Technology Pvt. Ltd. for providing me the opportunity to undergo training at their 3, Times corporate park, Thaltej-Shilaj Road, Ahmedabad.

With great pleasure, I wish to express a deep sense of gratitude to my training mentor Naimish Sir & extend my appreciation to Sanket Joshi Sir who guided & supported me throughout this period.

I prolong my sincere gratitude to Dr. Dhaval Pujara (Director, School of Technology, PDEU) & Dr. Paawan Sharma (HoD, PDEU) for supporting & providing this platform. I also thank all the teaching and non-teaching staff for their inspiration and support in overcoming challenges during the implementation.