KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)
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TEAM NO : 35

MIND MINERS

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INTRODUCTION

- With the rapid growth of the population and frequent health issues, hospitals and clinics are often overloaded. Many patients visit clinics for minor or early-stage symptoms, which increases waiting time and workload for doctors. Artificial Intelligence (AI) and Natural Language Processing (NLP) can help in providing preliminary medical guidance.
- An AI Chatbot for Symptom Triage can interact with users, understand their symptoms, predict possible health conditions, and suggest appropriate actions such as self-care, consulting a doctor, or emergency attention.

PROBLEM STATEMENT

- Overloaded clinics and hospitals struggle to handle a large number of patients efficiently. There is a lack of quick preliminary diagnosis tools that can guide patients before visiting a doctor.
- Patients often do not know whether their symptoms are serious or minor, leading to unnecessary clinic visits or delayed treatment. Hence, there is a need for an intelligent system that can analyze symptoms and provide basic medical recommendations.

PROPOSED SOLUTION

The proposed solution is to develop an AI-based NLP chatbot for symptom triage.

Key Features:

- Users enter their symptoms in natural language (text).
- The chatbot uses Machine Learning models such as BERT to understand and analyze symptoms.
- It predicts possible medical conditions based on trained medical datasets.
- The chatbot recommends suitable actions such as:
  - Home care
  - Consulting a general physician
  - Immediate emergency care
  - Integration with telemedicine APIs allows users to connect with doctors online.
- System performance is evaluated using:
- Accuracy compared with medical datasets
- User satisfaction surveys
- This system helps reduce hospital load and improves patient decision-making.

SOFTWARE AND HARDWARE REQUIREMENTS

1. **Software Requirements:**
   - Programming Language: Python
   - Frameworks/Libraries:
   - TensorFlow / Py Torch
   - Hugging Face Transformers (BERT)
   - Flask / Django (backend)
2. **NLP Tools:**
   - NLTK / Spa Cy
3. **Database:**
   - MySQL / MongoDB
4. **APIs:**
   - Telemedicine APIs
5. **Operating System:**
   - Windows / Linux
6. **Hardware Requirements:**
   - Processor: Intel i5 or higher
   - RAM: Minimum 8 GB
   - Storage: 256 GB or above
   - GPU (optional): NVIDIA GPU for faster model training
   - Internet Connection

REFERENCES

1. Devlin, J., et al. (2019). BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding.
2. World Health Organization (WHO) – Digital Health Resources
3. CDC Medical Symptom Guidelines
4. Hugging Face Documentation – https://huggingface.co
5. Research papers on AI in healthcare and medical NLP systems

CONCLUSION

The AI Chatbot for Symptom Triage provides an effective solution to reduce clinic overload by offering preliminary medical guidance. By using NLP and ML models like BERT, the system accurately analyzes symptoms and suggests appropriate actions. Integration with telemedicine services further enhances accessibility to healthcare. This project demonstrates how AI can support healthcare systems and Improve patient experience while maintaining efficiency.