IN PARTNERSHIP WITH PLYMOUTH UNIVERSITY

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Module Code: PUSL2021	Module Name: Computing Group Project (23/AY/AU/M)
Coursework Title: Group B99 Proposal for Computing Group Project	
Deadline Date: 25th October 2023	Member of staff responsible for coursework: Mr. Pramudya Hashan Thilakarathne
Programme: BSc (Hons)Computer Science	

Please note that University Academic Regulations are available under Rules and Regulations on the University website www.plymouth.ac.uk/studenthandbook.

Group work: please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.

01	CS Kariyapperuma	10898795	Organizing and finalizing the proposal, content writing. Defining the time plan, researching
02	HV Rahulan	10898881	Making the Gannt chart, Researching
03	Afsaan MNM	10898728	Researching, Bring out the main idea to the project
04	KGBA Kithulgoda	10899318	Researching, Defining the time plan
05	TDW Wikramasingha	10899427	Researching, guiding other parts
06	GSD Senarathne	10899427	Researching

I state that the group work was carried out by the team collaboration and teamwork of all the team members in the group.

We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.

Signed on behalf of the group: Afsaan MNM

Individual assignment: ***I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.***

Signed :

Use of translation software: failure to declare that translation software or a similar writing aid has been used will be treated as an assessment offence.

I *have used/not used translation software.

If used, please state name of software……

Overall mark _____% Assessors Initials _____ Date_____

Execute summary - Depression Management Chatbot Project

Our Depression Management Chatbot project attempts to bridge the gap between those in need and available solutions in an era when mental health concerns are becoming more prevalent and often disregarded. Depression is a common mental health disorder that has far-reaching consequences for individuals and society, and our project aims to provide accessible, quick, and empathic support.

The Depression treatment Chatbot is intended to be a caring and discreet virtual companion, providing a secure area for people to express themselves, gain vital information, and learn about successful depression treatment practices. This initiative is based on four main goals.

- Advanced Conversational AI:

We are working on a highly advanced conversational AI chatbot that can understand and respond to the emotions and requirements of users. To deliver individualized assistance, the chatbot employs powerful Natural Language Processing (NLP) and Machine Learning (ML) algorithms.

- Comprehensive Support:

The chatbot is a one-stop shop for information, tools, and guidance on depression treatment, self-help approaches, and crisis intervention. It seeks to improve the well-being of persons suffering from depression.

- Engagement and Trust:

The chatbot interacts with users in an empathic and natural language style to ensure user engagement and trust. This contributes to the creation of a safe and nonjudgmental environment in which people can freely express their emotions.

- Continuous Improvement:

The project contains a data gathering component to collect anonymized and non-identifiable data for the chatbot's capabilities to be continuously improved. This information will be useful in developing the chatbot and ensuring that it remains responsive to changing user needs.

The project has a five-month timeframe, which includes planning, analysis, UI design, database design, frontend and backend programming, testing, and implementation. We place a high value on data privacy and security, ensuring that users' personal information is kept private. This initiative is at the crossroads of technology and mental health care. It aims to decrease the stigma associated with depression, raise awareness, and provide urgent assistance to those in need. The Depression Management Chatbot strives to create a more compassionate and aware society that is concerned about the emotional well-being of all its members.

Finally, this project exemplifies inventiveness, sensitivity, and a dedication to improve the mental health of people suffering from depression. It represents our commitment to provide accessible, thorough, and compassionate care to persons suffering from depression.

Acknowledgement

We would like to offer our heartfelt appreciation to the following people:

- Those who shared their experiences and helped shape the Depression Management Chatbot. Mr.Pramudya and Mr.Anton for their helpful advice.
- Members of our hardworking project team.
- Institutions and organizations are supported.
- Academicians and professionals in relevant subjects.
- Thank you to our families and friends for your unwavering support.

Your donations have been critical to the success of our project, and we are devoted to using technology to improve mental health.

Thank you very much!

Sincerely,

C.S.Kariyapperuma

Planning leader of the group.

TABLE OF CONTENT

1. Project overview and introduction

Depression is a common and debilitating mental illness that effects millions of individuals worldwide. Because it can be a silent and solitary battle. It is critical to give accessible and prompt assistant. To address this critical issue, we suggest the creation of a Depression Management Chatbot.

We are planning to create strong AI powered tool designed to provide emotional support, knowledge, and better service to people who are depressed.

Depression can cause emotions of loneliness and hopelessness. That is why we want our chatbot to be a non-judgemental and empathic virtual companion. It will provide a secure environment to users to vent their emotions, learn about depression, practice coping methods, and locate resources for professional support when necessary.

The goal of the chatbot is to connect person in need with accessible resources. it's a kind and discreet virtual companion who provides people with a safe space to express themselves and get help. Our chat bot is intended to replace expert assistant, but rather supplement it by being available at any time of the day. Most of the depressed people are don't like to open to others, share things with others and don't like to open talk. So, we think this will be a great support for them.

Our Depression Management Chatbot is a necessary and critical project in an increasingly digital environment. It is consistent with World Health Organizations mission of promoting mental health. And the target of reducing the global burden of depression.

This project demonstrates our dedication to offering thorough, empathetic, and accessible support to people dealing with this difficult mental health condition. We believe that by developing this chatbot, we may help to build a more sympathetic and connected society that values emotional wellbeing of all its members.

Our project aims to give hope to individuals in need to let them know THEY ARE NOT ALONE! We are here to equip them with resources to effectively manage their depression. This heralds a new age in the junction of TECHNOLOGY and MENTAL HEALTH, one in which innovative empathy combine to make a good difference in the lives of those afflicted by depression if we work together.

2. Objectives of the project

- Create a conversational AI chatbot that can understand and respond to the emotions and wants of users.

  Our major goal is to develop a highly advanced conversational AL chatbot capable of successfully comprehending and responding to customers emotions and wants. To access their inputs, comprehend emotional nuances and provide contextually relevant responses.

  The chatbot should use sophisticated natural language processing and Machine learning techniques. Individuals suffering from depression should be able to receive individualized support from it.

- Provide depression management information tools and assistance as well as self-help approaches and crisis invention.

  The chatbot will be a complete source of depression management information, resources, and guidance.

  It should provide customers with information about depression, including its symptoms, treatment choices and self-help approaches.

  It should also be equipped to give crisis intervention support such as helpline numbers and emergency resources for users in need of immediate assistance.

- Increase user engagement and trust by using empathic and natural language interaction.

  The chatbot will be created in interacted with users in an empathic and natural language style to ensure user engagement and trust. Conversations should feel human and emotionally helpful, instilling trust and comfort in users.

  These interactions will be crucial in establishing a safe and nonjudgmental environment in which user can openly express their emotions and concern.

- Gather anonymised and non-identifiable data to improve the chatbots capabilities over time.

The collecting of anonymous and non-identifiable user data will be critical in the continual improvement of the chatbots skills. our goal is to gather information about user interaction, common complaints, and the effectiveness of supplied support.

This data will be used to guide continuing adjustments and enhancements, ensuring that the chatbot remains current and responsive to users changing demands.

These specific goals serve as a roadmap for the Depression Management Chatbot project. They include the creation of a smart chatbot, the provision of important resources, the value of user interaction and trust and a commitment to continuous improvement and responsiveness to user feedback.

This strategy ensures that the projects objective to effectively serve those coping with depression is holistic.

3. Target users

Our depression management chatbot is intended for following audiences.

- Individuals suffering from depression who require immediate emotional help and advice on how to manage their illness.

  This chatbot is a great resource for those who are depressed and require urgent emotional. Assistance as well as advice on how to manage their illness .it provides a safe, non-judgemental setting in which they can express their thoughts and have access to pertinent information and self-help tools.

- Friends and family members who wants better understanding and support their depressed loved ones.

  The chatbot is also intended for friends and family members who want to better understand depression and properly support their loved ones. It provides useful information and insights, allowing people to provide empathy and assistance to those they care about who are depressed.

- Mental health providers seeking a supplement to offer to their patients.

  Therapists and counsellors, for example, can utilize the chatbot as an additional tool to recommend to their patients. It provides resources, knowledge, and crisis intervention assistance, so improving the whole mental health support ecosystem.

  The Depression Management Chatbot aims to create a support network that extends beyond individuals experiencing depression, involving their support systems and mental health professionals to collectively address the challenges posed by this mental health condition by catering to these user groups.

4. Proposal Technologies and tools

- Natural language processing (NLP): A technique for understanding and producing human like text bases answers.

  NLP is the foundation for comprehending and producing human-like text-based replies. It allows the chatbot to understand human input, recognize emotional cues, and respond in a conversational and compassionate manner.

- Machine learning: To train the chatbot to respond contextually and enhance its performance over time.

  Machine Learning is essential in teaching the chatbot to provide context-aware responses. It enables the chatbot to learn from user interactions and improve its performance over time, making it a more effective and helpful companion.

- Cloud computing: For scalable and dependable chatbot hosting.

  The use of cloud infrastructure is critical for scalable and dependable chatbot hosting. Cloud services, such as AWS, Azure, or Google Cloud, provide the resources required for the chatbot to operate smoothly and support an increasing user base.

- security measures: include the use of encryption and access restriction to protect user data.

  The safety of user data is of the utmost significance. We will utilize encryption methods and access control mechanisms to protect user data when engaging with the chatbot, preserving their privacy and confidentiality.

- User interface: The creation of easy-to-use web and mobile interfaces.

  We will create user-friendly online and mobile interfaces to make it easier for people to get information. A well-designed user interface improves the user experience by making it easy and intuitive for people to interact with the chatbot.

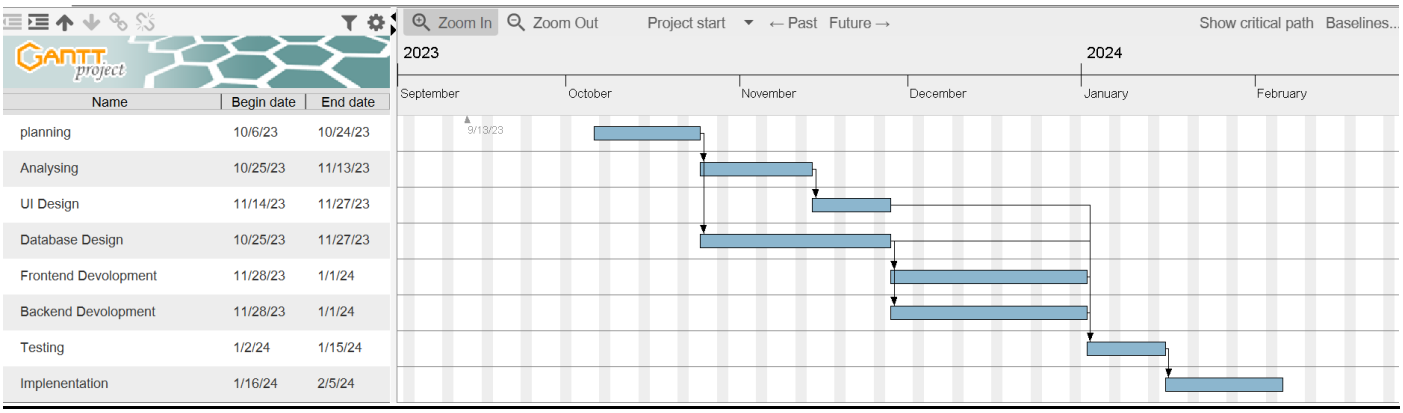
  These technologies and techniques, when combined, form the framework for developing a smart, safe, and user-friendly Depression Management Chatbot that can provide users with vital help and information.

5. Time plan

➢ Project Breakdown Chart

Task ID	Task Name	Duration(weeks)	Dependency
01	Planning	4	
02	Analysing	3	01
03	UI Design	2	02
04	Database Design	5	01,02
05	Front end Development	5	04
06	Backend Development	5	04
07	Testing	2	03,04,05,06
08	Implementation	3	07

➢ Gannt Chart of Project Breakdown



6. References

• Depression: World Health Organization Source: https://www.who.int/newsroom/fact-sheets/detail/depression

• Depression: National Institute of Mental Health NIMH website: https://www.nimh.nih.gov/health/topics/depression/index.shtml

• Research Papers for Academic Purposes: Investigate academic publications on chatbots, AI in mental health, and NLP to build a scientific foundation for your project.

• Google Dialog flow: Please see https://cloud.google.com/dialogflow for more information.