DIGITAL HEALTH APPLICATION

(CSE IV Semester Mini Project)

2021-2022

Submitted to:

Dr. V.P Dubey

(CC-Cse-L-IV Sem)

Submitted by:

Rishabh Saklani

Rollno : 2011094

Cse-L-IV Sem

Session : 2021-2022

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(Graphic Era Hill University)

CERTIFICATE

Certified that Rishabh Saklani (Roll No-2011094) has developed an application for the healthcare system "Digital Health App" for the CSE IV Semester Mini Project in Graphic Era Hill University, Dehradun. The project carried out by students is their own work as best of my knowledge.

Date : 14/07/2022

Dr. V. P Dubey

(Class Coordinator)

CSE-L-IV-Sem

GEHU Dehradun

ACKNOWLEDGMENT

I would like to particularly thank my Class Coordinator Dr. V. P Dubey for his patience, support and encouragement throughout the completion of this Mini Project work. At last but not the least I greatly indebted to all other persons who directly or indirectly helped me during this coursework.

Rishabh Saklani
Univ Rollno : 2011094
BTech-Cse-IV-L
GEHU,Dehradun

TABLE OF CONTENTS

INTRODUCTION

A healthcare system provides for services to be delivered to people to contribute to their health…delivered in defined settings, such as homes, educational institutions, workplaces, public places, communities, hospitals, and clinics.

A health system consists of all organisations, people, and actions whose primary intent is to promote, restore, or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities.

With pre-determined targeted users, mobile healthcare applications solve a huge marketing objective and focus on delivering high levels of productivity wrapped in engaging design. Today, patients seek mobile solutions to digitise their interaction with hospitals and track and save health data. The only thing to do is listen to the needs and requirements and move in the direction.

To understand the needs of patients and be able to create a responsive app, here are key points to focus on:

- Simply interface with easy access to functionalities
- Actionable and detailed information
- Communication with professionals
- Community of patients
- User-friendly UI

REQUIREMENTS

Hardware Requirements

DEVICE SPECIFICATIONS:

- Processor: Intel(R)Core (TM) i3-8265U CPU @ 1.60GHz 1.80GHz
- System: 64-bit operating system, x64- based processor
- Installed Ram: 4.00 GB

WINDOWS SPECIFICATION:

- Edition: Windows 10 Home Single Language
- Version: 2004

Software Requirements

These are the libraries/frameworks which should be installed in your system:

- Latest Version of python should be installed
- IDE(Integrated Development Environment)
- Python Libraries
- Numpy
- Pandas
- Sklearn

MACHINE LEARNING MODEL

Digital Healthcare app is an application used to detect

- If a person suffering from an heart conditions
- If a person is parkinson's Positive i.e suffering from an parkinson's disease

The Application inputs the user details via an user friendly interface and based on the details it predicts whether the persons is suffering from either of the above mentioned diseases

The dataset used for training the machine learning models are :

Heart disease Dataset

Digital Health app (Sem-4) - Google Drive

Parkinson's Disease Dataset

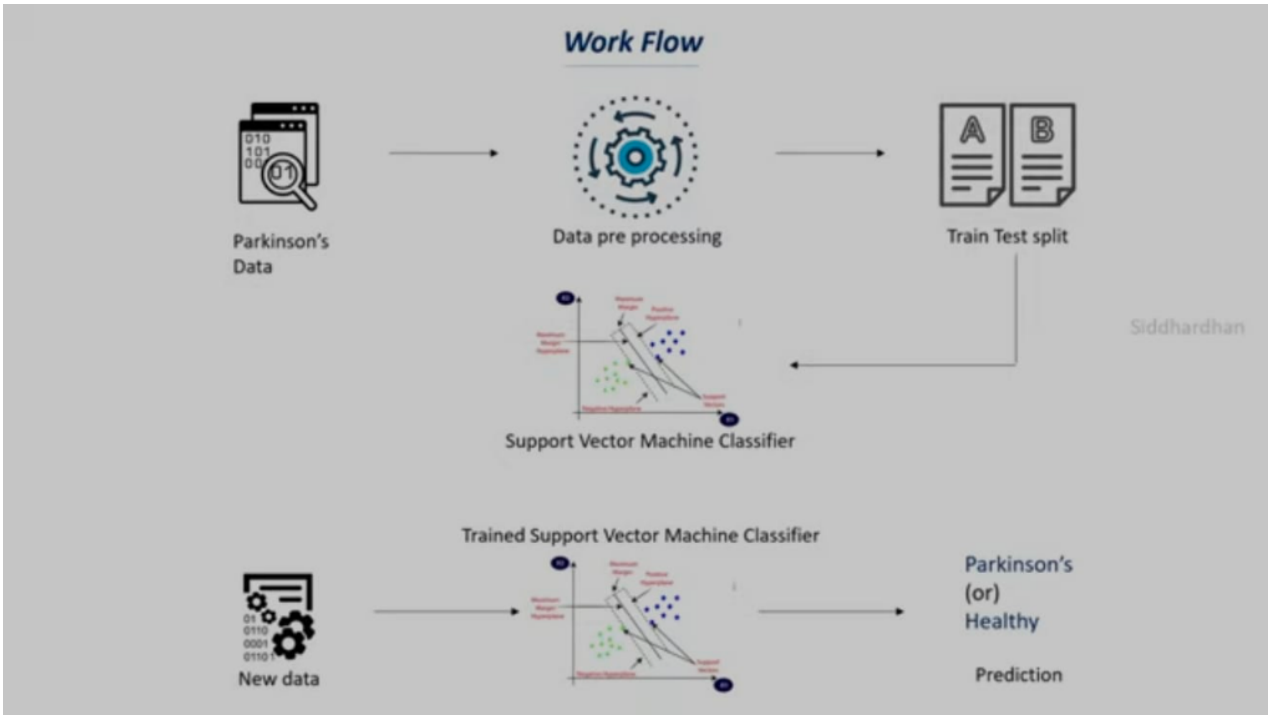
Digital Health app (Sem-4) - Google Drive

Features:

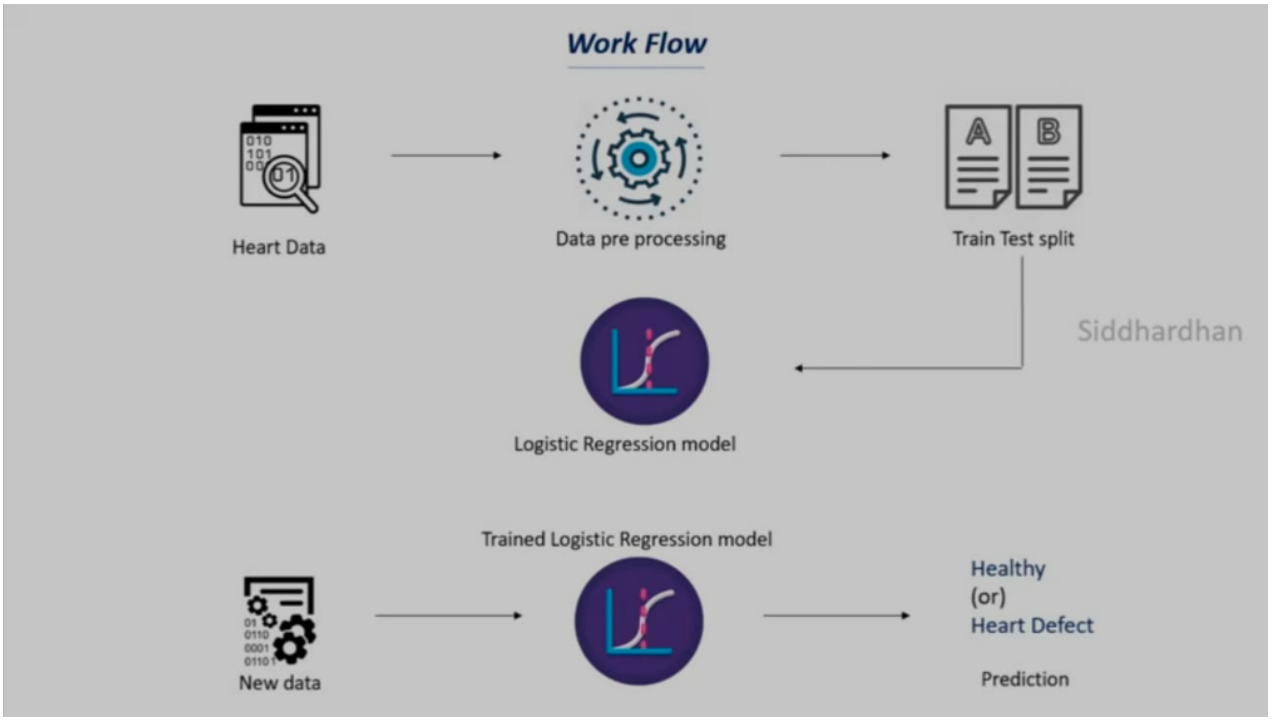
- name - ASCII subject name and recording number
- MDVP:Fo(Hz) - Average vocal fundamental frequency
- MDVP:Fhi(Hz) - Maximum vocal fundamental frequency
- MDVP:Flo(Hz) - Minimum vocal fundamental frequency
- MDVP:Jitter(%),MDVP:Jitter(Abs),MDVP:RAP,MDVP:PPQ,Jitter:DDP - Several
- measures of variation in fundamental frequency
- MDVP:Shimmer,MDVP:Shimmer(dB),Shimmer:APQ3,Shimmer:APQ5,MDVP:APQ,Shimmer:DDA - Several measures of variation in amplitude
- NHR,HNR - Two measures of ratio of noise to tonal components in the voice
- status - Health status of the subject (one) - Parkinson's, (zero) - healthy
- RPDE,D2 - Two nonlinear dynamical complexity measures
- DFA - Signal fractal scaling exponent
- spread1,spread2,PPE - Three nonlinear measures of fundamental frequency variation

ML MODEL WORKFLOW

Parkinson's disease



Heart disease



Bibliography

- NumPy
- pandas - Python Data Analysis Library (pydata.org)
- scikit-learn: machine learning in Python — scikit-learn 1.1.1 documentation
- Machine Learning - GeeksforGeeks