Smart India Hackathon-Internal Hackathon Edition

Problem Statement: AI-Enhanced Healthcare Diagnostics and Management System

Team Ernakulam

External SIH Problem Statement 1594

Problem Statement

In this model, we are creating an advanced healthcare diagnostics and management system using AI/ML technologies, inspired by ZK Medical Billing Platform. The goal is to enhance medical diagnostics, patient management, and treatment planning through intelligent data analysis and automation.

ERNAKULAM

Healthcare Dashboard

*Introducing **Ernakulam**, an AI-driven healthcare dashboard that helps people garner a solution to all their painful symptoms. We do not aim at replacing the expertise and skills of the medical fraternity, but we aspire to reach every household where medical society still can't.*

ERNAKULAM
Healthcare Dashboard

UNDERSTANDING OUR MODEL

Patient Login

- Patient uses their mobile number and password to access their portal.

Generic Disease Prediction

- Patient inputs the symptoms they're experiencing, and gets the disease they're most likely experiencing, along with effective medication, diet and workout recommendations

Specific Disease Prediction

- Patient inputs factors like age, tumour size, pain symptoms, heart rate, sugar & thyroid levels etc.

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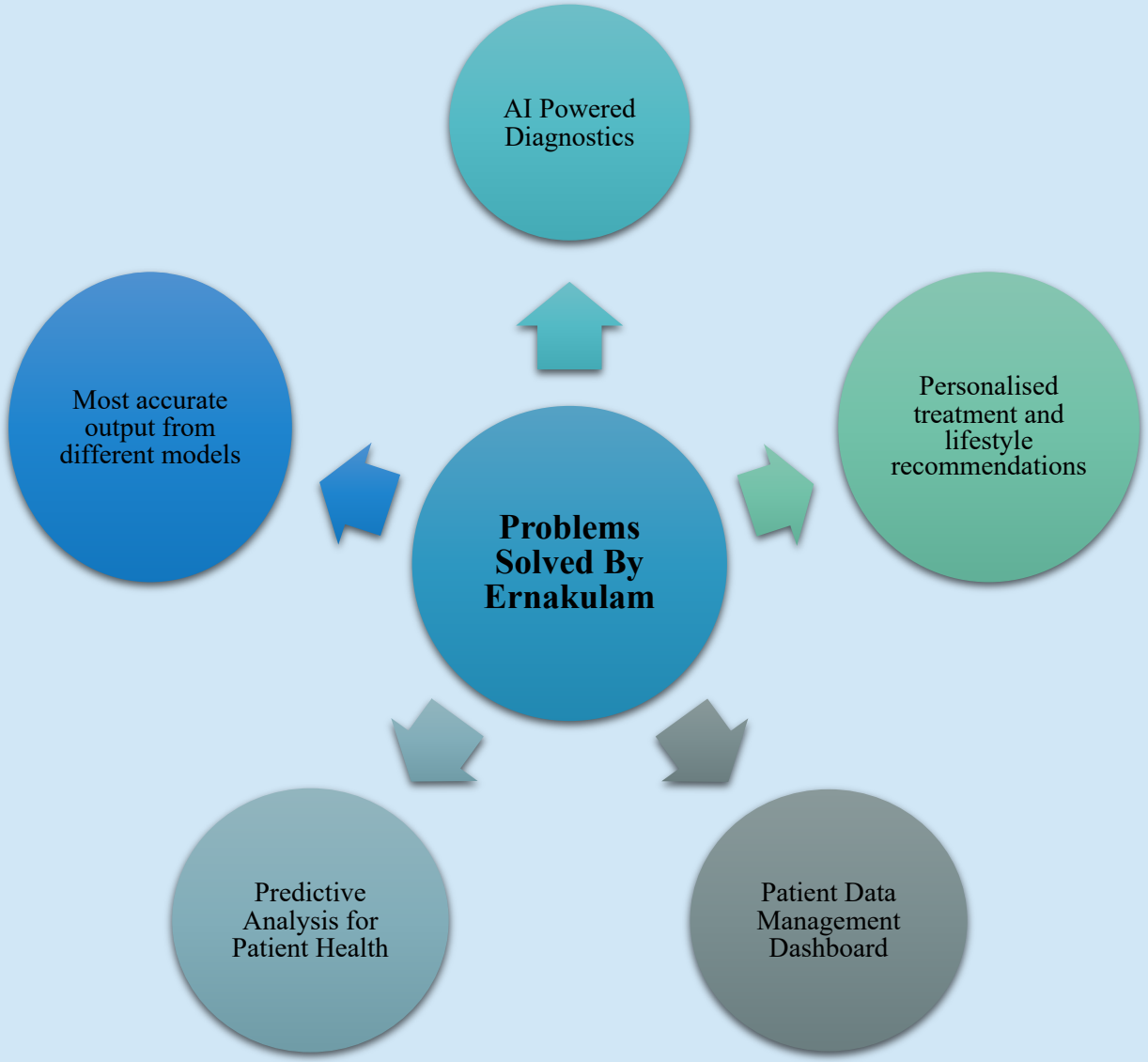
ABOUT THE SOFTWARE PROTOTYPE



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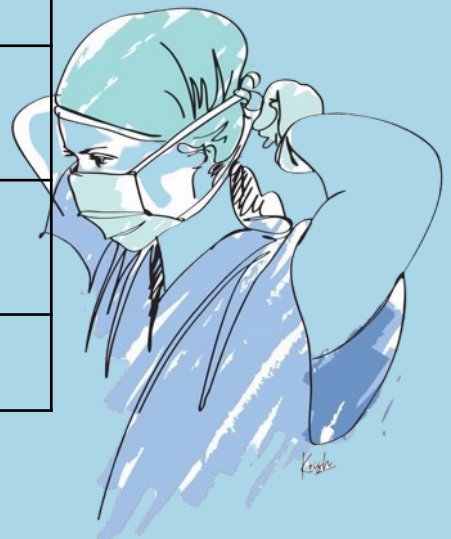
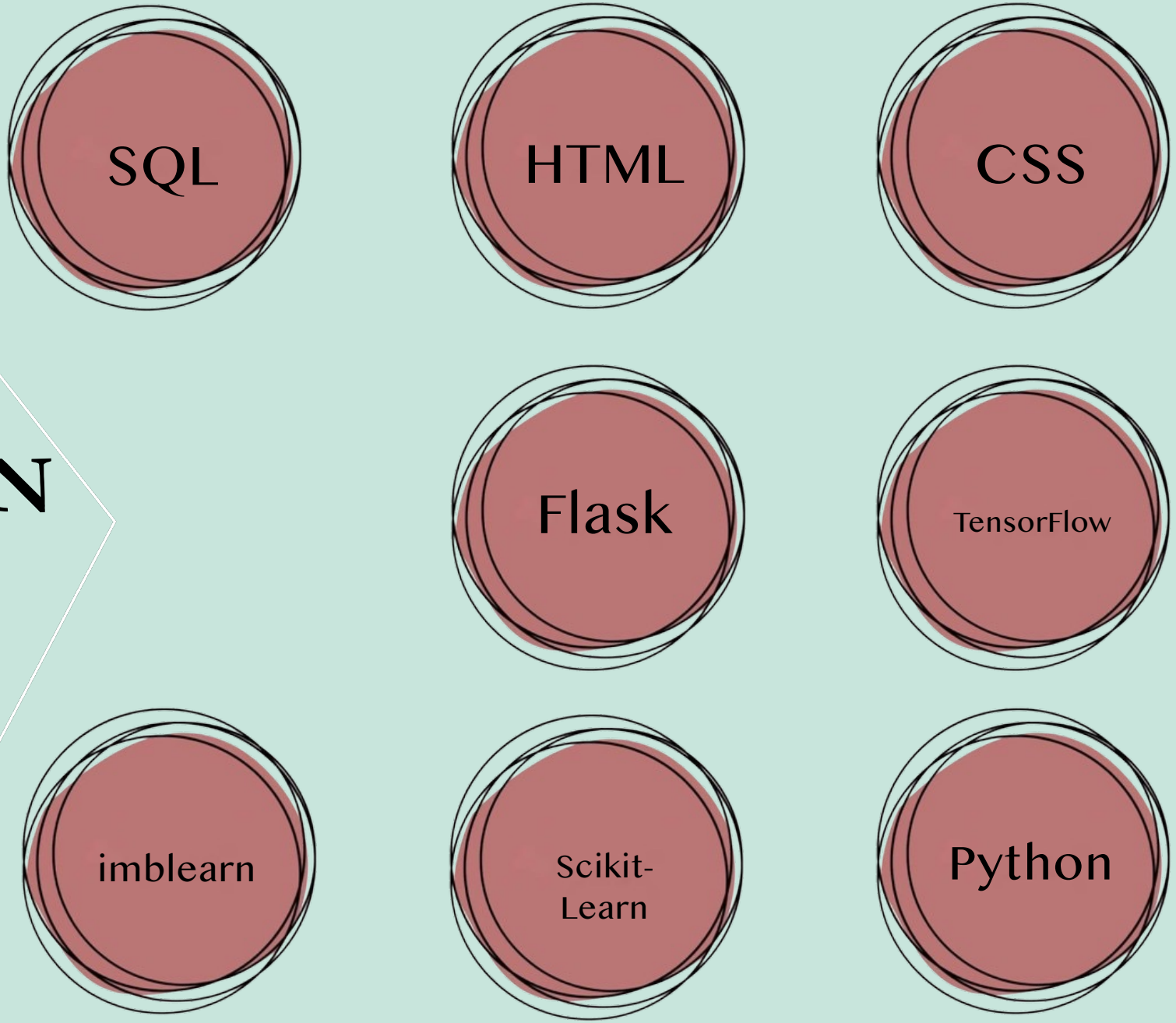
MACHINE LEARNING MODELS USED

Predictions	Input Needed	Output Provided	Algorithm	Accuracy Score
General Disease Prediction	Symptoms experienced by the patient	Disease the patient is likely suffering from, along with needed medication, diet and workout plans.	Logistic Regression, Support Vector Classification, Gradient Boosting, KNeighbours, MultinomialNB	94%
Breast Cancer	Age, Tumor Size etc.	Breast Cancer (Y/N)	Random Forest, Gradient Boosting, AdaBoost, SVM	98.24%
Lung Cancer	Age, Smoking, Anxiety, Wheezing, Chest Pain etc.	Lung Cancer (Y/N)	SNM	94.23%
Heart Disease	Sex, Chest Pain, Cholesterol, Max Heart Rate, ECG etc.	Heart Disease (Y/N)	Logistic Regression, Random Forest, SVM, K-Nearest Neighbours	88.10%
Liver Disease	Age, Total Bilirubin, Alkaline Phosphatase Levels etc.	Liver Disease (Y/N)	Logistic Regression, Random Forest, SVM, Stacking Classifier	86.58%
Diabetes	Glucose Levels, BP, Skin Thickness, Age, Insulin Levels	Diabetes (Y/N)	Bagging SVM, AdaBoost SVM	87.61%
Chronic Kidney	BP, Albumin Levels, Hypertension etc.	Chronic Kidney (Y/N)	Logistic Regression, Support Vector Machine	97.91%



TECHNOLOGY IN USAGE



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CONCLUSION

With the help of Ernakulam, we aim to reach out the parts of the society that do not yet have the access to the expertise of the medical fraternity of our world due to various location, social, political, and economic factors. We aim to increase the precision and knowledge of our current model with the help of inputs of experienced medical professionals, and finance personnels in the future. However, this should be strictly noted that we do not aim to replace what the medical society can provide, rather add it as a pearl to their hats, to solve the common aim of our nation, that is healthcare and awareness for all.

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