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), 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)	Health App: Food Allergy Prevention, Non-communicable Diseases Prediction, and Calories Tracker

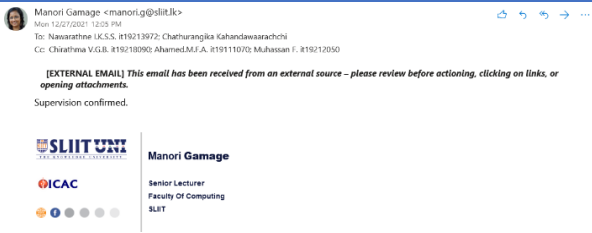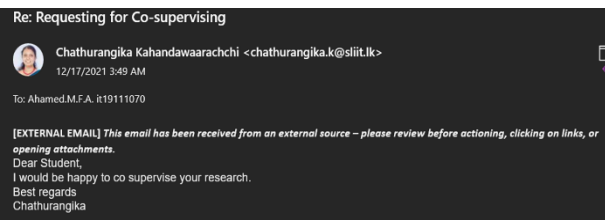| RESEARCH GROUP **(as per the Topic assessment Form)**	TMP-22-080

PROJECT NUMBER		(will be assigned by the lecture in charge)

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

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
1	Nawarathne I.K.S.S.	IT19213972	0704447220	it19213972@my.sliit.lk
2	Ahamed M.F.A	IT19111070	0776989262	it19111070@my.sliit.lk
3	V.G.B.Chirathma	IT19218090	0716617431	it19218090@my.sliit.lk
4	Muhassan Faizal	IT19212050	0762630824	it19212050@my.sliit.lk

SUPERVISOR, CO_ SUPERVISOR Details

SUPERVISOR Name	CO-SUPERVISOR Name
Ms. Manori Gamage	Ms. Chathurangika Kandawaarachchi
Signature	**Signature**
12/27/2021	12/17/2021
Date	**Date**

EXTERNAL SUPERVISOR Details (if any, may be from the industry)

Dr. Ridmika Senevirathne	Medical Doctor	Police Hospital Kundasale, Kundasale.	071 662 9029	01/10/2021
Name	Affiliation	Contact Address	Contact Numbers	Signature/Date

ACCEPTANCE BY CDAP MEMBER (This part will be filled by the RP team)

Name	Signature	Date

PROJECT DETAILS

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

A food allergy is an abnormal immune response to food. [1]. The symptoms of the allergic reaction may range from mild to severe. [1]. They may include itchiness, swelling of the tongue, vomiting, diarrhea, hives, trouble breathing, or low blood pressure. [1] The patient/user should enter the food items he consumed within 24 hours and symptoms into the application. Food allergy symptoms usually develop within a few minutes to two hours after eating the offending food. [2].

The majority of the people have no idea whether they have allergies to what they eat and what side effects they would get due to consuming a portion of food. Also, there have been several problems identifying the ingredients of products that are allergy for several people. [3]. Some food codes do not clearly describe the ingredients. Finding the ingredients printed in small letters and finding it is challenging and time-consuming. Also, consumers should be able to test their foods for allergies and find proper spots to find their allergy-free food whenever and wherever they are. Traditional laboratory-based detection technologies are often unsuitable for consumers due to the requirement of a scientific background. As a result, developing a convenient and straightforward solution linked to human lives as detectors to improve user accessibility is critical.

References:

[1] National Institute of Allergy and Infectious Diseases (July 2012). "Food Allergy An Overview" (PDF). Archived from the original (PDF) on 5 March 2016.
[2] Food allergy By Mayo Clinic Staff

[3] Food Allergies: What You Need to Know by [U.S FOOD AND DRUG Administration]

Description of the Solution: (extract from the topic assessment form)

Our proposed website allows users to do multiple functionalities, allowing them to search for nearby restaurants that return a list of restaurants ranked by allergy-friendly rating. And find allergen foods where Users are expected to enter the ingredients they are allergen to when creating the profile for the first time. Based on that, the system provides the recommended foods that are allergy-free, which helps the user quickly figure out the foods free from those ingredients randomly.

Users have the privilege to enter their symptoms into the system and gain an overview idea of what allergy do they have, quick remedies to be taken and the nearest clinic to reach.

Users also can keep track of what foods they are having, the time of the meal, the location where the food was had, and the food type (breakfast, lunch, dinner, and snacks) in the food diary of our app, which helps the users to backlog the data if needed.

For users' convenience, this application allows to scan the processed food using the barcode scanner and provide the detailed information ingredients in it, separating the allergen ingredient that the relevant user is allergen and at the same time users can search for a particular food too.

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

1. Make people acquainted with their daily meal habits, food allergies, and calorie intake.

2. Tracing the user-known allergy and the allergens entered by the user and recommending the specific allergy-friendly recipes and food items to the user.

3. Keep track of Food intake, Nutrients, and calories in the food diary of the app.

4. Analyze the symptoms entered by the user and predict the allergy that the user has and the food item or the allergens that caused the allergy.

5. Generation of PDF reports containing information such as; the system predicted food item/allergens, symptoms entered by the user, any other relevant symptoms (detected by the application itself), the system predicted allergy, images, quick remedies to be taken, and outcomes.

5. Predict non-communicable diseases and solutions to avoid those diseases based on the patient's meal plan.

WORKLOAD ALLOCATION (**extract from the topic assessment form after the correction suggested by the topic assessment panel.**)
(Please provide a brief description about the workload allocation)

MEMBER 1	**Analyze the symptoms entered by the user and predict the allergy that the user has and the food item or the allergens that caused the allergy.**

The patient/user should enter the food items he consumed within 24 hours and symptoms into the application. (Food allergy symptoms usually develop within a few minutes to two hours after eating the offending food. Therefore the time duration may depend on the item the user has taken. Usually, an allergy occurs due to drugs, food, cosmetic applications, etc. But here, In order to narrow down the scope, we have focused on Allergies due to food consumption. Therefore the proposed system would primarily focus on food allergy and its symptoms.)

Then the system shall analyze (using machine learning and deep learning) the symptoms entered by the user and predict the allergy that the user has and the food item/allergens that caused the allergy. Then a report card (PDF version) will be issued based on the patient's symptoms and the food. The report shall contain information such as; the system predicted food item/allergens, symptoms entered by the user, any other relevant symptoms (detected by the application itself), the system predicted allergy, images, quick remedies to be taken, and outcomes.

The data collection and information gathering for the study will be acquired with the help of trustworthy outsources from the medical sector. And these reports shall maintain around 95% accuracy so that they can be shown to a doctor and minimize the side effects of the allergies.

MEMBER 2	**Tracing the user-known allergy and the allergens entered by the user and recommending the specific allergy-friendly recipes and food items to the user.**

 The user may be sensitive to some allergies and already know about them. Therefore, they can enter the allergy and allergens that may cause the particular allergy. Once the details are entered into the system, the system will analyze the components and the ingredients and deliver the recipes and food items that do not have those specific allergens.

MEMBER 3	**Predicting non-communicable diseases using the user's daily meal plans and recommending health tips to avoid those diseases.**

This system shall gather the user's daily meal plan for a week. The user has to enter Carbohydrates, Fats, Proteins, Vitamins, Minerals, Water in his meal plan separately. The user must enter their meal plan into the system for exactly one week. After a week, the system calculates them. Then according to those calculations, the system predicts whether this meal plan is healthy or unhealthy, and non-communicable diseases can be contracted after some years if the user follows this meal plan every week. The system gives these predictions based on created datasets. And according to that system recommends healthy meal plans and exercises, etc. This is a long-term prediction, and here, I use machine learning architecture to build my component.

MEMBER 4	**Keep tracking of Food intake, Nutrients, and calories in the food diary of the app**

This component of the application allows the user to keep track of foods they intake along with the relevant calories. As this component will be helpful for the user to backlog their daily intake and their

eating pattern which might be helpful in recalling the food log incase if they happened to have any allergens in the later period.
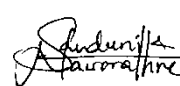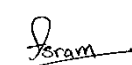
Users are expected to enter what they intake into app along with other several factors such as the time, location and food type, if the relevant food is supposed to be containing allergen ingredients that the user is allergen of it'll be notified to the user.

The calorie tracker is an added functionality which helps the user to make better choices and it lets you know exactly how much food you should eat and plan meals accordingly. Tracking calories can help you identify which foods are more nutrient dense and which foods lack nutritional value. The main objective of this is to provide a better lifestyle for the user.

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 construe 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".

	STUDENT NAME	STUDENT NO.	SIGNATURE
1	Nawarathne I.K.S.S.	IT19213972	
2	Ahamed M.F.A	IT19111070	

3	Chirathma V.G.B	IT19218090	
4	Muhassan Faizal	IT19212050	

Appendices

Appendix 1: Supervisor's approval

Manori Gamage <manori.g@sliit.lk>
Mon 12/27/2021 12:05 PM
To: Nawarathne I.K.S.S. it19213972; Chathurangika Kahandawaarachchi
Cc: Chirathma V.G.B. it19218090; Ahamed.M.F.A. it19111070; Muhassan F. it19212050

[EXTERNAL EMAIL] *This email has been received from an external source – please review before actioning, clicking on links, or opening attachments.*

Supervision confirmed.

SLIIT UNI
THE KNOWLEDGE UNIVERSITY

ICAC

Manori Gamage

Senior Lecturer
Faculty Of Computing
SLIIT

Appendix 2: Co-Supervisor's approval

Re: Requesting for Co-supervising

Chathurangika Kahandawaarachchi <chathurangika.k@sliit.lk>
12/17/2021 3:49 AM

To: Ahamed.M.F.A. it19111070

[EXTERNAL EMAIL] *This email has been received from an external source – please review before actioning, clicking on links, or opening attachments.*
Dear Student,
I would be happy to co supervise your research.
Best regards
Chathurangika

Get Outlook for Android

From: Ahamed.M.F.A. it19111070 <it19111070@my.sliit.lk>
Sent: Thursday, December 16, 2021 10:52:15 PM
To: Chathurangika Kahandawaarachchi <chathurangika.k@sliit.lk>
Subject: Requesting for Co-supervising

Appendix 3: External Supervisor's approval

Ridmika Seneviratne
to me ▼

Dear Students,

I went through your proposal, and the topic seems interesting. I would be happy to supervise your project as an external supervisor.
All the best for your research.

Dr Ridmika Seneviratne
Medical Officer
Police Hospital Kundasale
Kundasale

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