HEALTHCARE PREDICTOR USING ML ALGORITHM

A FINAL YEAR PROJECT

Submitted by

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in partial fulfilment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

SCHOOL OF COMPUTING

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KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION

KRISHNANKOIL - 626 126

Academic Year-Even 2019-2020

School of Computing
Department of Computer Science and Engineering
Project Summary

Project Title	HEALTHCARE PREDICTOR USING ML ALGORITHM
Project Team Members (Name with Register No)	Malasree Rallapalli 9916004214 Nagalakshmi Pabbisetty 9916004107 Vamshikrishna Bandari 9916004019
Guide Name/Designation	Dr K KARTHEEBAN (Associate Professor, Department of Computer Science and Engineering)
Program Concentration Area	Prediction and Precautions
Technical Requirements	Hardware requirements: 1. 4 GB RAM with I3 core processor. 2. Hard Disk of 160GB. Software requirements: 1. Anaconda 5.3 2. MySQL 6.0 3. Windows 10 OS

Engineering standards and realistic constraints in these areas

Area	Codes & Standards / Realistic Constraints	Tick ✓
Economical	Healthcare Predictor is considered to be economical constraint than direct way of diagnosing the diseases in hospital. It is economical as it does not involve any costly tools except the system configuration.	✓
Social	The diseases the project involved and predicted are the most anticipated diseases around the world. In addition to this it also creates awareness on these diseases that people have. Hence it follows Social Constraint.	✓
Health and Safety	This project follows health and safety constraint by the means of involving people in the project to ensure their good health and safety.	✓
Sustainability	This project uses open source software including Python, scikit-learn, Flask framework and MySQL. The core part is to deploy a model to predict diseases using free technologies that being recommending users to go through the project finds its place in every student/ researcher online presence. Hence the project is sustainable.	✓

REALISTIC CONSTRAINTS

ECONOMIC CONSTRAINTS

The project budget is adequate, allocated appropriately in terms of quality, safety, functionality and performance. The cost is less due to usage of more open source software's like python, scikit-learn, MySQL. The individuals can reduce the medical expenses spent for diagnosis, doctor appointment, travelling etc. The project doesn't have any significant delays or additional costs for the users.

SOCIAL CONSTRAINTS

This project construction work could include people's involvement. The diseases we considered in this project are more frequent occurring diseases all over the world. This helps individuals to become familiar about the drugs, medicines they are consuming for prevention of disease. It creates social awareness among individuals related to particular diseases. The people can have better perspective view about precautions related to diseases. The individuals can save time by these trained models. Thus, it considers social constraints.

HEALTH AND SAFETY

The project is related to medical sector so it includes all health and safety constraints. This project helps the individuals to have a better perspective idea about the medicines they consume to prevent a particular disease and to have a better health, they are provided with safety and an ease diagnosis and analysis approach. The project demonstrates the consistency of software safety constraints, specification. The requirement elicitations are maintained in a safety manner and condition.

SUSTAINABILITY

The project has high degree of security related to user details .it is built on python framework which are open source applications. This helps user for managing time, budget, quality. It provides good end user output and initiates a gateway for future scope and research. So, whenever there is new update in the features used it freely apt to it. Thus, making the application easily available, usable and sustainable

ENGINEERING STANDARDS

This project complies to **2755-2017** - IEEE Guide for Terms and Concepts in Intelligent Process. This standard is intended to provide a set of definitions established by and for the community involved with *software-based intelligent process automation* **(SBIPA)** so that when terminology is used, all understand the meaning. This IEEE standard has emerged recently. Because of the newness of this kind of automation capability, there are no common definitions of concepts, capabilities, terms, technology, types, etc. This standard is published for the purpose of promoting clarity and consistency in the use of Software Based Intelligent Process Automation (SBIPA) terminology. The definitions represent the consensus of a diverse panel of industry participants.

The health care predictor uses an intelligence to predict the diseases. It is a complete software package which is developed using user interface and a database named MySQL. Thus, it satisfies the engineering constraints of SBIPA - *software-based intelligent process automation* of **2755-2017** - IEEE Guide for Terms and Concepts in Intelligent Process.

DECLARATION BY THE STUDENT

We Mr. Vamshikrishna Bandari, Miss Nagalakshmi Pabbisetty & Miss Malasree Rallapalli students of **B. Tech (Semester – 8th) Computer Science and Engineering**, Roll No. **9916004019, 9916004107 & 9916004214** hereby declare that the final year project titled, **"Healthcare Predictor Using ML Algorithm"** submitted by us in partial fulfilment for the award of the degree of Bachelor of Technology in Computer Science and Engineering, Kalasalingam Academy of Research and Education, examination during the academic year 2019-2020,

This is the actual work carried by us under the guidance and supervision of **Dr K Kartheeban**, Associate Professor KARE. We further state that this work is original and not submitted anywhere else for any examination.

VAMSHIKRISHNA BANDARI
9916004019

NAGALAKSHMI PABBISETTY
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MALASREE RALLAPALLI
9916004214

Signature of student

KALASALINGAM
ACADEMY OF RESEARCH & EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

BONAFIDE CERTIFICATE

Certified that this project report titled **"Healthcare Predictor Using ML Algorithm" is** the Bonafide work of **"Vamshikrishna Bandari, Nagalakshmi Pabbisetty & Malasree Rallapalli",** who carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SUPERVISOR
Dr K KARTHEEBAN
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Submitted to the project viva-voice examination held at Kalasalingam Academy of Research and Education, Krishnankoil on_____.

Internal Examiner

External Examiner

ACKNOWLEDGEMENT

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LIST OF FIGURES & TABLES

LIST OF ACADEMIC REFERENCE COURSES

S NO.	COURSE CODE	COURSE NAME
1	CSE401	Object Oriented Software Development
2	CSE102	Programming Languages
3	CSE103	Data Structures
4	CSE206	Object Oriented Programming
5	CSEX005	Introduction to Machine Learning and Pattern Recognition
6	MAT222	Probability and Statistics
7	CSE303	Software Engineering
8	CSE305	Database Management Systems
9	CSE307	Artificial Intelligence
10	CSE327	Data Mining and Data Ware Housing
11	CSE439	Machine Learning Techniques
12	CSE402	Internet Programming
13	CSEX008	Data Science with R

ABSTRACT

Healthcare in India amidst the ongoing COVID-19 epidemic is really crucial and a daunting task ahead of us. Every citizen needs immediate access to proper health guidance for their health condition/situation including maintenance or improvement of health via the prevention, diagnosis, treatment of disease, illness, injury, and other physical and mental impairments in humans. Health care is generally delivered by health professionals (providers or practitioners) in allied health fields. Health care can be done in different stages it may include providing primary care, secondary care, and tertiary care, as well as in public health.

Our work on Healthcare Prediction system targets this specific issue by providing health support to the public through an online consultation platform. The system is loaded with data collected from various accredited sources possessing various symptoms, disease or illness. When the user register in the website it allows user to share their symptoms and issues according to that the system processes the data by using appropriate model and guesses the most accurate illness that could be associated with patient's symptoms. On making sure the problem is addressed, direct consultation to a doctor is facilitated with a detailed report if needed by the end user.

This area of research is much needed as the ratio of doctors to patients and the affordability to reach and consult a doctor keeps decreasing. Though there are many others who have jumped into this sector/field, they have failed to provide a fool proof system which we are trying to develop by incorporating large sum of reliable data.