SCHOOL OF COMPUTING
Faculty of Engineering

Project Proposal Form MCST 1043
Sem:……1……. Session:……2024/2025……

SECTION A: Project Information.

Program Name:	**Masters of Science (Data Science)**
Subject Name:	**Project 1 (MCST 1043)**
Student Name:	ANNE DASHINI KANNAN
Metric Number:	MCS241013
Student Email & Phone:	annedashini@graduate.utm.my & +60189752110
Project Title:	Nutritional Deficiency Prediction by Region Using Machine Learning
Supervisor 1:	
Supervisor 2 / Industry Advisor(if any):	

SECTION B: Project Proposal

Introduction:

The deficiency in food nutrition has become one of the critical challenge in public health, mainly in low income and average income regions. Its been affecting tons of people leading to critical health development and economic consequences.This project uses machine learning to analyze the date sets on nutrient deficiencies and help to identify the possible risk on the regions. With the help of advance algorithms and analysis, this approach aims to provide actionable ways for healthcare providers and organizations to distribute malnutrition effectively and enhance population well being.

Problem Background:

The deficiency in food nutrition are major concern, particularly in upcoming developing countries. These deficiencies occurs from taking not proper nutrition intake with essential vitamins and minerals, such as iron,iodine, vitamin A, zinc which are very important in human growth development and health.This can lead to very serious physical issues such as impaired in development, increase in infection and health issues especially among children and pregnant women. Several factors contribute to this nutrition deficiencies, including wide population, poverty,poor dietary and regional nutrition depletion mainly in rural areas.

Problem Statement:

Nutritional deficiencies has impact the rural regions leading to serious health outcomes and changes in human developments. The challenge is able to predict the risk in nutritional deficiencies across various region by analyzing diverse datasets that include health, dietary, socioeconomic and environmental factors. The aim is to develop a model with help of machine learning to identify the high-risk ares and the factors that has been contributing to the nutritional deficiencies.

Aim of the Project:

The aim of these project is to develop a machine learning based dashboard to display and predict the risk of nutritional deficiencies across different regions by analyzing datasets including health, diet, socioeconomic and the environmental factors. With the help of this prediction, this system enable the healthcare takers and organizations to develop targeted inventions to optimize resource allocation and to improve public health outcomes.

Objectives of the Project:

1. To identify the key factors that contribute to nutritional deficiencies, such as dietary habits, incomes and environment factors.

2. To develop machine learning models to predict the risk of nutritional deficiencies in specific regions.

3. To design an interactive platform to present the predictions and visualizations to providers and stakeholders .

Scopes of the Project:

- This prediction focuses on specific regions mainly on rural areas with the flexibility to narrow down to smaller administrative.
- Predict deficiencies on main nutrient minerals such as iron, vitamins, zinc or depending on the data availability.
-Address only targeted groups like children, pregnant women, low income households.
-Creates dashboards to display reports that effectively communicate risk levels and trends to the providers and stakeholders.

Expected Contribution of the Project:

This project provide data driven predictions of nutritional deficiencies across regions enables the healthcare providers and stakeholders to identify the risk in the populations efficiently.Its also able to highlight the main key factors that been affecting to the nutrition deficiencies and help to reduce it.This project contributes by providing evidence based on live data to guide and develop for long term strategies to combat malnutrition.All these contributions are aim to create lasting impact and provide practical solutions for improving health.

Project Requirements:

Software: Programming Languages

Hardware: PC, Cloud

Technology/Technique/ Methodology/Algorithm: Python (for data analysis) , SQL (Managing user data), R (To calculate the statistics)
Clustering Algorithms, Random Forest, Decision Tree, Linear Regression.

Type of Project (Focusing on Data Science):

[/] Data Preparation and Modeling

[/] Data Analysis and Visualization

[ ] Business Intelligence and Analytics

[/] Machine Learning and Prediction

[ ] Data Science Application in Business Domain

Status of Project:

[/] New

[ ] Continued

If continued, what is the previous title?

SECTION C: Declaration

I declare that this project is proposed by:

[/] Myself

[ ] Supervisor/Industry Advisor ( )

Student Name: ANNE DASHINI KANNAN

Signature 12 NOVEMBER 2024 **Date**

SECTION D: Supervisor Acknowledgement

The Supervisor(s) shall complete this section.

I/We agree to become the supervisor(s) for this student under aforesaid proposed title.

Name of Supervisor 1:

Signature **Date**

Name of Supervisor 2 (if any):

Signature **Date**

SECTION E: Evaluation Panel Approval

The Evaluator(s) shall complete this section.

Result:

[ ] FULL APPROVAL [ ] CONDITIONAL APPROVAL (Major)*

[ ] CONDITIONAL APPROVAL (Minor) [ ] FAIL*

***** Student has to submit new proposal form considering the evaluators' comments.

Comments:

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Name of Evaluator 1: .....

....

Signature **Date**

Name of Evaluator 2: .....

....

Signature **Date**

AnneDashini_Proposal.pdf

ORIGINALITY REPORT

2%	2%	0%	0%
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PRIMARY SOURCES

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