



## Sri Lanka Institute of Information Technology

### PROJECT REGISTRATION FORM

(This form should be completed and uploaded to the Cloud space on or before XXXXXXXXX)

The purpose of this form is to allow final-year students of the B.Sc. (Hon) degree program to enlist in the final-year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), the external supervisor (may be from the industry), and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

PROJECT TITLE

(As per the accepted  
Topic Assessment Form)

The Future of Ayurveda: Harnessing the Power of Artificial Intelligence  
for Personalized Treatment and Diagnosis

RESEARCH GROUP

(As per the Topic  
Assessment Form)

Artificial Intelligence and Machine Learning

PROJECT NUMBER

(Will be assigned by the RP Team)

PROJECT GROUP MEMBER DETAILS: (Please start with the group leader's details)

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
1	Maduwantha K.A.I	IT20069186	+94769007598	<a href="mailto:it20069186@my.sliit.lk">it20069186@my.sliit.lk</a>
2	De Silva A. S	IT20166038	+94713698718	<a href="mailto:it20166038@my.sliit.lk">it20166038@my.sliit.lk</a>
3	Jayasinghe J.A.S.C.	IT20216078	+94769831181	<a href="mailto:it20216078@my.sliit.lk">it20216078@my.sliit.lk</a>
4	Senarathne S.M.A. D	IT20089436	+94776659628	<a href="mailto:it20089486@my.sliit.lk">it20089486@my.sliit.lk</a>

**SUPERVISOR, CO\_ SUPERVISOR Details**

<b>SUPERVISOR Name</b>	<b>CO-SUPERVISOR Name</b>
Dr. Darshana Kasthurirathna	Dr. Samantha Rajapaksha
Assistant Professor	Head   Department of Information Technology
Faculty of Computing Computer Science and Software Engineering	Faculty of Computing Information Technology

<b>EXTERNAL SUPERVISOR Details</b> (if any, may be from the industry)				
				<b>Attach the email as Appendix 3</b>
<b>Name</b>	<b>Affiliation</b>	<b>Contact Address</b>	<b>Contact Numbers</b>	<b>Signature/Date</b>
Dr. Wasantha Janaki Wickramarachchi	Dean, Faculty of Indigenous Medicine, Gampaha Wickramarachchi University of Indigenous Medicine, Kandy Road, Yakkala	deanfim@gwu.ac.lk	077-742-3000	

<b>ACCEPTANCE BY CDAP MEMBER</b> (This part will be filled by the RP team)		
<b>Name</b>	<b>Signature</b>	<b>Date</b>

## PROJECT DETAILS

## Brief Description of your Research Problem: (extract from the topic assessment form)

The fast-paced, modern lifestyle often leads to an imbalance in daily activities, poor diet, lack of exercise and leisure time, and excess work-related stress, leading to poor health and unhappiness. Although Ayurveda offers alternative solutions for various non-communicable diseases, people find it challenging to identify the necessary herbs and treatments and consult with doctors in a timely and affordable manner. The cost of western medicine can also be prohibitive, and not all diseases are curable. From the proposed solution, it is expected to help in user to find Ayurvedic based treatments for several symptoms interactively.

The availability of herbal plants and medicines is also limited, and most of the time modern generation of people has less knowledge about identifying plants, and even if they know them, it is hard to find them as there is no direct place to find their locations which are nearest to them.

Even though there are several platforms which are helping people to find doctors it can be hard to find a qualified Ayurvedic doctor within a specific geographical area and obtain reviews of them in a convenient way.

There is a dearth of online platforms where people can exchange information and knowledge about Ayurveda and related topics. Even though several communities in existing social media relating to health, they have many problems such as duplication of content, absence of search functionality to search required content, if required content has been asked a long-time back user must spend more time searching for that, users may not be able to get recommendations based on its activity which may help user to find required content easily, etc.

While addressing aforementioned shortcomings the proposed solution will be incorporating with continual learning to improve and update developed supervised machine learning models to service users with up-to-date data. This will be improving the productivity of the proposed solution.

**Main expected outcomes of the project: (extract from the topic assessment form)**

We present a creative solution to help individuals achieve a healthier lifestyle through Ayurveda as described in the previous section. During the research we expecting to address Ayurvedic treatments and common healthy guidelines for following symptoms specifically.

- Arthritis (joint inflammation)
- Blood Sugar (Glycemia)
- Hair Loss
- Infertility
- Obesity
- Paranasal Sinusitis (Peenasa)
- Cuts/Scratches/Swellings

The proposed solution will be help in finding appropriate Ayurvedic treatments and medical herbs based on above symptoms specifically and common healthy lifestyle guides. It will be consisting of a conversational AI chatbot which provides a user-friendly platform for individuals to receive personalized solutions and advice through text. It will be using a knowledge base which contains all the information relating to above mentioned symptoms and their treatments.

The proposed solution will be consisting of an image processing-based component to identify herbal plants that are needed for treatments of these diseases. Furthermore, there will be a component based on a geometry library to map out the locations where those identified herbs are available and to create a connection between patients and Ayurvedic doctors within a specific geographical area.

There will be a social network in the proposed solution which can discuss health related knowledge. Content sharing inside here which are specifically relating to health will be collected and stored in the knowledgebase aforementioned. They will be used to service chatbot implementation by labeling as community knowledge.

To maintain the consistency of the proposed solution it will be using auto-machine learning, to service users with up-to-date data inside the application as well as to help in users with symptoms which can be added later.

During the development of the solution, it will be required experienced Ayurvedic-related expertise resources. For supervised machine learning algorithm-based solutions such as herb identification, chatbot, social network implementation, we expect to collect data through various publicly available social network communities relating to health and images of herbs and details of Ayurvedic doctors with their locations from relevant backgrounds.

### WORKLOAD ALLOCATION (extract from the topic assessment form after correcting the suggestions given by the topic assessment panel.)

(Please provide a brief description of the workload allocation)

MEMBER 1	Maduwantha K.A.I
<p>A healthy lifestyle approach using Ayurveda which <b>recommend basic treatments for conditions and will suggest appropriate Ayurvedic treatments</b> and medical herbs based on known symptoms and common health problems. A <b>conversational AI chatbot</b> will be developed as a platform for users to receive solutions through text.</p> <ul style="list-style-type: none"> <li>• Research and gathering information on non-communicable diseases such as high blood pressure, diabetes, and kidney diseases.</li> <li>• Creating a knowledge base of symptoms and common health problems related to each disease.</li> <li>• Pre-processing and cleaning the data to prepare it for AI modeling.</li> <li>• Training an AI model on the database to identify patterns and relationships between symptoms, common health problems, and Ayurvedic treatments and medical herbs.</li> <li>• Evaluating the performance of the AI model on a validation set.</li> <li>• Fine-tuning the model to improve its accuracy.</li> <li>• Implementing the AI model in a software application or website.</li> <li>• Verifying the accuracy and validity of the suggestions made by the software application through consultations with Ayurvedic experts.</li> </ul> <p>And as the novelty,</p> <ul style="list-style-type: none"> <li>• A conversational AI chatbot that allows users to text and receive solutions for non-communicable diseases through Ayurveda.</li> </ul> <p>The knowledge base will be updated and improved.</p>	

MEMBER 2	De Silva A.S
<p><b>Identification of ayurvedic medical herbs</b> which are needed for treatments for the above-mentioned diseases using Image processing through training machine learning models and <b>mapping of herbal plants with locations.</b></p> <p>Collection of images of different ayurvedic herbs and labeling them.</p> <ul style="list-style-type: none"> <li>• Pre-processing of the collected images, such as resizing and normalization</li> <li>• Splitting the data into training, validation, and testing sets.</li> <li>• Training a machine learning model using pre-processed image data.</li> <li>• Evaluating the model on the validation set to identify areas of improvement.</li> <li>• Collecting and processing large amounts of image data from various geographical areas to map the distribution of herbal plants.</li> <li>• Fine-tuning the model based on the evaluation results.</li> <li>• Testing the final model on the testing set to measure its accuracy and robustness.</li> <li>• Implementing the model in a software application for practical use.</li> </ul> <p>As novelty improvement,</p> <ul style="list-style-type: none"> <li>• Using continual learning/transfer learning to improve accuracy. Also, can incorporate Auto Machine Learning to make it easier to add new plants.</li> </ul>	





MEMBER 3	Jayasinghe J.A.S.C
<p><b>Develop a social network</b> to exchange health-related information. This will be consisting,</p> <ul style="list-style-type: none"> <li>• Post classified questions, articles and drop comments on them.</li> <li>• Record each user's activities inside the social network platform which are posted, viewed, searched, and commented content.</li> <li>• Provide related and trending recommendations on homepage and periodic notifications based on user's past activity history and personalized preferences.</li> <li>• Natural Language Processing-based solution for,             <ol style="list-style-type: none"> <li>I. Detect duplications before posting a classified question or an article in real time and implementation of an enhanced search functionality to explore related and trending content.</li> <li>II. Update a knowledgebase of information and treatments for illnesses using the content in posted articles and commented texts for posted questions by labeling them as community knowledge periodically.</li> </ol> </li> </ul>	

MEMBER 4	Senarathne S.M.A.D
<p>Building more emphatically connection between the patient and ayurvedic doctor, locating the best and nearest doctor.</p> <ul style="list-style-type: none"> <li>• Database creation: Gather information on local Ayurvedic doctors.</li> <li>• Doctor ratings and reviews: Allow patients to rate and review local Ayurvedic doctors to help other patients make informed decisions.</li> <li>• Location-based recommendations: Develop an algorithm that recommends local Ayurvedic doctors and physical training facilities based on the patient's location and specific needs.</li> </ul> <p>As Novelty,</p> <ul style="list-style-type: none"> <li>• Natural language processing: The platform could provide an opportunity to develop and test natural language processing algorithms for analyzing doctor ratings and reviews.</li> </ul> <p>Machine Learning: To train the AI model on a large dataset of patient symptoms and doctor specializations, and to make predictions based on new patient symptoms.</p>	

**DECLARATION (Students should add the Digital Signature)**

"We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will constitute offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year".


	<b>STUDENT NAME</b>	<b>STUDENT NO.</b>	<b>Signature</b>
1	Maduwantha K.A.I.	IT20069186	
2	De Silva A.S	IT20166038	
3	Jayasinghe J.A.S.C.	IT20216078	
4	Senarathne S.M.A.D	IT20089436	



## Appendix 1:

1. Social Media Analytics for Smart Health [[Social Media Analytics for Smart Health | IEEE Journals & Magazine | IEEE Xplore](#)]
2. Extracting Medical Concepts from Medical social media with Clinical NLP Tools: A Qualitative Study: Kerstin Denecke University of Leipzig Semmelweisstr. 14, Leipzig, Germany
3. Deep Learning Techniques on Text Classification Using Natural Language Processing (NLP) In Social Healthcare Network: A Comprehensive Survey: PM. Lavanya Department of Information Technology Easwari Engineering College Rampuram, India, E. Sasikala Department of Computer Science and Engineering SRMIST
4. Emerging Topic Detection on Twitter based on Temporal and Social Terms Evaluation: Mario Cataldi Università di Torino Torino, Italy [cataldi@di.unito.it](mailto:cataldi@di.unito.it), Luigi Di Caro Università di Torino Torino, Italy [dicaro@di.unito.it](mailto:dicaro@di.unito.it), Claudio Schifanella Università di Torino Torino, Italy [schi@di.unito.it](mailto:schi@di.unito.it)
5. Conceptual modeling for ETL processes [[Conceptual modeling for ETL processes | Proceedings of the 5th ACM international workshop on Data Warehousing and OLAP](#)]
6. A difference of multimedia consumer's rating and review through sentiment analysis [[A difference of multimedia consumer's rating and review through sentiment analysis | SpringerLink](#)]
7. Unhappy Patients Are Not Alike: Content Analysis of the Negative Comments from China's Good Doctor Website [[Journal of Medical Internet Research - Unhappy Patients Are Not Alike: Content Analysis of the Negative Comments from China's Good Doctor Website \(jmir.org\)](#)]

## Appendix 2:



**SLIIT**  
THE KNOWLEDGE UNIVERSITY

**IT4010 – Research Project - 2023**  
**Topic Assessment Form**

10. Supervisor checklist (supervisors should fill sections 10 and 11)

a) Is this research problem valid?  
 Yes ☒ No ☐

b) Is the proposed research group correct?  
 Yes ☒ No ☐

c) Is the proposed research area correct?  
 Yes ☒ No ☐




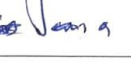
d) Do the proposed sub-objectives match the students' specialization?  
 Yes ☒ No ☐

e) Is the required domain expertise, knowledge, and the data available either through the supervisor or external supervisor?  
 Yes ☒ No ☐

f) Is the scope of the solution practical?  
 Yes ☒ No ☐

g) Do all sub-objectives have sufficient novelty?  
 Yes ☒ No ☐

11. Supervisor details

	Title	First Name	Last Name	Signature
Supervisor	Dr	Darshana	Kasthurira - thna.	
Co-Supervisor	Dr	Samanth	Rajy L	
External Supervisor	Dr.	Jamaki	Wickramara - chechi	
Summary of external supervisor's (if any) experience and expertise MD. Ay J. Ph.D, 30yrs. experience in clinical. 				

Page 9 of 12