Project Proposal

**Project Title:**

Bodybuilding exercise recommendation chatbot

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**Supervisor Name:**

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**Project Category/Topic:**

AI projects

**Project Aim:**

1. Aim: What you wish to achieve?

According to the World Health Organization, there are getting tripled people who have obesity and overweight problem since 1975. Furthermore, the WHO recommends people to choose healthier foods and regular physical activity are the simplest way to prevent overweight and obesity. Base on this issue, I wish I can build an application to help people who want to through the exercise and weight training to reduce the weight, but they do not know how to start with this. This chatbot can give the related bodybuilding YouTube video link or article to help them to figure out the question and let them learn these training skills efficiently.

1. Significance: Why is the project important?

For the beginner, they are not familiar with what kind of motions are right or how should they do to build the muscle. If they do not know how to use the training machine, they will get injured. Because the training position is incorrect or muscle compensation. However, if we can ask the question before exercising, and it will give you the YouTube video link or article to tell you what should you do during training and how to prevent the injury. It could help you do more with less.

Additionally, for advanced, they still can use this application to learn more about workout training video, how to release the muscle to help them be better.

1. Relevance: Your project needs to have an AI and/or robotics content, what is it?

The project needs to use natural language processing to help us analyse what the user said. Through training, return the proper answer to the user.

**Related Work:**

1. Abdul-Kader, S. A. & Woods, J., 2015. *Survey on Chatbot Design Techniques in Speech Conversation Systems*

This paper introduces the fundamental design pattern, Natural Language Toolkit and chatbot strategies. Furthermore, there has a comparison between the Loebner Prize-winning Chatbot techniques and others.

1. Dahiya, M. & Dahiya, M., 2017. Network Security View project A Tool of Conversation: Chatbot. *Article in INTERNATIONAL JOURNAL OF COMPUTER SCIENCES AND ENGINEERING.*

This paper focuses on introducing many important rules when you design the chatbot and implement process should be noticed. This article gives a simple method to help me to build the chatbot flow.

1. Handoyo, E. et al, 2018. *Ticketing Chatbot Service using Serverless NLP Technology.* Institute of Electrical and Electronics Engineers Inc., pp. 325-330.

This paper uses serverless NLP technology and JS to implement the chatbot and introduces chatbot architecture, conversational flow, and data matching testing. Additionally, it discusses about execution time is affected by the different conversation.

**Project Objectives/Deliverables:**

* 2-5 concrete and measurable project objectives.
* For each objective, a one line description of how you measure successful delivery.

1. Literature review

* List and analyse the related literature.

1. Application form

* Provide an application window form to let the user can type their question and communicate with the chatbot.

1. Data category

* A list of different query tags and corresponding replies.

1. Data Processing

* To analyse the user’s question and categorize every signal word. Then return the proper answer.
* Explain why these objectives are sufficient to achieve your project aim.

Through these objectives to let the user can get the closest answer which they want to know to achieve the aim.

**Methodology:**

* Description of approach to solve the problem.

1. Resource collection. (For bodybuilding)
2. Data collection. (For query)
3. Produce the user interface.
4. Training data
5. Data processing

**Project plan:**

* Feasibility: Explain why your skills/expertise and the available resources are sufficient to complete the project in time.
* I have experience in C language and get a high module mark in "Software workshop." I believe I can handle a new program language.
* I have some experience of workout and watch the workout video on YouTube in my leisure time. These matters would help me to set the proper dataset.
* Gantt chart with tasks and milestones, reflecting the project objectives/deliverables.
* Explanation of Gantt chart

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tasks** | **Objectives** | **Start date** | **End date** | **Duration(days)** | **Dependencies** | **Milestones** |
| T1 | Project proposal | 6/8 | 6/19 | 11 | - | - |
| T2 | Literature review  & Architecture design | 6/19 | 6/26 | 7 | T1 | M1 |
| T3 | Learning Python & open source library | 6/19 | 7/24 | 35 | T2 | M2 |
| T4 | Data/resource collection | 6/26 | 7/3 | 7 | T2 | M3 |
| T5 | Program the whole process | 6/26 | 8/5 | 40 | T3 & T4 | M4 |
| T6 | GUI set up | 8/5 | 8/12 | 7 | T5 | M5 |
| T7 | Testing | 8/12 | 8/17 | 5 | T6 | M6 |
| T8 | Project demonstration | 8/17 | 8/21 | 4 | - | M7 |
| T9 | Complete the project report | 6/19 | 9/4 | 77 | T1 | complete |

**Risk and contingency plan:**

* What might happen that would prevent you from reaching the project objectives?
* If my laptop broke, it is hard to find a temporary computer. Because the University Lab would not open during the CONVID-19 pandemic.
* What are the particularly difficult aspects of the project which you are worried about completing?
* Learn the new programming language.
* Be familiar with the open-source library.
* Collect the bodybuilding resource.
* What is your contingency plan if there are problems?
* I will list the problem and discus with my supervisor at weekly meeting. If urgent issue, I will send the e-mail to contact my supervisor immediately.

**Hardware/Software Resources:**

* What HW/SW resources will be required to complete the project?
* This project may use the open source library.

**Data:**

* What datasets (if any) are required to complete the project?
* The dataset of the corresponding exercise article / YouTube Link.
* The dataset of possible query.