Disease Prediction with Doctor Recommendation

a machine learning based detection and recommendation project integrated in a full stack website with interactive user interface.

a machine learning based project by –

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Abstraction of Project

In the post pandemic era we all are becoming health conscious. People are always afraid of any disease if they seem any symptoms in themselves. These symptoms might be silly or very serious, but everybody has not the knowledge of the possible disease and to take the right decision of whether they need a doctor to consult or not, if yes, then the best preference according to their problem. So, with the help of machine learning we have sorted out this real-life problem considering the previous works done in this specific subject with a little bit added features from our side.
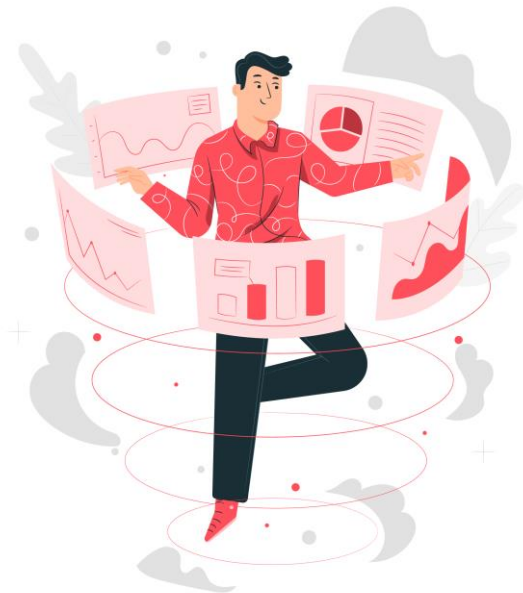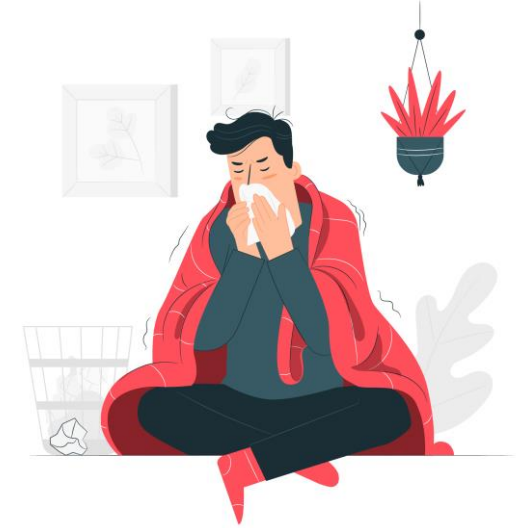
Our Vision

➢ We have planned to develop a website in which the user will specify their symptoms from a list and using that information multiple algorithm will process the data and make a prediction with highest possible disease respective to that symptoms and generate a predicted report which the user can download as pdf.

➢ According to that disease our website will recommend the doctors in their locality and the user can book an appointment with them through our platform.
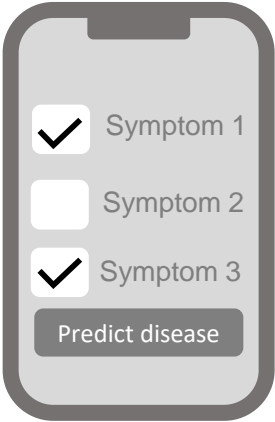
UX Architecture

Disease Prediction

Choosing symptoms from the list field of website

☑	Symptom 1
☐	Symptom 2
☑	Symptom 3

Predict disease

Input data is getting processed using multiple machine learning algorithm

Data processing internally

User

User is getting the most

Probable disease and its corresponding precaution suggestion
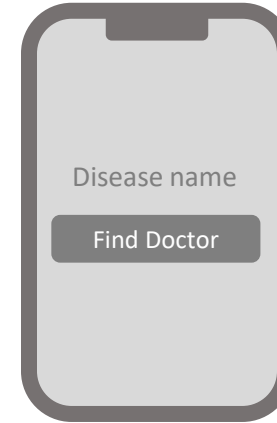
Download the predicted report

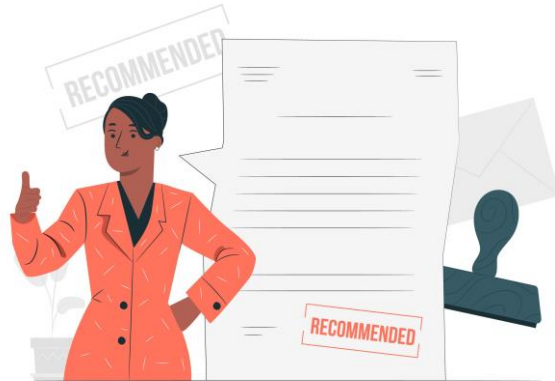# Doctor Recommendation based on the nearest location

If the disease is serious
our system will suggest user to
consult doctor

There will be a button "Find Doctor"
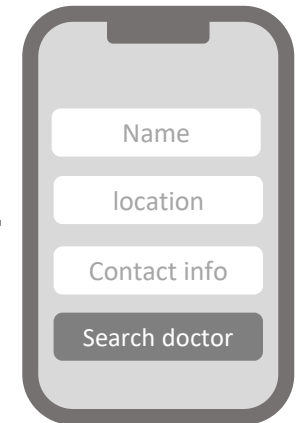
Which will navigate the user to find the

Disease name

Find Doctor

nearest specialist of that disease

User have to share location must

To find the nearest doctor

Name

location

Contact info

Search doctor

Internal logic will find the match between

user and closest doctor's location

Website will recommend the
Closest doctor

Doctor Appointment Booking

| Attach report |
| Choose time |
| **book** |

After successful booking

User will get his/her id

Get the patient id

User will visit doctor

at the scheduled time
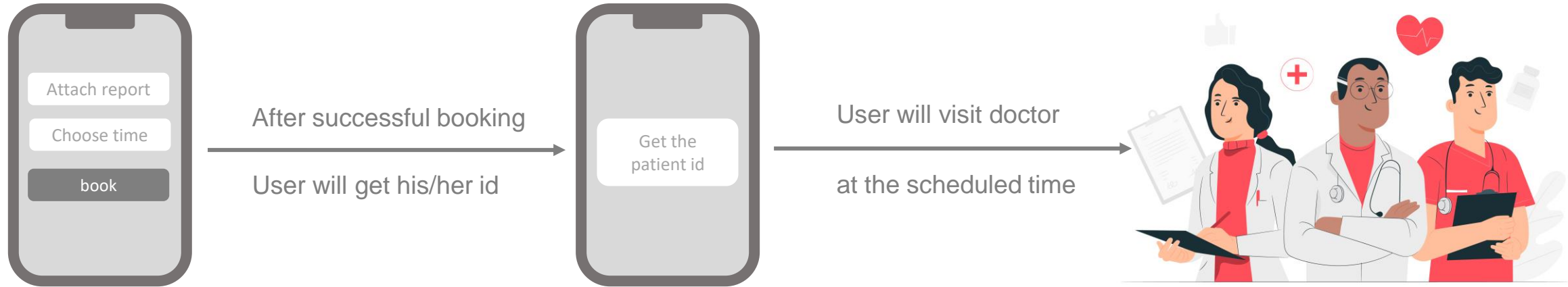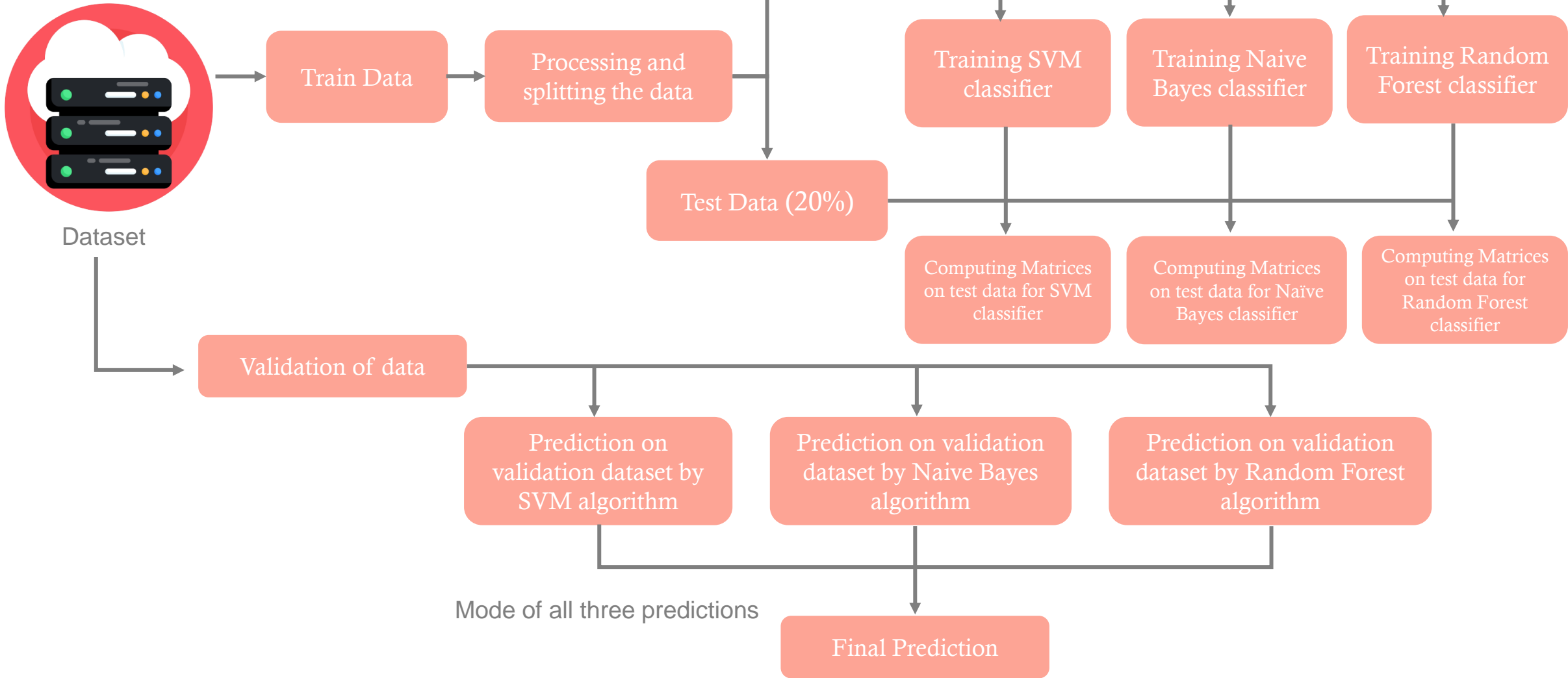
User can book an appointment with the doctor

Algorithms

Support Vector Machine (SVM) Classifier

Naive Bayes Classifier

Random Forest Decision Tree Classifier

Implementation Architecture

What is new in this project

➢ The previous implementations, whatever is available in market, are from developer's point of view, but in our project we concerned about user experience which is explained in UX architecture in detail.

➢ Most of the available works are focused on only logistic regression algorithm to predict, but we have used 3 types of approach (SVM, Naive Bayes, Random Forrest classifier) to analyze per disease, and this process increases the accuracy in our prediction.

➢ Logistic regression returns only binary output but SVM, Naive Bayes, Random Forrest consider all possible combinations and maximize the margins between closest outcomes and that gives us more accuracy.
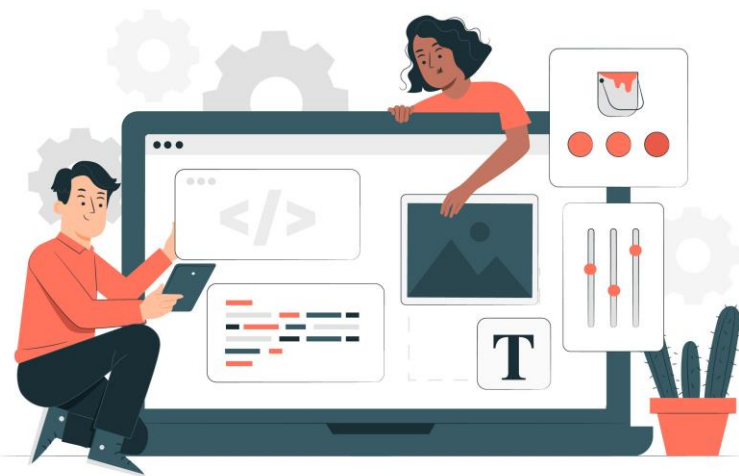
Dependencies

➢ As we are in the development stage so initially we will launch our prototype with the functionality of predicting limited number of disease due to lack of medical data, further it can be increased in the industrial launch.

➢ For the doctors information also due to lack of data we will use a bunch of arbitrary information for our prototype. For industrial launch professional data analyst and scientist have to prepare proper database according to real data.

Technologies

Machine Learning for prediction mechanism	Laravel (PHP framework) for web view

JavaScript for location API integration	MySQL(RDBMS) for database	Bootstrap

Flask(Python framework) to integrate frontend with ML algorithm	HTML	CSS

Data Resources

As we are in the production level we have collected our required datasets of approximate 5000 data, from **Kaggle** (https://www.kaggle.com/) which is an online community of data scientists and machine learning engineers. In future our plan can be enlarged by using more number of data by professional data analysts and data scientists.

Thank you