A SELF LEARNING BOT

A PROJECT REPORT

Submitted by,

V R Shushma Reddy	20211CST0078
Tirumalasetty Mounika	20211CST0015
Nisba Kousar	20211CST0090
Karani Yuva Sahithya Preethi	20211CST0022

Under the guidance of,

Dr. Saira Banu Atham

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND TECHNOLOGY (AI-ML) .

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

BENGALURU

DECEMBER 2024

PRESIDENCY UNIVERSITY

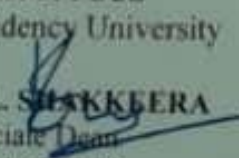## SCHOOL OF COMPUTER SCIENCE ENGINEERING

CERTIFICATE

This is to certify that the Project report **"A SELF LEARNING BOT"** being submitted by "V R Shushma Reddy, Tirumalasetty Mounika,Nisba Kousar, Karani Yuva Sahithya Preethi," bearing roll number(s) "20211CST0078, 20211CST0015, 20211CST0022, 20211CST0090" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

20/Jan/25

Dr. SAIRA BANU ATHAM
Professor,HoD
School of PSCS
Presidency University

Dr. L. SHAKKEERA
Associate Dean
School of PSCS
Presidency University

Dr. MYDHILI NAIR
Associate Dean
School of PSCS
Presidency University

Dr. SAMEERUDDIN KHAN
Pro-Vc School of Engineering
Dean -School of PSCS&IS
Presidency University

ii

PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE ENGINEERING

DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **A SELF LEARNING BOT** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Technology (AI-ML)**, is a record of our own investigations carried under the guidance of **Dr.SAIRA BANU ATHAM**, HOD,Professor,School of Computer ScienceEngineering-CST,CSG,CSD (AI&ML), Presidency University, Bengaluru.

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

> V R Shushma Reddy - 20211CST0078
> Tirumalasetty Mounika -20211CST0015
> Nisba Kousar   - 20211CST0090
> Karani Yuva Sahithya Preethi - 20211CST0022

ABSTRACT

This project focuses on the design and implementation of a self-learning chatbot that uses machine learning (ML) and natural language processing (NLP) to classify user queries. The chatbot's primary function is to determine whether a given question is tech-related or non-tech-related. By integrating supervised learning with interactive user feedback, the chatbot lays the groundwork for a dynamic system that can improve itself over time. The chatbot is built on a supervised learning model trained using a dataset of 100 labeled questions, split evenly into tech and non-tech categories. The model leverages TF-IDF Vectorization to convert textual data into numerical form and uses the Multinomial Naive Bayes Algorithm to classify the questions. This approach ensures a balance between simplicity and effectiveness, making the chatbot suitable for basic categorization tasks.In today's rapidly evolving technological landscape, developing self-learning bots with cognitive capabilities is a significant step toward improving human-machine interaction. This paper explores the design and development of a bot with natural language processing (NLP), deep learning, and transliteration cognitive capabilities, which can intelligently adapt its answers based on the user's technical ability. By learning from previous interactions, this bot enhances answer relevancy over time, providing context-aware responses for both technical and non-technical users. This research highlights a novel paradigm in bot development that leverages cutting-edge AI technologies to create more dynamic, flexible, and efficient communication tools.

The application is deployed as a web-based platform using Streamlit, an easy-to-use library for creating interactive interfaces. Users can input their questions through the interface, and the chatbot instantly responds with its classification. Additionally, a feedback mechanism allows users to confirm or correct the chatbot's predictions. This feedback is a key feature that enables the system to collect real-world data, which can later be used for retraining and improving the model, making it self-learning.This feedback loop serves as a foundation for future model refinement, aligning with the principles of self-learning and continuous improvement.The chatbot is designed with scalability and user-friendliness in mind. While the current implementation focuses on tech and non-tech questions, the same framework can be expanded to handle other categories or use cases

ACKNOWLEDGEMENT