L J Institutes of Engineering and Technology

Malaria Detection System

CNN

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Outline

- Introduction
- Limitation of Existing System
- Objective of New System
- Tools and Technology
- System Design Diagrams (Use case, Activity, etc..)
- Data Dictionary
- Snapshot of 70% work done of project
- Future Enhancement
- Conclusion

INTRODUCTION

Introduction

- **Malaria Detection** is a System that detect Patient have Malaria or not.
- We will Make Model using Convolutional Neural Network (CNN) which predict patient Have malaria or not with the help of image of their blood cell taken from microscope.
- We will connect it with Frontend and make web application using Django.
- This web Application is useful for doctors and laborator where Doctor gives image of blood cell to our web application And Our Model Will Predict Patient have Malaria or not.
- We will Send Report to the patient through the mail.
- We will keep track of this report in our database so it will further use for upgradation.

IMAGE OF BLOOD CELLS

Uninfected

Parasitized

LIMITATION OF EXISTING SYSTEM

There were many problems or limitations exist in normal flow of working.
Some of them are given below as follows:-

- Time consuming.
- Experts are not available in some areas.
- Time consuming in epidemic
- Less Accuracy because of lack of expertise.
- People have to go to the hospital.
- Price of test is high.
- Instant report cannot be possible.

OBJECTIVE OF OUR SYSTEM

There are many objectives of the new system that overcomes the limitations of the existing work flow. The objectives are as follows:-

- Convolutional neural networks offer automated malaria detection an extremely cheap, effective, and scalable solution.
- Time Saving Of User.
- Instant treatment Can be Possible.
- No need to go hospital.
- User get instant result.
- It gives 95% accurate result.

TOOLS AND TECHNOLOGY

➤Tools and Technology used

❖Tools:-

- •Laptop
- •Desktop
- •Wi-Fi
- ▪MySQL
- ▪VS code
- ▪Git
- ▪Pycharm

❖Technology

▪Front End

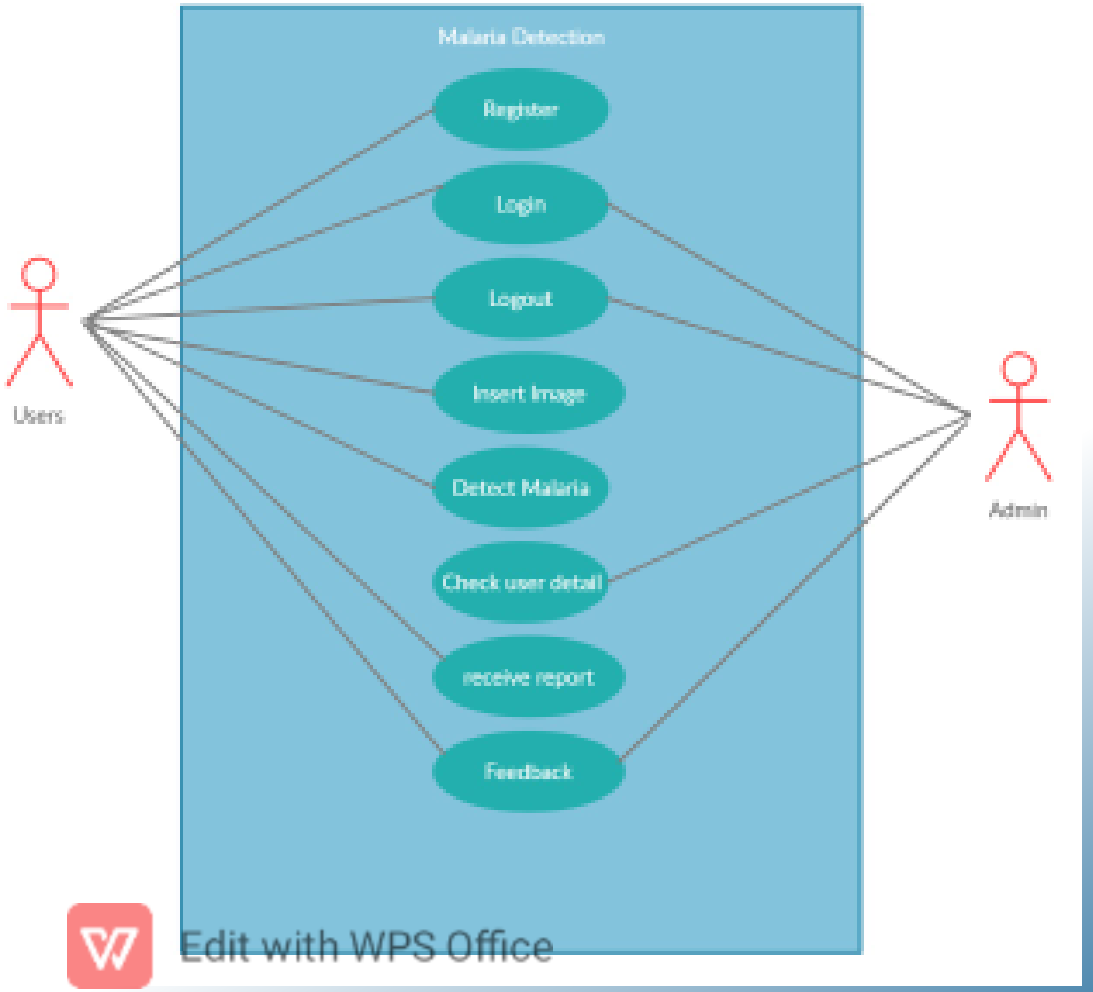
- HTML
- CSS

- Back End

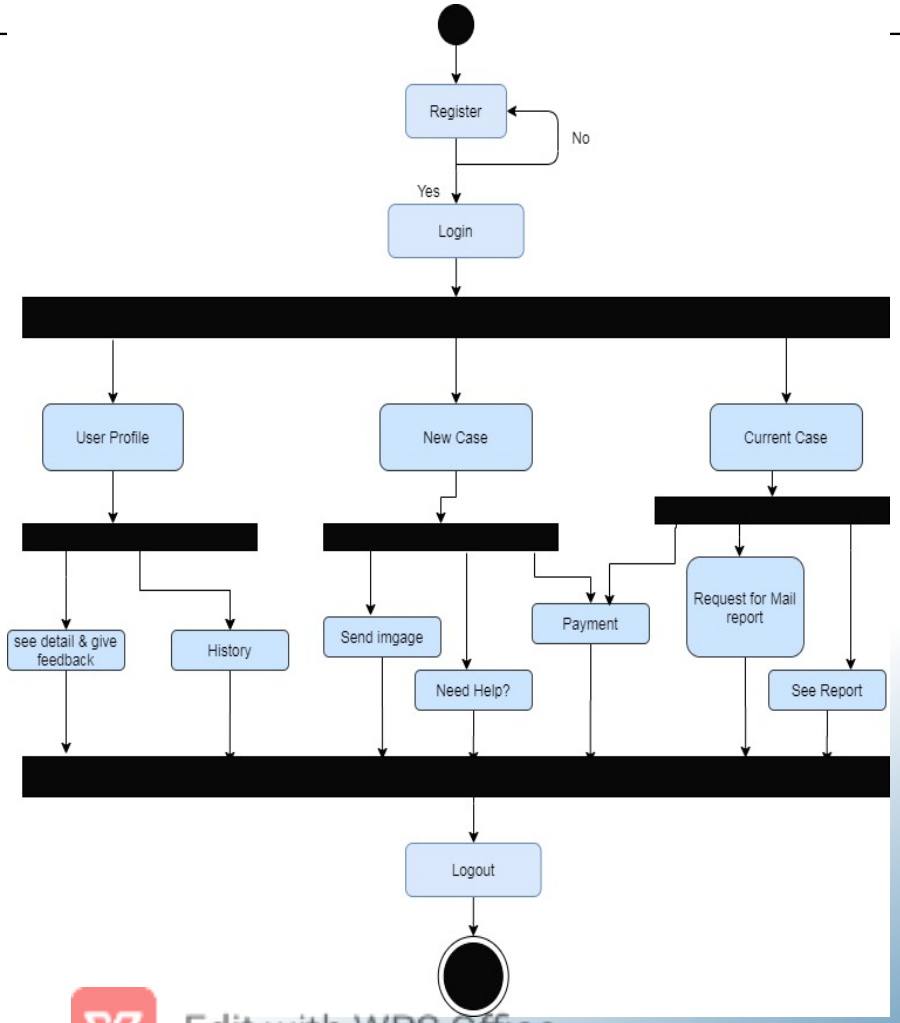
•Python
•CNN
•Django

SYSTEM DESIGN DIAGRAMS

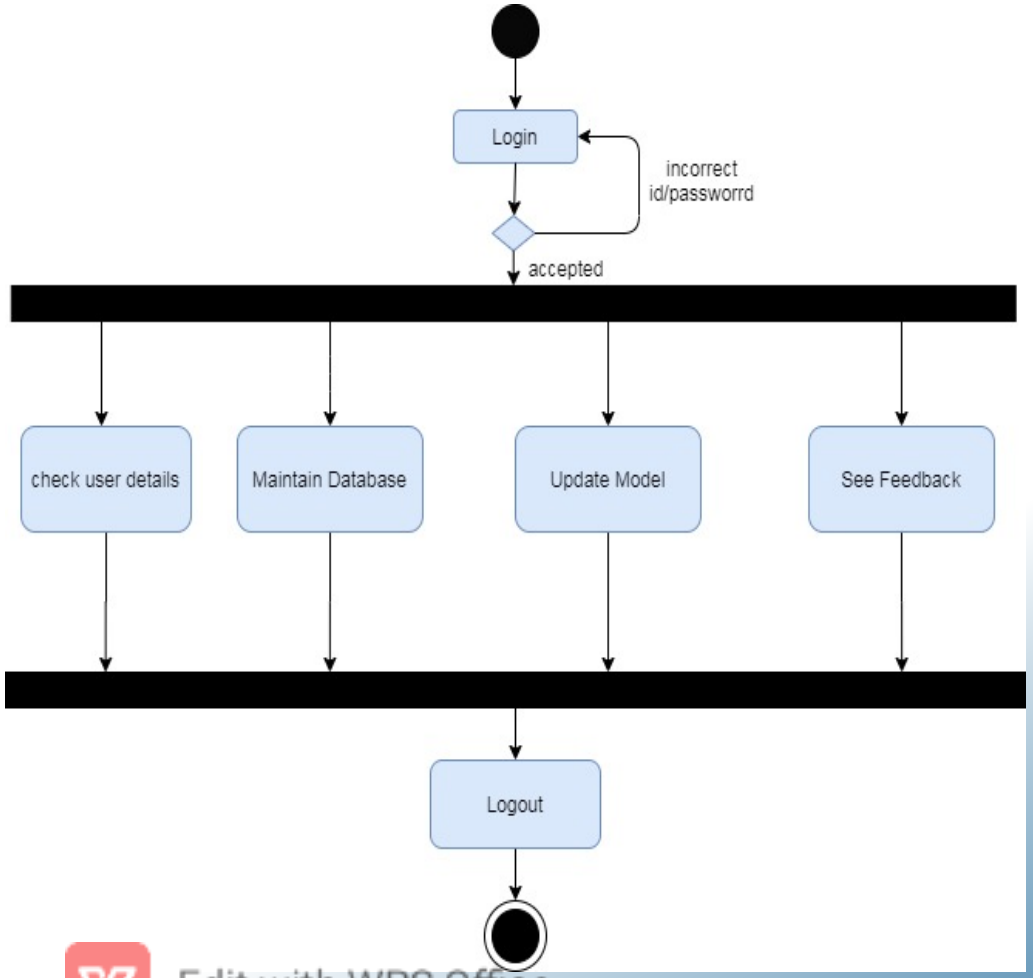
USE CASE DIAGRAM



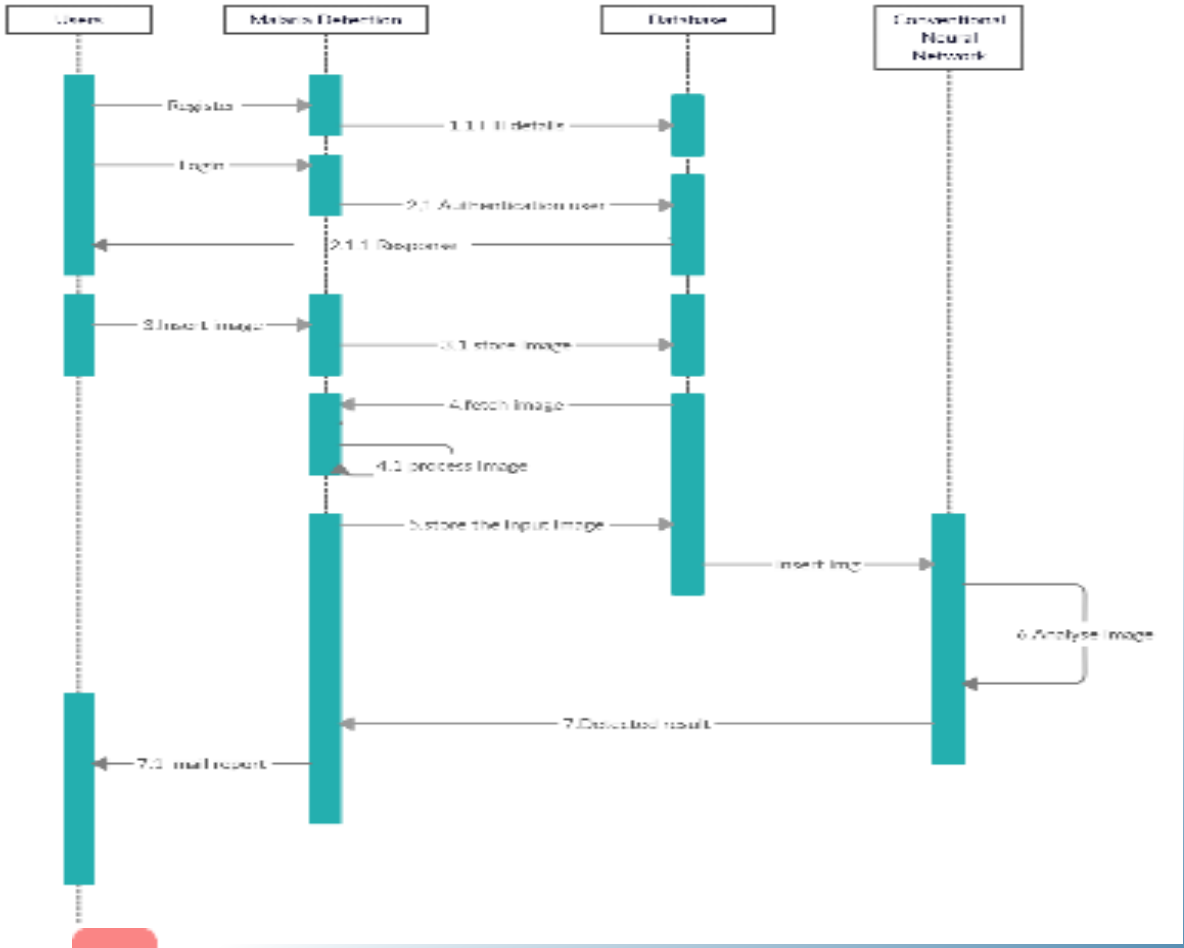
USER ACTIVITY DIAGRAM



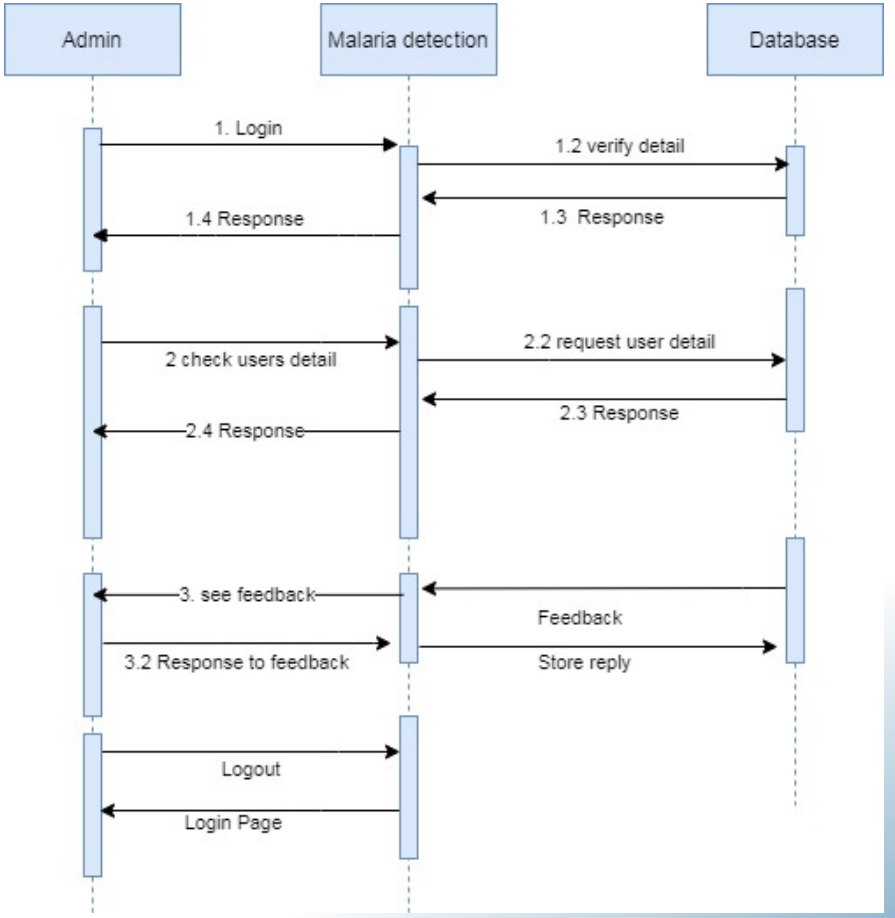
Admin Activity Diagram

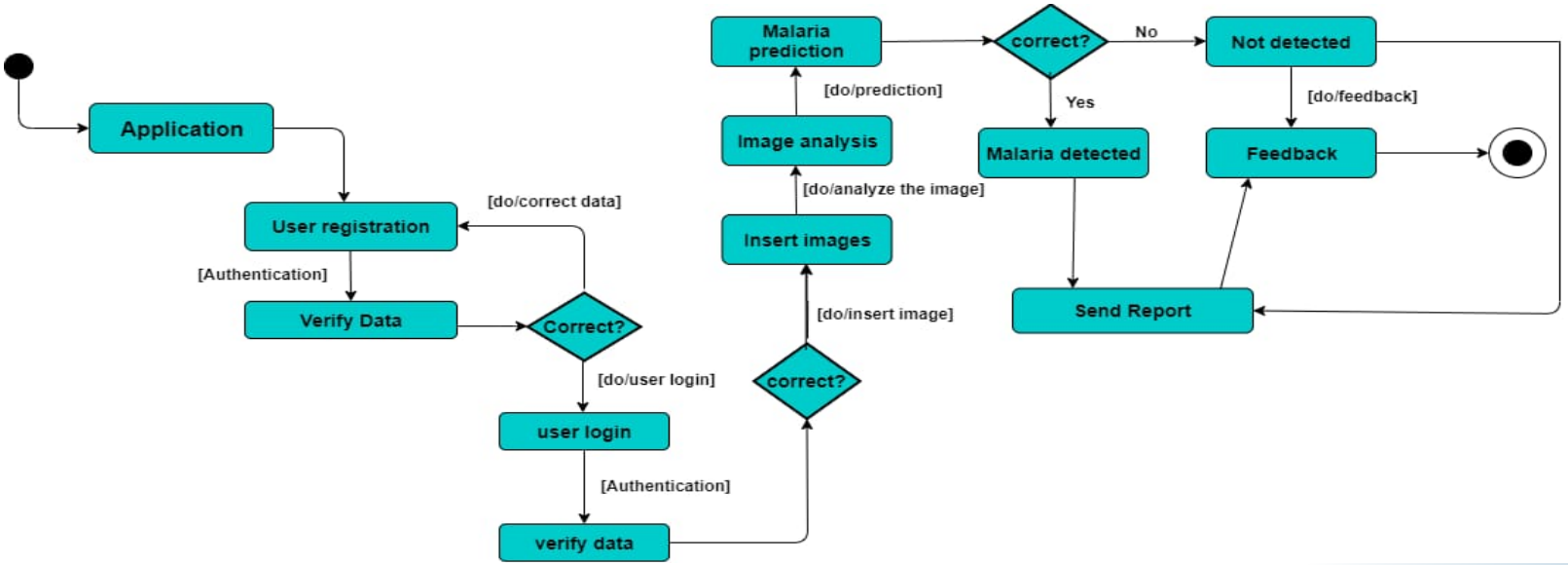


SEQUENCE DIAGRAM

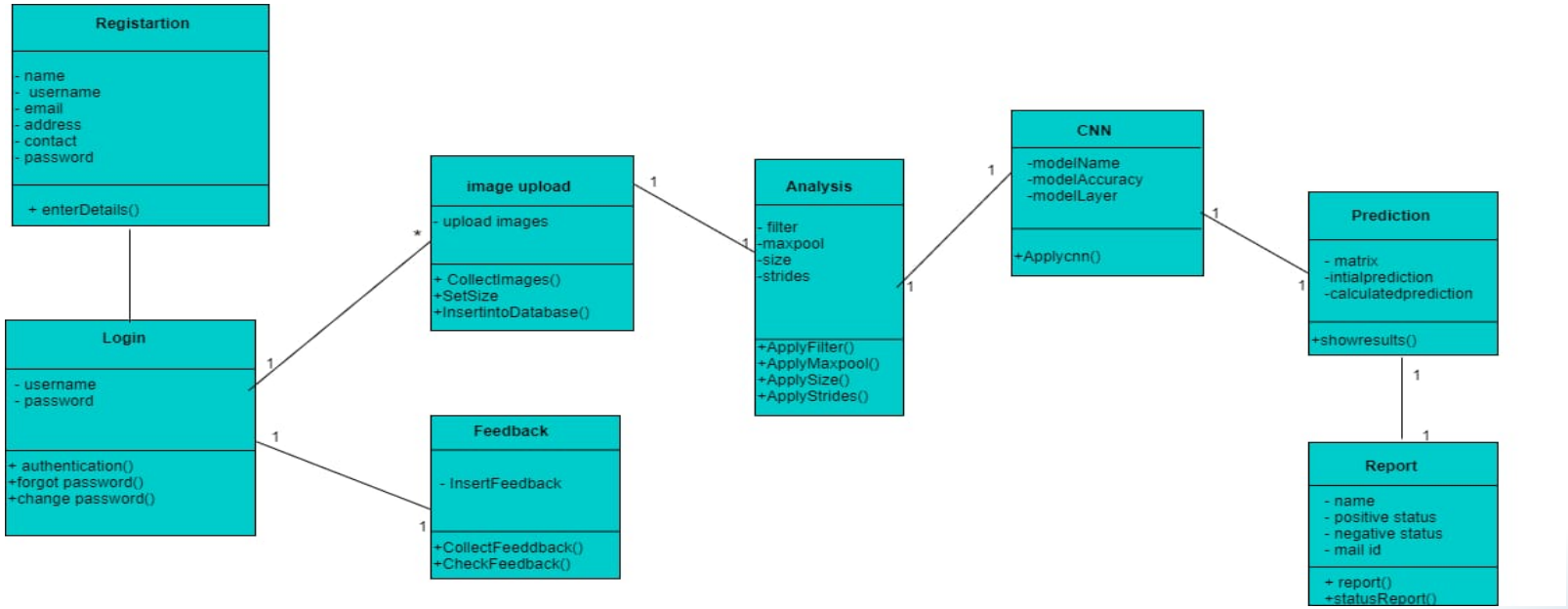


ADMIN SEQUENCE DIAGRAM

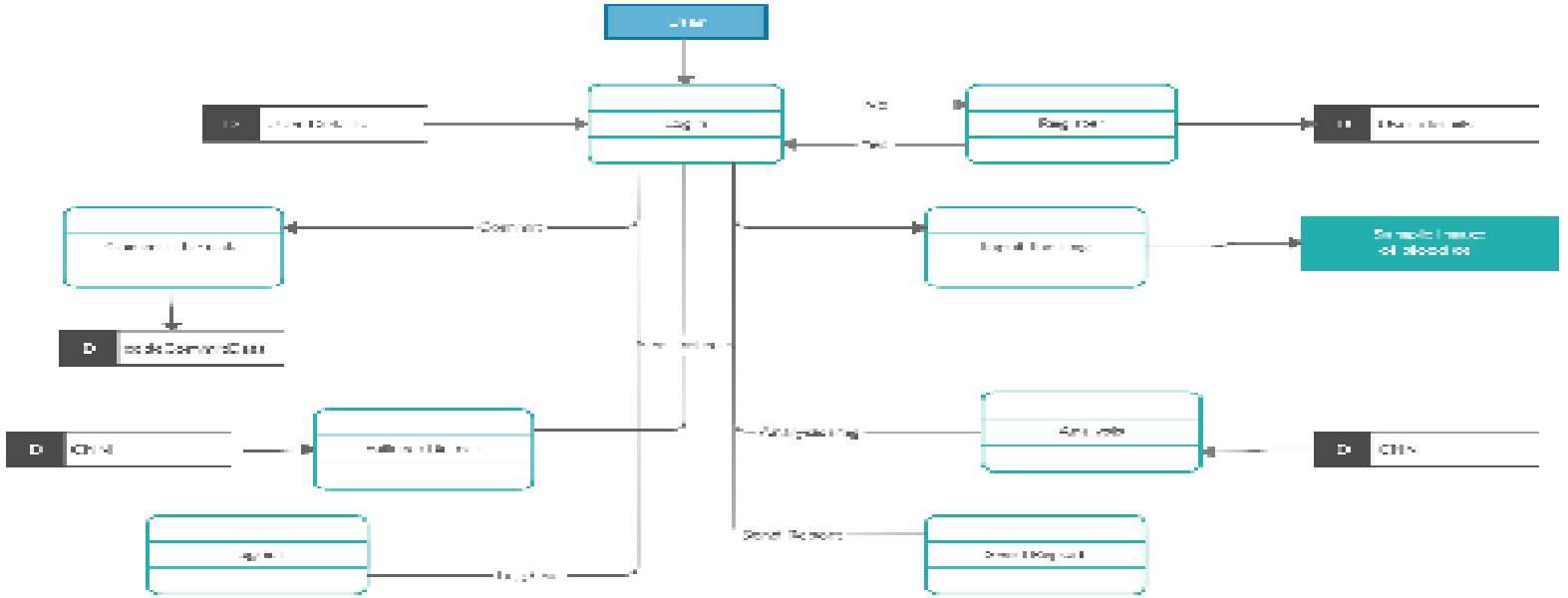




STATE DIAGRAM

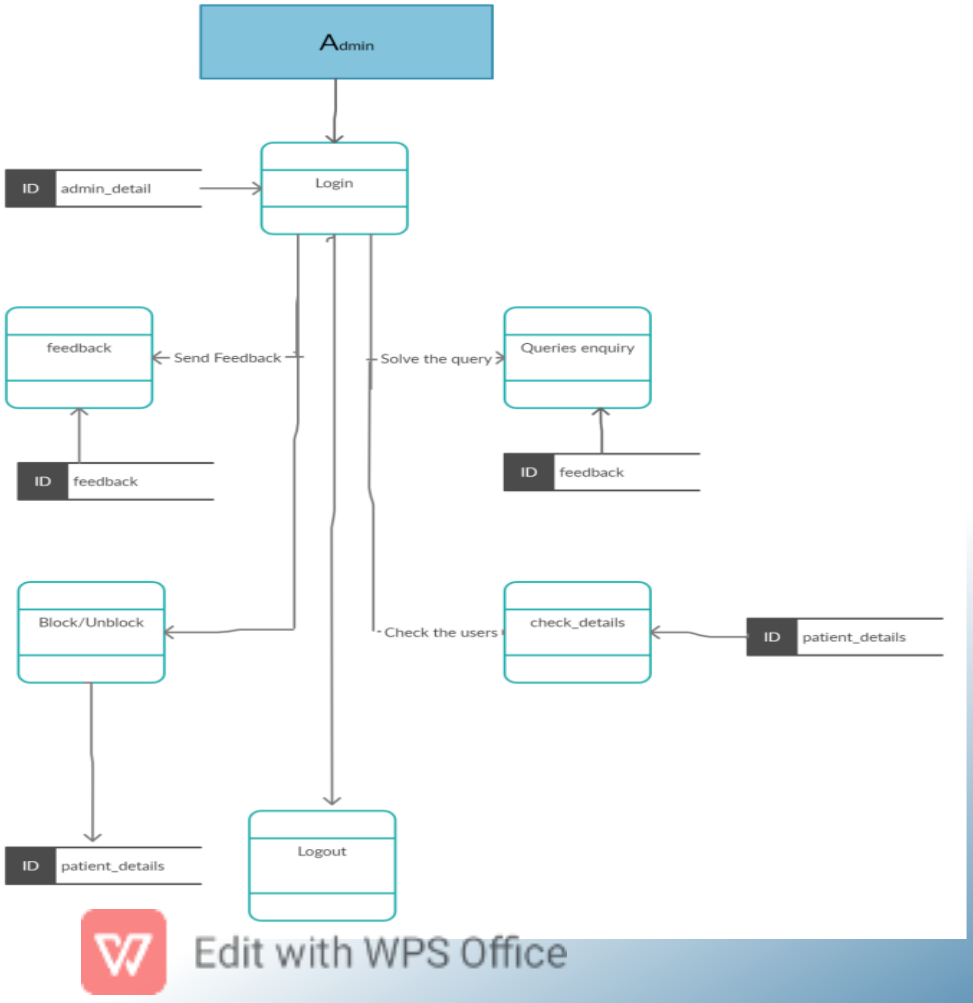


CLASS DIAGRAM



LEVEL1 DATA FLOW DIAGRAM

ADMIN DATAFLOW DIAGRAM



DATA DICTIONARY

6.1 User Table

Field Name	Data Type	Constraint	Description
Id	int	Primary Key	Unique identifier
First Name	varchar(20)	Not Null	First Name
Last Name	varchar(20)	Not Null	Last Name
Email id	Email	Not Null	Email id
Password	password	Not Null	Password
Address	Varchar(200)	Not Null	Address
D.O.B.	date	Not Null	Date of Birth
Blood group	varchar(3)	Not Null	Blood group
Registration date	date	Not Null	Registration date

Feedback Table

Field Name	Data Type	Constraint	Description
Id	int	Primary Key	Unique identifier
Feedback	varchar(20)	-	Give Feedback
Date of feedback	datetime	-	Date of Feedback
Reply Feedback	varchar(100)	-	Reply Feedback
Experience	varchar(50)	-	Experience

Laboratory Table

Field Name	Data Type	Constraint	Description
Lab Id	int	Primary Key	Unique identifier
Lab Name	varchar(50)	Not Null	Lab Name
Location	varchar(50)	Not Null	Location
Email	Email	Not Null	Lab Email
Password	Password	Not Null	Lab Password
Phone No.	Number	Not Null	Phone Number
Doctor Name	Varchar(50)	-	Doctor
Doctor Degree	Varchar(50)	-	Degree of doctor
Opening time	datetime	-	Lab open time
Closing time	datetime	-	Lab close time

Report Detail Table

Field Name	Data Type	Constraint	Description
Id	int	Primary Key	Unique identifier
First Name	varchar(50)	Not Null	First Name
Last Name	varchar(50)	Not Null	Last Name
Email id	email	Not Null	email
Status	Boolean	Not Null	+ve or -ve
Time	Date & Time	Not Null	Time of Report

Generate Report

Field Name	Data Type	Constraint	Description
ID	int	Primary Key	Unique id
Lab ID	int	Foreign Key	Fk to the lab id
Patient Name	Varchar(50)	Not Null	Patient Name
IsReportGenerated	Boolean	Not Null	Default false
Image	image	Not Null	Patient image
Report	file	Not Null	Pdf report
Result	Varchar(50)	Not Null	Model result
Date	datetime	Not Null	Generated date

SNAPSHOTS

Malaria Detection System.ipynb

File Edit View Insert Runtime Tools Help All changes saved

Comment Share

Files

drive
malaria_dataset
sample_data
malaria_model.h5

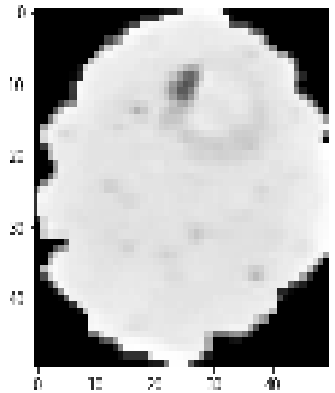
+ Code + Text

RAM Disk Editing

['Parasitized' 'Parasitized' 'Parasitized' ... 'Uninfected' 'Uninfected'
 'Uninfected']

```
index=120
plt.imshow(X_train[index].reshape(50,50),cmap 'gray')
print("Actual Image=",y_train[index])
```

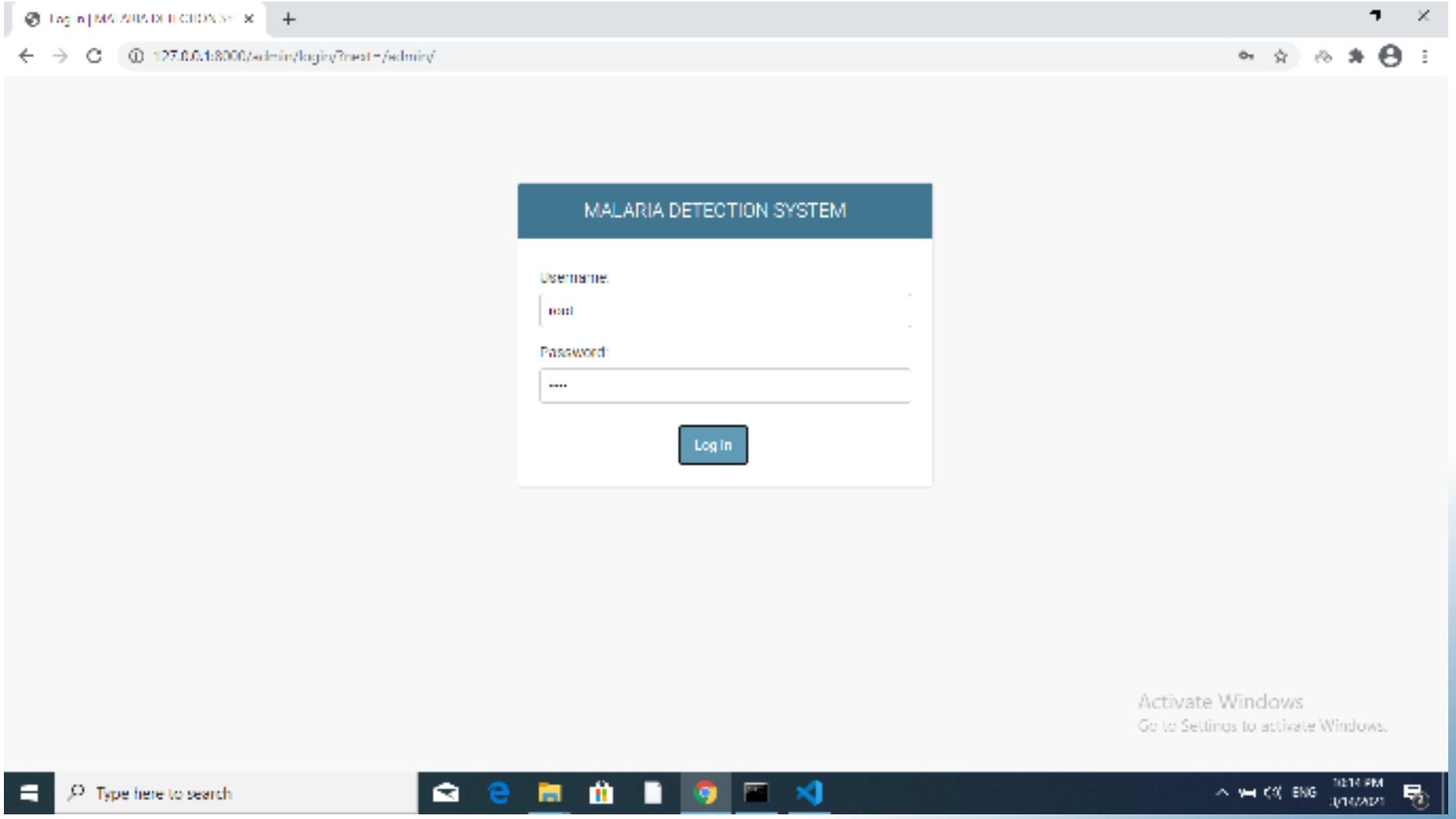
Actual Image= Parasitized



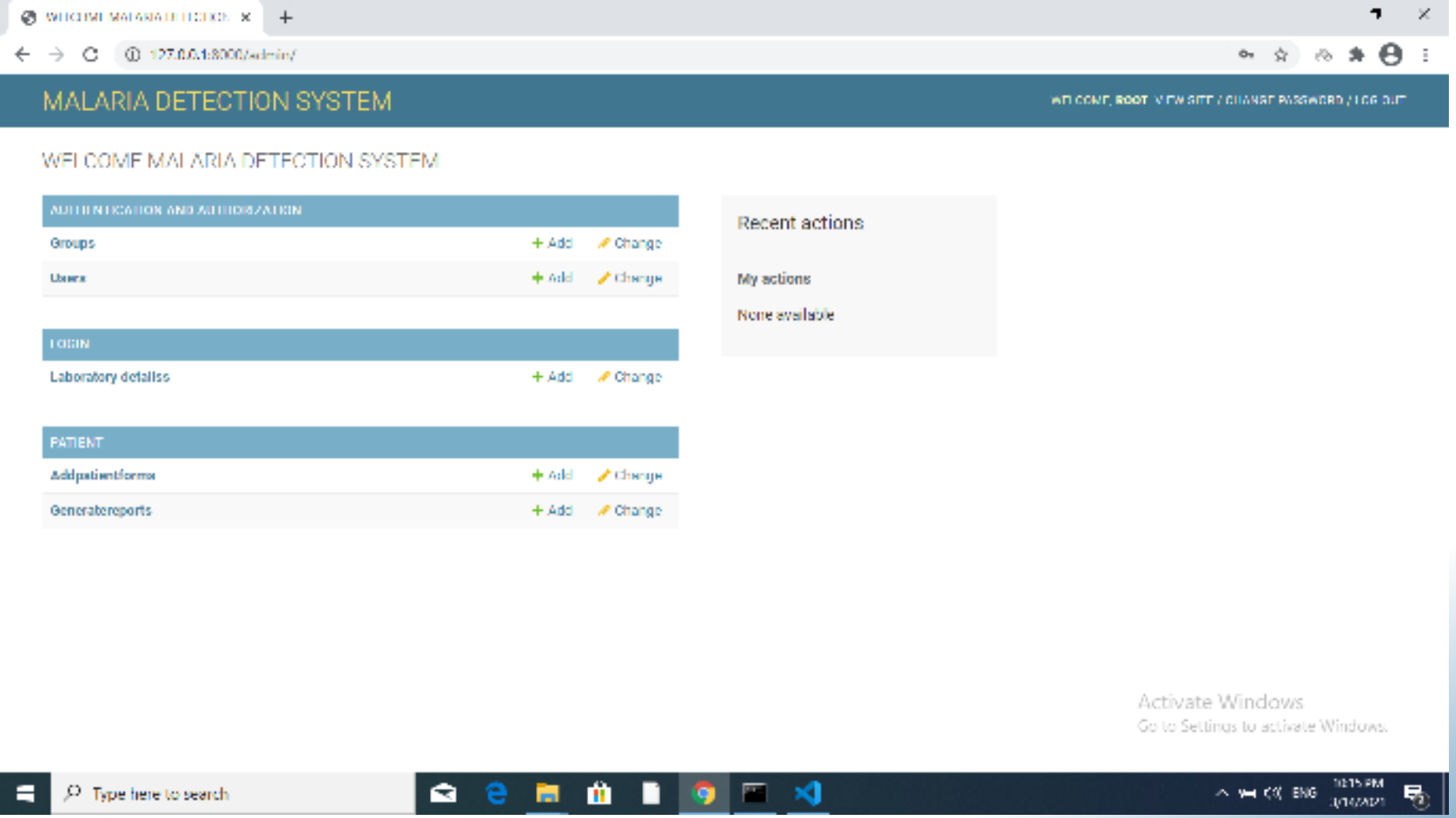
```
X_train=X_train.reshape(train.shape[0],50,50,1).astype('float32')
X_train X_train/255.0
X_test=X_test.reshape(test.shape[0],50,50,1).astype('float32')
X_test X_test/255.0
```

Activate Windows
Go to Settings to activate Windows.

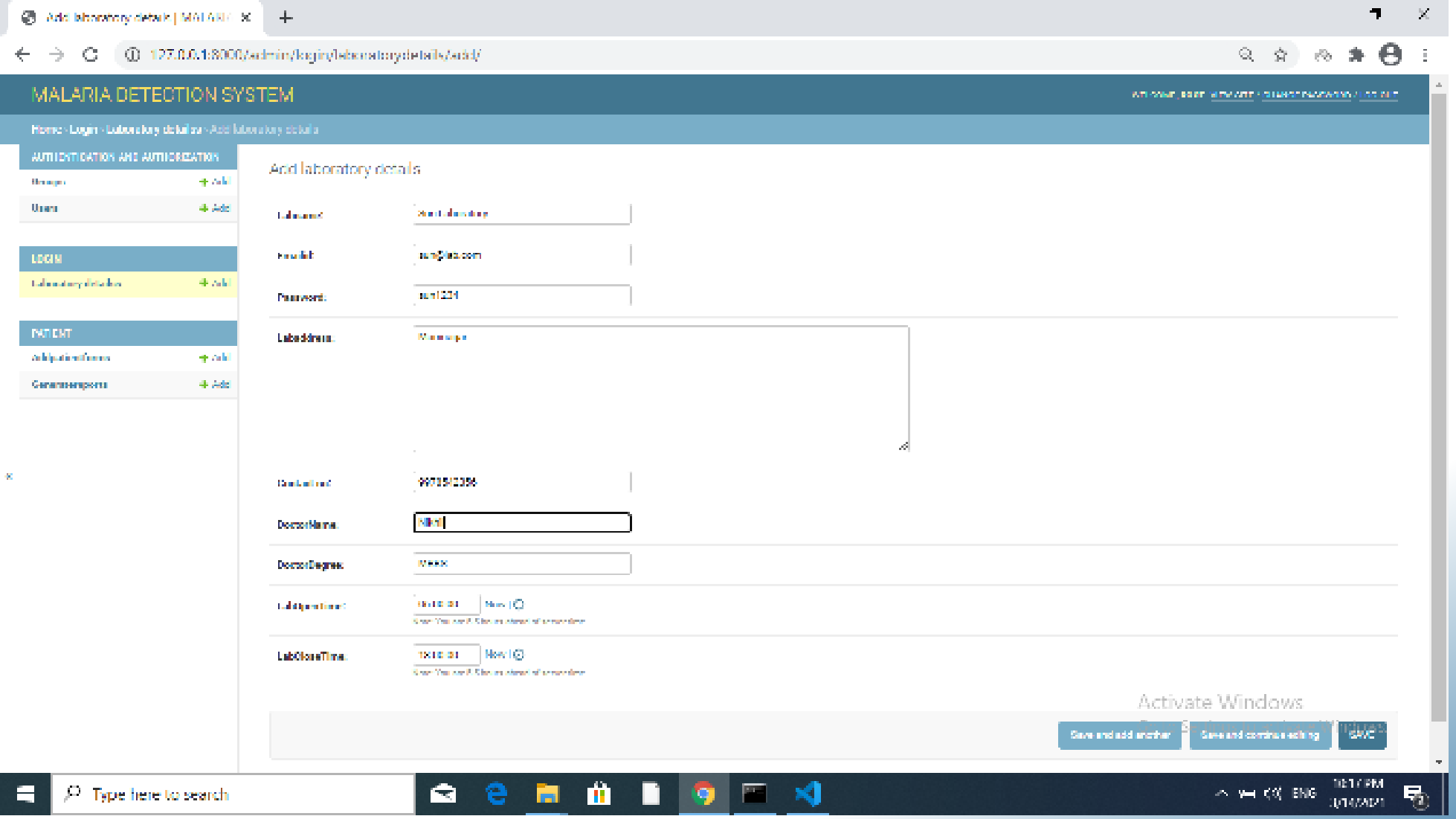
Disk 131.79 GB available


MALARIA DETECTION SYSTEM
Username:
root
Password:
Log In
Activate Windows
Go to Settings to activate Windows.
Type here to search

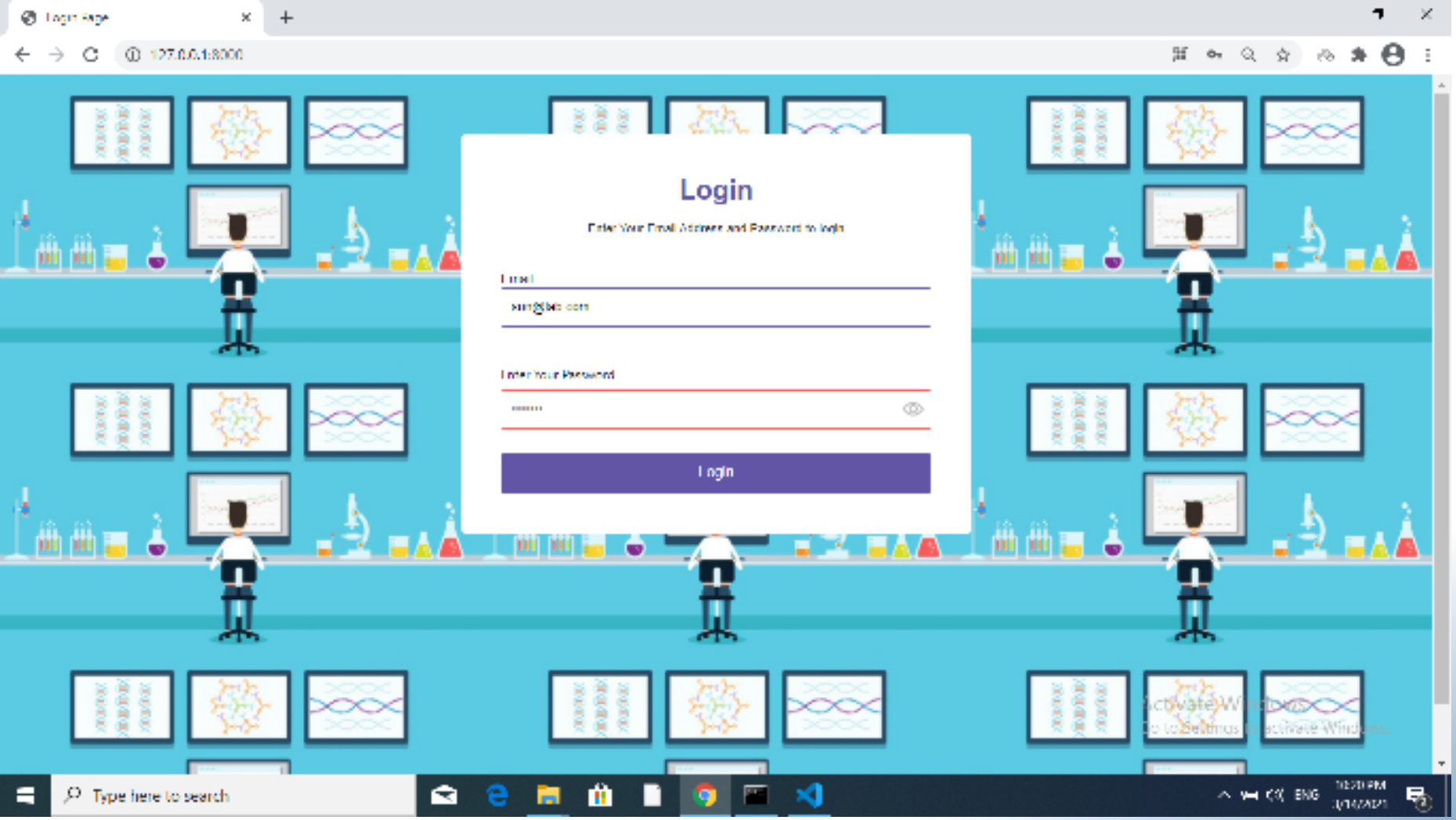
ADMIN LOGIN



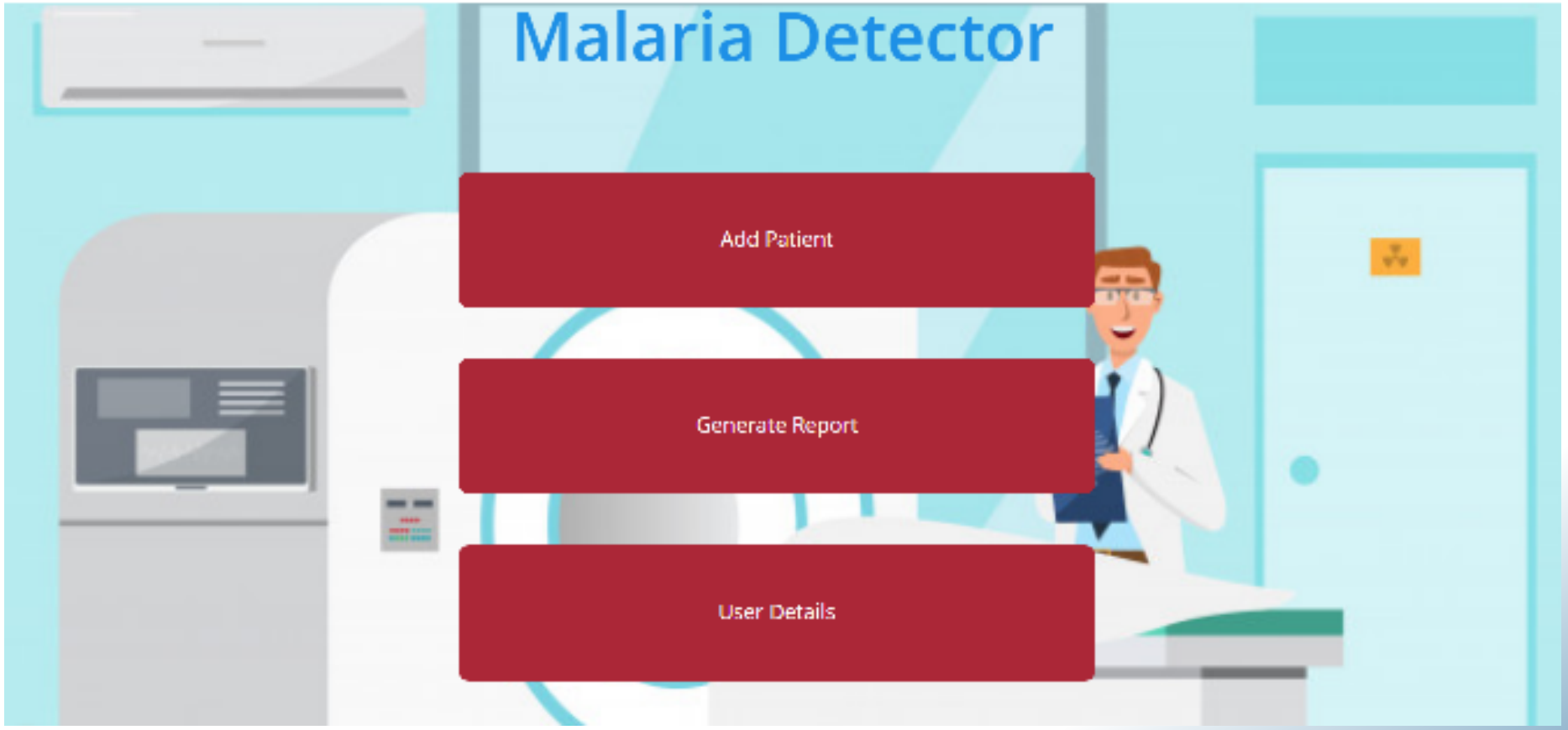
ADMIN DASHBOARD



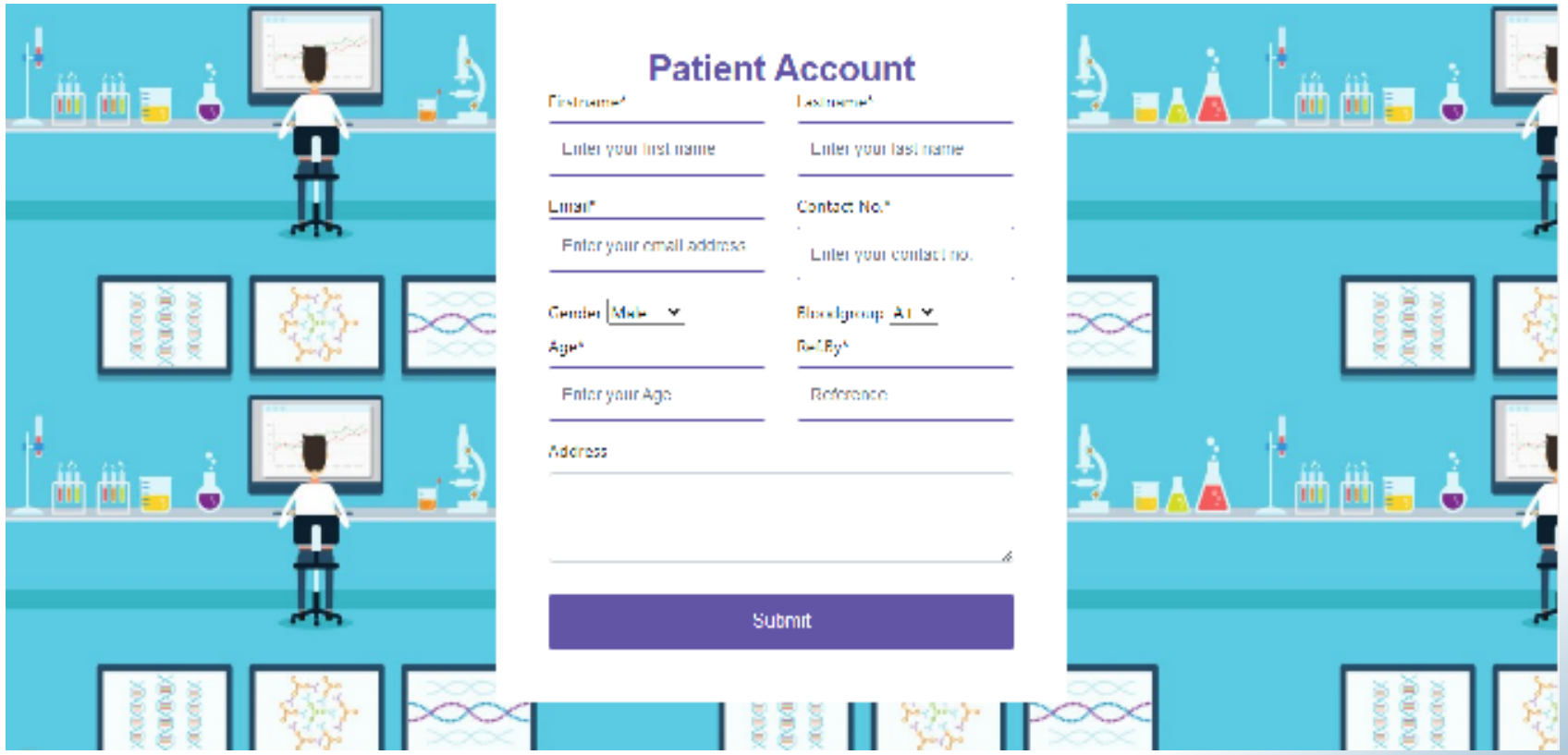
ADD NEW LABORATORY



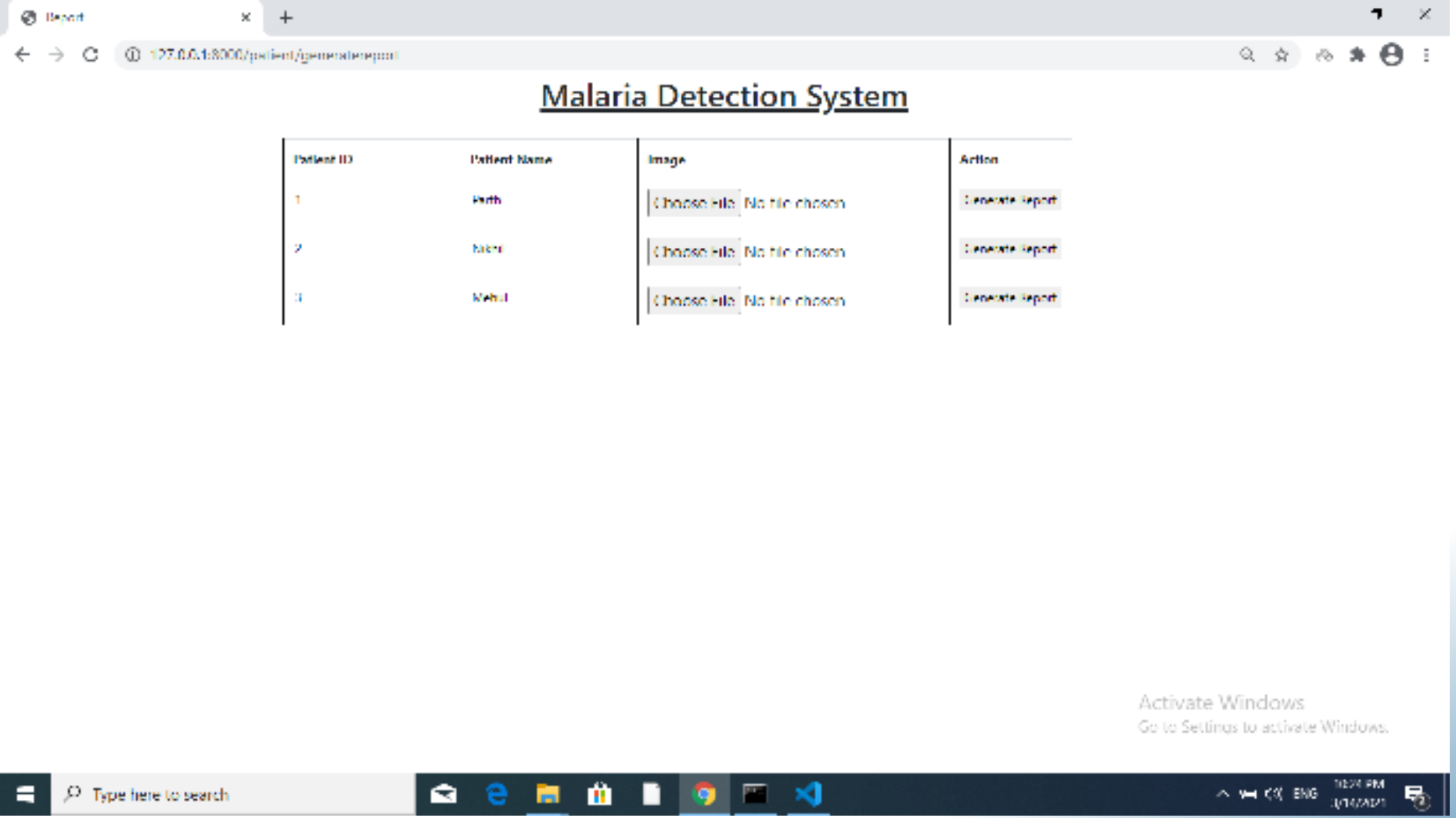
LOGIN



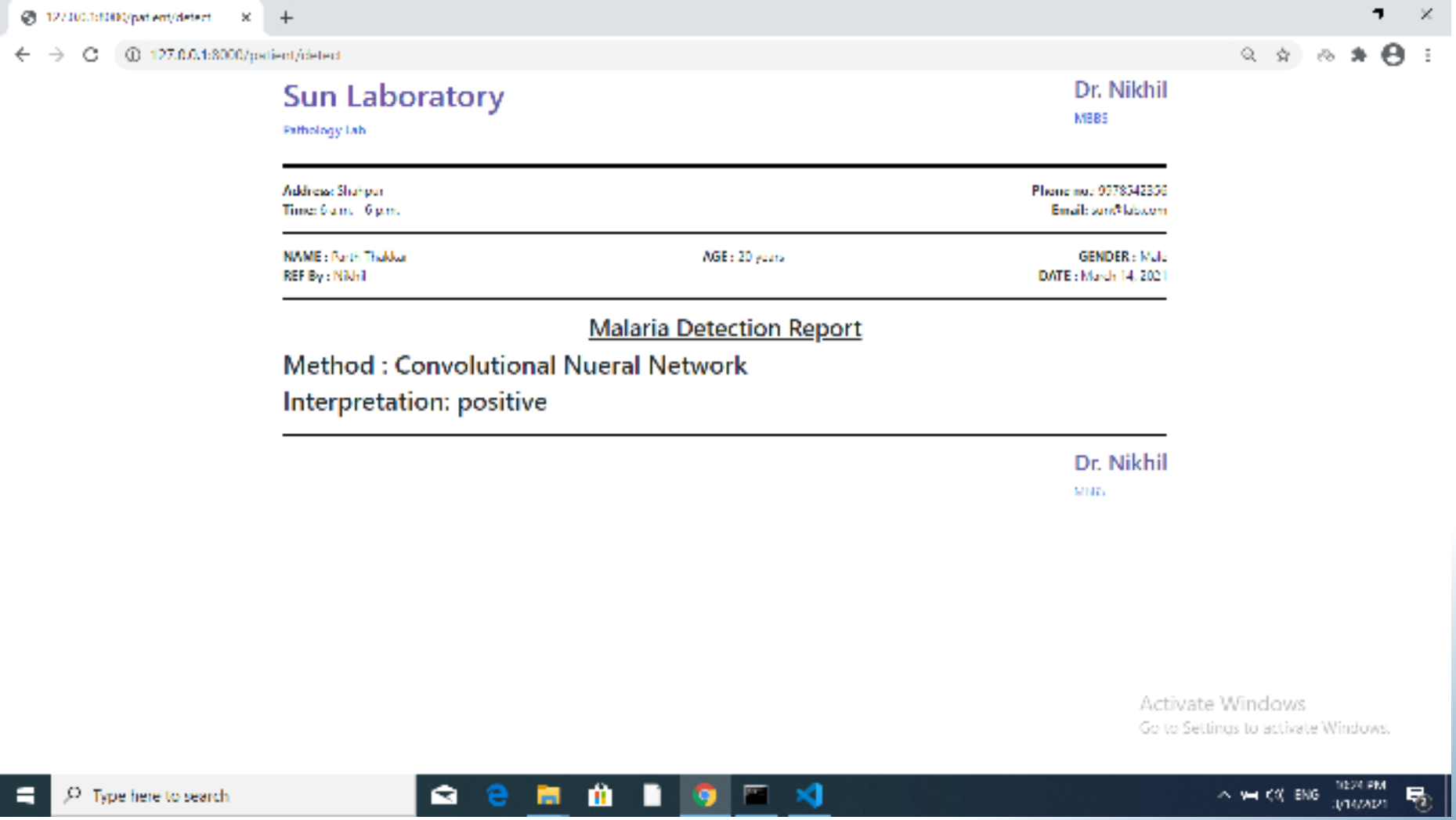
HOME



REGISTER PATIENT



GENERATE REPORT



Sun Laboratory

Pathology Lab

Dr. Nikhil

MBBS

Address: Sirsipur
Time: 9 a.m. - 6 p.m.

Phone no.: 9078342300
Email: xxx@xxx.com

NAME : Parth Thakkar
REF By : Nikhil

AGE : 20 years

GENDER : Male
DATE : March 14, 2021

Malaria Detection Report

Method : Convolutional Nueral Network

Interpretation: positive

Dr. Nikhil

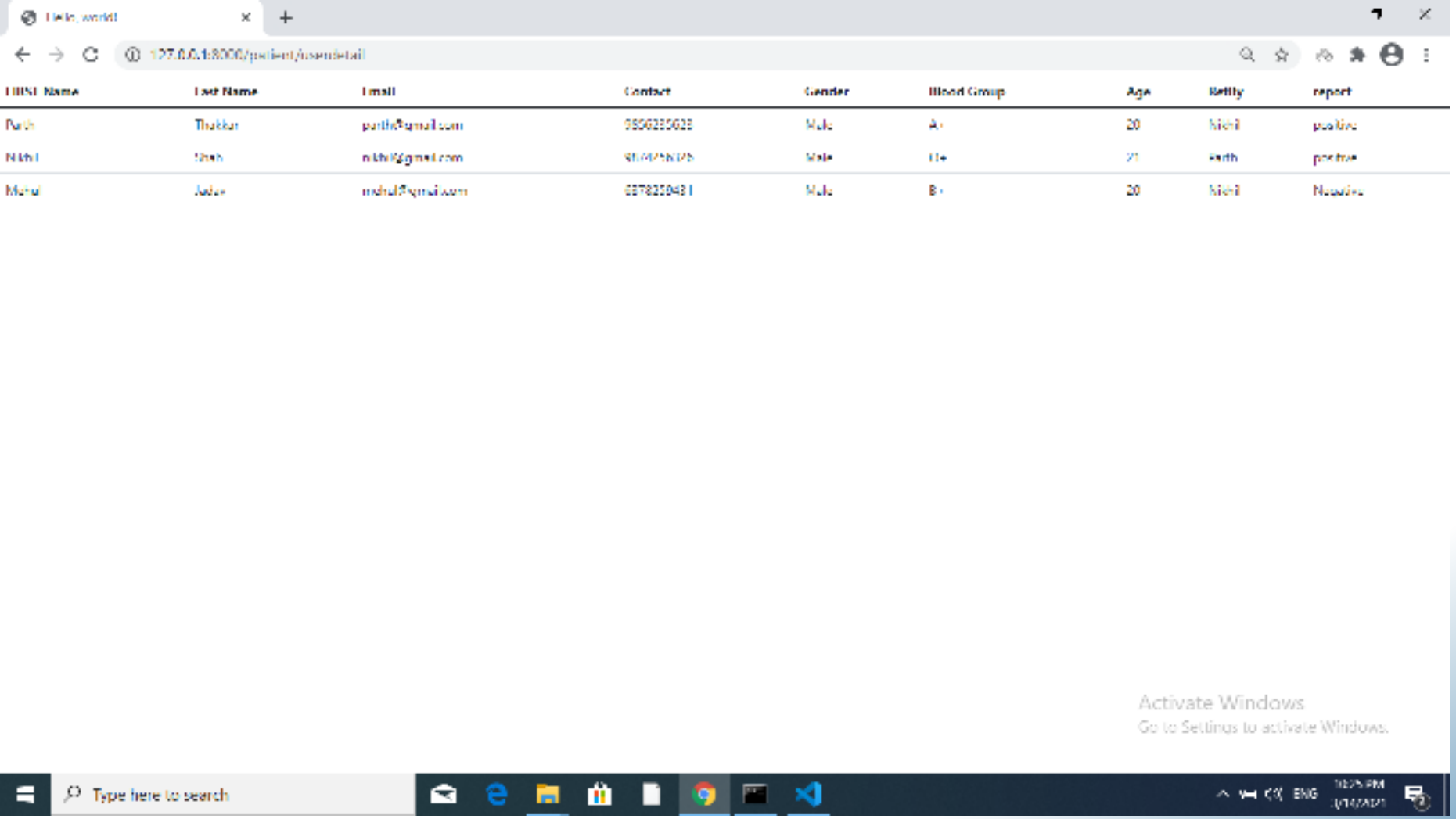
MBBS

Activate Windows
Go to Settings to activate Windows.

Type here to search

ENG

REPORT



PATIENT DETAILS

FUTURE ENHANCEMENT

- In future we will try to reduce the number of bugs with the help of user feedbacks.
- We will improve our CNN model using database which store blood images of patients
- This images helps use to increase our model's efficiency
- If we get a chance we also like to connect it with real microscope to reduce work to upload image of blood cell.

CONCLUSION

- To recapitulate, the first we find dataset of blood cell which have a lot of images around 26 thousands.
- Then we preprocess that data using opencv because that data was in raw format .
- Then we preprocess that data using opencv because that data was in raw format .
- The dataset have two types of images 1. Parasitized 2. Uninfected.
- Then we made convolutional neural networks which predict a person have malaria or not which have around 99% accuracy on training set whereas 95% accuracy on test set.

Thank you