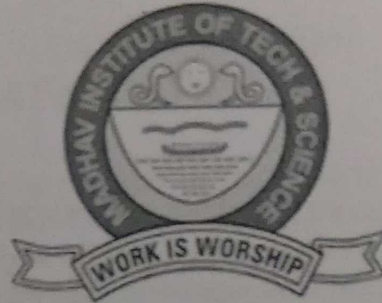


MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)



Project Report

On

HYPERTENSION ANALYSIS USING MACHINE LEARNING

A project report submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

Submitted by:

KRATIKA PANSARI

(0901IT181029)

MAJOR PROJECT

Faculty Mentor:

Dr. Dhananjay Bisen

Assistant Professor

Information technology

Submitted to:

DEPARTMENT OF INFORMATION TECHNOLOGY
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
GWALIOR - 474005

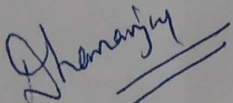
MAY-JUNE 2022

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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CERTIFICATE

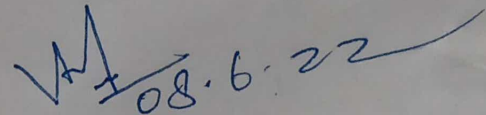
This is certified that **KRATIKA PANSARI (0901IT181029)** has submitted the project report titled **HYPERTENSION ANALYSIS USING MACHINE LEARNING** under the mentorship of **Dr. DHANANJAY BISEN**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in **Information Technology** from Madhav Institute of Technology and Science, Gwalior.



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Professor and Head

Department of IT

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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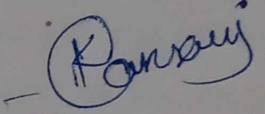
DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Information Technology at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Dr. Dhananjay Bisen**

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

Date:

Place: Gwalior


KRATIKA PANSARI
0901IT181029
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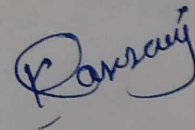
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I am sincerely thankful to my faculty mentors. I am grateful to the guidance of **Dr. Dhananjay Bisen**, Assistant Professor, Department of IT, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.



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Abstract

The main purpose of this project to aware the symptoms of hypertension One of the most dangerous things about hypertension or high blood pressure is that you may not know you have it. In this project we develop a web Application to provide some information about Hypertension and also be provide, Prediction of Hypertension and disease prediction. In this project we are providing two types of prediction first one is disease prediction and second one is Hypertension prediction. Disease prediction is a detect our disease, which disease or what type of disease you have on the basis of our symptoms. The disease prediction will clarify the user symptoms with serious of questions and the symptoms conformation will be done. And second one is Hypertension prediction is detecting our Hypertension stage, the system provides which type of stage do you have if you are in danger stage user will suggested to go in nearest hospital. The Hypertension prediction will clarify the user symptoms with serious of question and the symptoms confirmation will be done. Hypertension prediction provide whether it is a mild, moderate or danger zone if it a danger stage user will be suggested with the doctor details and analgesics for future treatment and also provides food suggestion that means which type of food you have to take. In this project we also be develop a dashboard to provide an information about Hypertension.

According to the World Health Organization (WHO), hypertension globally contributes to 12.8% of the total deaths, and approximately causes 7.5 million to deaths. The STEP wise survey conducted in Qatar in 2012 showed that 32.9% of the population aged 18–64 years were hypertensive or on medication for hypertension; 28.0% of females and 37.7% males, while 31.4% were not on medication for hypertension.

Keyword: hypertension, knowledge, risk factors, awareness and control

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CHAPTER: -1

1. INTRODUCTION:-

1.1 ABOUT PROJECT

Now a days, health care is very important in our life. Hypertension is a common health condition that has become an issue in the modern world. In some cases, Hypertension acts as a "silent killer;" only noticed when it reaches a dangerous level.

So, firstly users need to register with the application and then login to application after that prediction page will open. And if you want to check disease so then click on take a rest Then user will enter their symptoms and the output will generate on the basis of which type of disease you have. we have two symptoms tracker in this module. In first we have disease prediction and the second one hypertension prediction in this module user can easily check symptoms this module will help to aware the symptoms of hypertension. After checking the symptoms in this module, user can give feedback to our tracker that what type of changes we should do in future. In dashboard, there has some information about Hypertension. first one is introduction of hypertension, stages of hypertension, types of hypertensions, complication of hypertension, diagnosis of hypertension, Symptoms of hypertension, and last one is treatment and precaution of hypertension. This module is very helpful to aware the information of hypertension analysis in this project, we use very popular technology to developed it. For the frontend, we use a dash and html CSS that is very popular this time in the web development field. For the backend, we use Python that is the popular general-purpose scripting language that is especially suited to web development.

For the database, we use MySQL. This project is feasible for all types of feasibility like technically, behaviourally, and economically. Because the technology we used for this project is very popular, most people know about it. And the project operation is very simple so that everyone can easily access it and understand the functionality.

For some people, Hypertension treatment may include only lifestyle adjustments without the use of medications. Intervening into lifestyle includes, but not limited to, reducing salt intake, adopting a low-fat diet, consuming more fruits and vegetables, adopting an active lifestyle, and

quitting smoking. One successful prevention approach is to specify those at high risk and target them. Research has shown that the development of hypertension is not only influenced by prehypertension status, but also by other factors such as age, gender, diet, body mass index, literacy level, stress, comorbidities as well as clinical parameters. Due to the huge costs of chronic diseases, studies were conducted to estimate the risk of hypertension, to prevent further costly management and treatment of complications. Conventional logistic regression was applied in many of these studies. Predictive models are useful in predicting hypertension, being essential in

medical practice because of their value in patients' care. Used in clinical settings, the Framingham hypertension risk score, a gender-specific algorithm, is used to predict the risk of developing cardiovascular diseases in 10-year time.

Machine learning provides the chance of having a rapid predictive model using non-invasive predictors to screen for hypertension. Future research should consider improving the predictive accuracy of models in larger general populations, including more important predictors and using a variety of algorithms.

Using several ML techniques, a number of predictive factors were identified to predict hypertension, e.g., comorbidity, medication history, age >60 years, sex, smoking, family history of hypertension, body mass index, educational level, salty diet, vegetable, fruit and meat consumption, regular physical exercise, low-density lipids, occupational status, depression and anxiety status

The objective of this study was to construct and compare logistic regression predictive models and decision tree techniques, using ML, to identify individuals at high risk of developing hypertension without the need of invasive clinical procedures.

Scope: -

This project will enhance the knowledge of hypertension and also be provide a prediction of Hypertension. It will become more beneficial for people in future for easily find our illness, and it also provides suggested with the doctor details and analgesics for further treatment and also provides food suggestion that means which type of food you have to take.

Objectives: -

The main objective of this project is to provide awareness because Hypertension usually produces no symptoms. This means most people don't even realise they have it one-third of these people are not even aware they are hypertensive. Therefore, this disease is sometimes called the "silent killer." This disease is usually asymptomatic until the damaging effects of hypertension.

Hypertension, a global burden, is associated with several risk factors and can be treated by lifestyle modifications and medications. Prediction and early diagnosis are important to prevent related health complications. The objective is to construct and compare predictive models to identify individuals at high risk of developing hypertension with the need of invasive clinical procedures.

Advantages: -

1. You can easily check your disease with the help of disease prediction.
2. You can easily check your hypertension with the help of hypertension disease prediction
3. Provide more information about hypertension
4. Provide all these facilities mentioned above at one place.
5. Online accessibility so any one can easily access it.

Modules of Hypertension Analysis: -

In this Project we have used user module.

User Module: -

This module is developed for user of the website and user can view information about Hypertension and also check our Hypertension Stage.

- a. Login.
- b. View Hypertension Dashboard.
- c. Check Hypertension stage.
- d. Check Disease.

1.3 ABOUT TECHNOLOGIES: -

Tool's Information-

Software Requirements: -

Basic software requirements to run this project –

- Any web browser with HTML5.
- Any windows-based operating system.

Hardware Requirement: -

Basic hardware requirements to Implement this Project –

- Disk Space: 1GB+
- Database: MySQL version 8.0.28 or greater.
- RAM: 4GB+
- Processor: 1.0GHz+

Basic hardware requirements to run this Project-

- Stable internet connection with speed up to 512 kbps for every Individual system.
- And installation of any web browser these are minimum hardware

Tool's Used :-

FRONTEND: HTML 5 , CSS , JAVA SCRIPT & DJANGO:-

At its heart, HTML is a language made up of elements, which can be applied to pieces of text to give them different meaning in a document (Is it a paragraph? Is it a bulleted list? Is it part of a table?), structure a document into logical sections (Does it have a header? Three columns of content? A navigation menu?), and embed content such as images and videos into a page. This module will introduce the first two of these and introduce fundamental concepts and syntax you need to know to understand HTML.

Cascading Style Sheets, fondly referred to as CSS, is a simply designed language intended to simplify the process of making web pages presentable. CSS allows you to apply styles to web pages. More importantly, CSS enables you to do this independent of the HTML.

CSS is easy to learn and understand, but it provides powerful control over the presentation of an HTML document.

JavaScript is a cross-platform, object-oriented scripting language used to make webpages interactive (e.g., having complex animations, clickable buttons, popup menus, etc.). There are also more advanced server-side versions of JavaScript such as Node.js, which allow you to add more functionality to a website than downloading files (such as real time collaboration between multiple computers). Inside a host environment (for example, a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them.

Django is a high-level Python web framework that enables rapid development of secure and maintainable websites. Built by experienced developers, Django takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It is free and open source, has a thriving and active community, great documentation, and many options for free and paid-for support.

BACKEND: PYTHON:-

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

The Python interpreter and the extensive standard library are freely available in source and may be freely distributed. The same site also contains distributions of and pointers to many free third-party Python modules, programs and tools, and additional documentation. The Python interpreter is easily extended with new functions and data types implemented in C or C++ (or other languages callable from C). Python is also suitable as an extension language for customizable applications.

DATABASE: MYSQL:-

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons –

- MySQL is released under an open-source license. So, you have nothing to pay to use it.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

Chapter:-2

2. System Analysis

2.1 Requirement Identification: -

2.1.1 Study of existing system

After the reading lot of research papers and study we identified, requirements of dashboard. Hypertension usually produces no symptoms. This means most people don't even realise they have it. Hypertension usually does not produce any symptoms, because the organs of the body can resist high blood pressure for a long time. That's why it's important to have regular medical examinations to make sure your blood pressure isn't creeping up as you grow older.

We identified requirements for our application, we develop a Dashboard and hypertension prediction. It's very helpful for people to reduce this problem.

Initially, we collected all the information and the working of the current system. We noted the limitation of that system, which motivated us to develop new system. With the help of these information, we got basic ideas about the existing system. we tried to implement those ideas to develop the proposed system.

The most important thing is to study system thoroughly. Here we are studying both existing system and proposed system so that advantages & disadvantages of both the systems can be understood.

2.1.2 Problem and weakness of existing system-

India is a developing country. Health is most important at this time. In the earlier system, there are many platforms for Hypertension prediction but those platforms provide only one service. Some platforms provide only Information about hypertension. Some platforms provide only prediction.

2.1.3 Proposed system Requirements: -

In the proposed system there has a major module, name as hypertension Analysis. In dashboard, there has some information about Hypertension. first one is introduction of hypertension, stages of hypertension, types of Hypertensions, complication of hypertension,

diagnosis of hypertension, Symptoms of hypertension, and last one is treatment and precaution of hypertension. This module is very helpful to aware the information of hypertension analysis. In the user view, user should register and then signup and after the process of registration user have two options firstly user can check symptoms with the help of disease prediction and the other option user can check Hypertension with the help of hypertension disease prediction. we have two symptoms tracker in this module. In first we have disease prediction and the second one hypertension prediction in this module user can easily check symptoms this module will help to aware the symptoms of hypertension. After checking the symptoms in this module, user can give feedback to our tracker that what type of changes we should do in future.

2.2 FEASIBILITY STUDY: -

After doing the project Hypertension Website, study and analysing all the existing or required functionalities of the system, the next task is to do the feasibility study for the project. All projects are feasible - given unlimited resources and infinite time. Feasibility study includes consideration of all the possible ways to provide a solution to the given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily done based on the future upcoming requirements.

2.1.3 Economic Feasibility

The system is estimated to be economically affordable. The benefits include increased efficiency, effectiveness and the better performance. The system is financially feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies, there is nominal expenditure and economic feasibility for certain. There have some aspects which is define why this project is economically feasible.

- This is very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor.
- Overall, we have estimated that, the benefits to the organization are going to receive from the proposed system, will surely overcome the initial costs and the later on running cost for system. So, this project is economic feasible.

2.1.4 Technical Feasibility

This included the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionality to be provided in the system, as described in the System Requirement Specification (SRS), and checked if everything was possible using different type of frontend and backend platform.

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- 1) Does the necessary technology exist to do what is suggested?
- 2) Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- 3) Can the system be upgraded if developed?
- 4) Are there technical guarantees of accuracy, reliability, ease of access and data security?

2.1.5 Behavioural Feasibility

No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory even to a layman. Besides, a proper training has been conducted to let know the essence of the system to the users so that they feel comfortable with new system.

Behavioural feasibility is a term used to describe people's attitudes towards different things. It also studies how people react to things. If the system meets the requirements of the customers, we can say that the system is operationally feasible. The proposed system will be beneficial only if it can be turned into a system which will meet the requirements of the project when it is developed and installed, and there is sufficient support from the users.

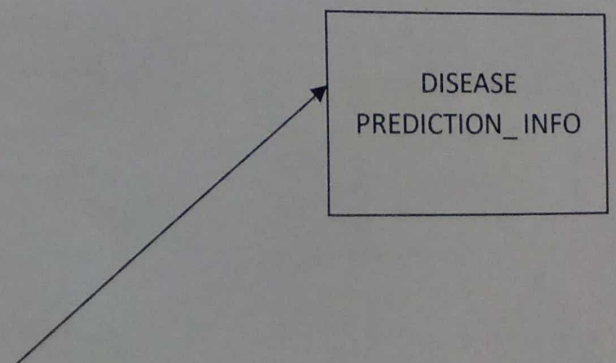
Following tasks are performed by the operational feasibility for users:

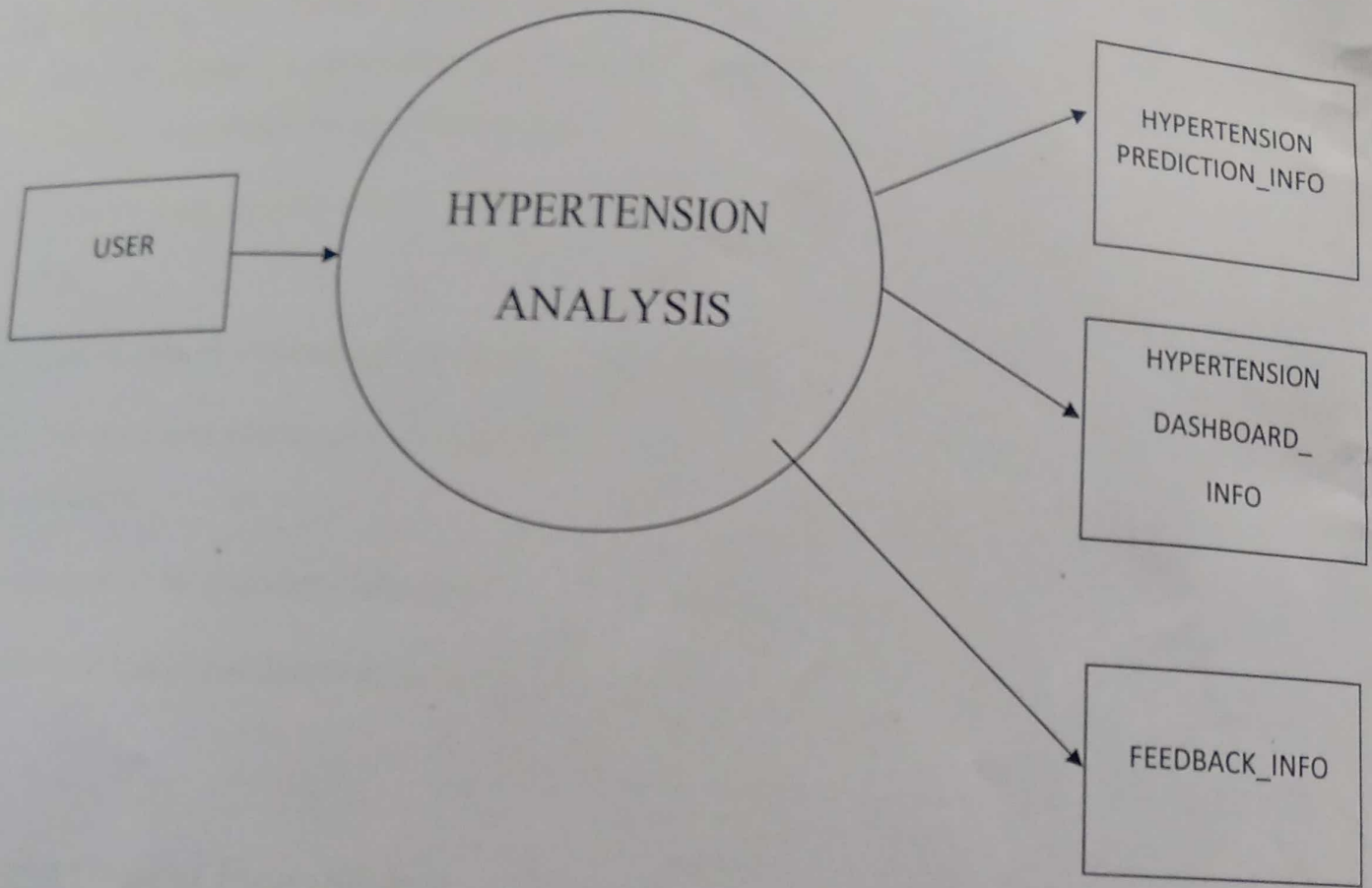
- It checks that the project is user friendly or not.
- Its interface should be simple so that everyone should be able to use it.
- The proposed system will improve the total performance.
- The proposed system will be available to the customers throughout the globe.
- The proposed system will provide a better market for different users.

2.3 DATA FLOW DIAGRAM

A data flow diagram is a graphical view of how data is processed in a system in terms of input and output.

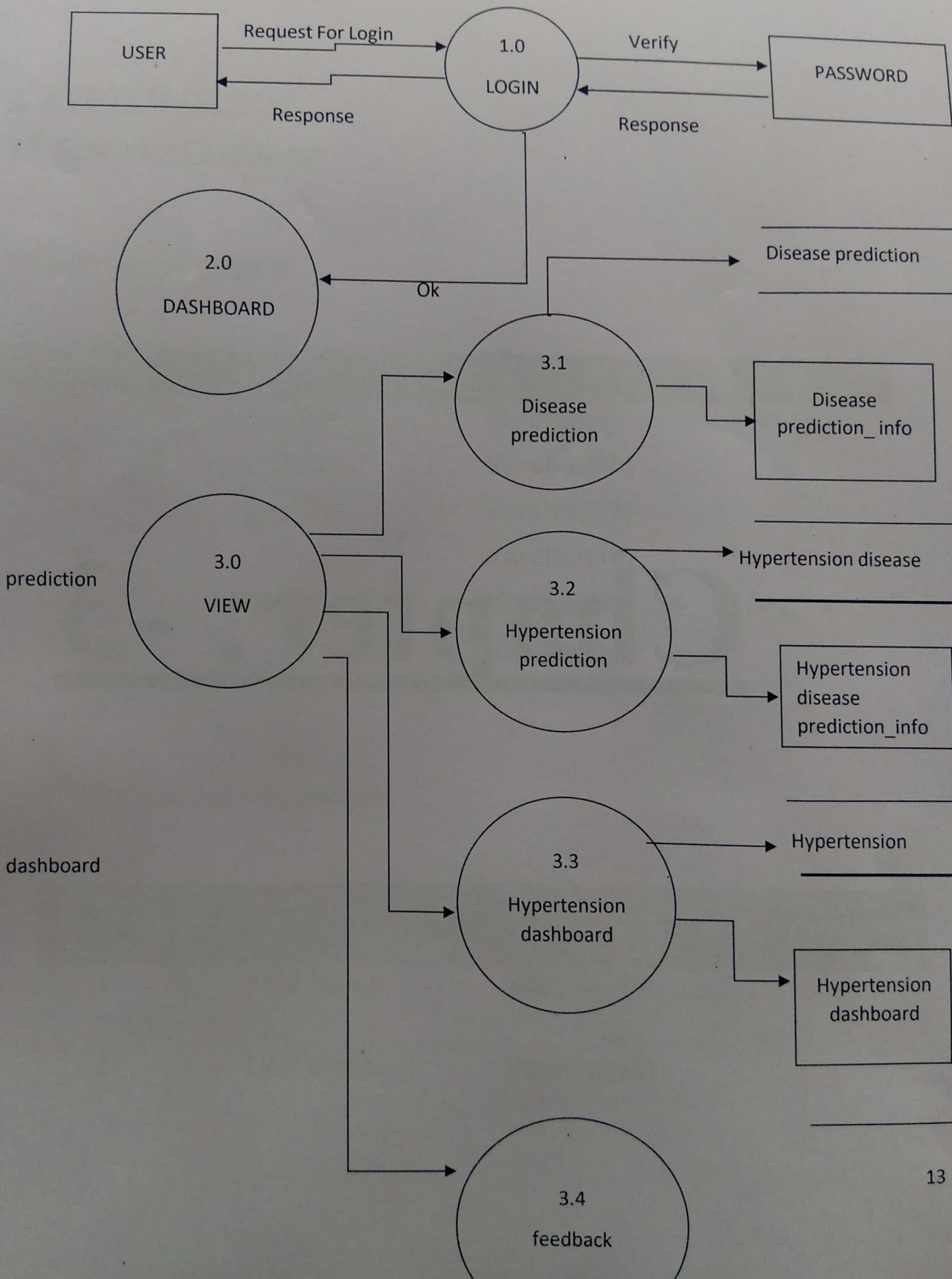
CONTEXT LEVEL DIAGRAM (0 LEVEL DFD)

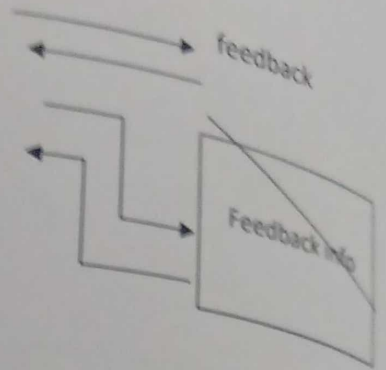




DFD for HYPERTENSION ANALYSIS

USER SIDE DFD





Chapter: -3

3. SYSTEM DESIGN: -

3.1 Schema of Database: -

1. Table Name: - Users

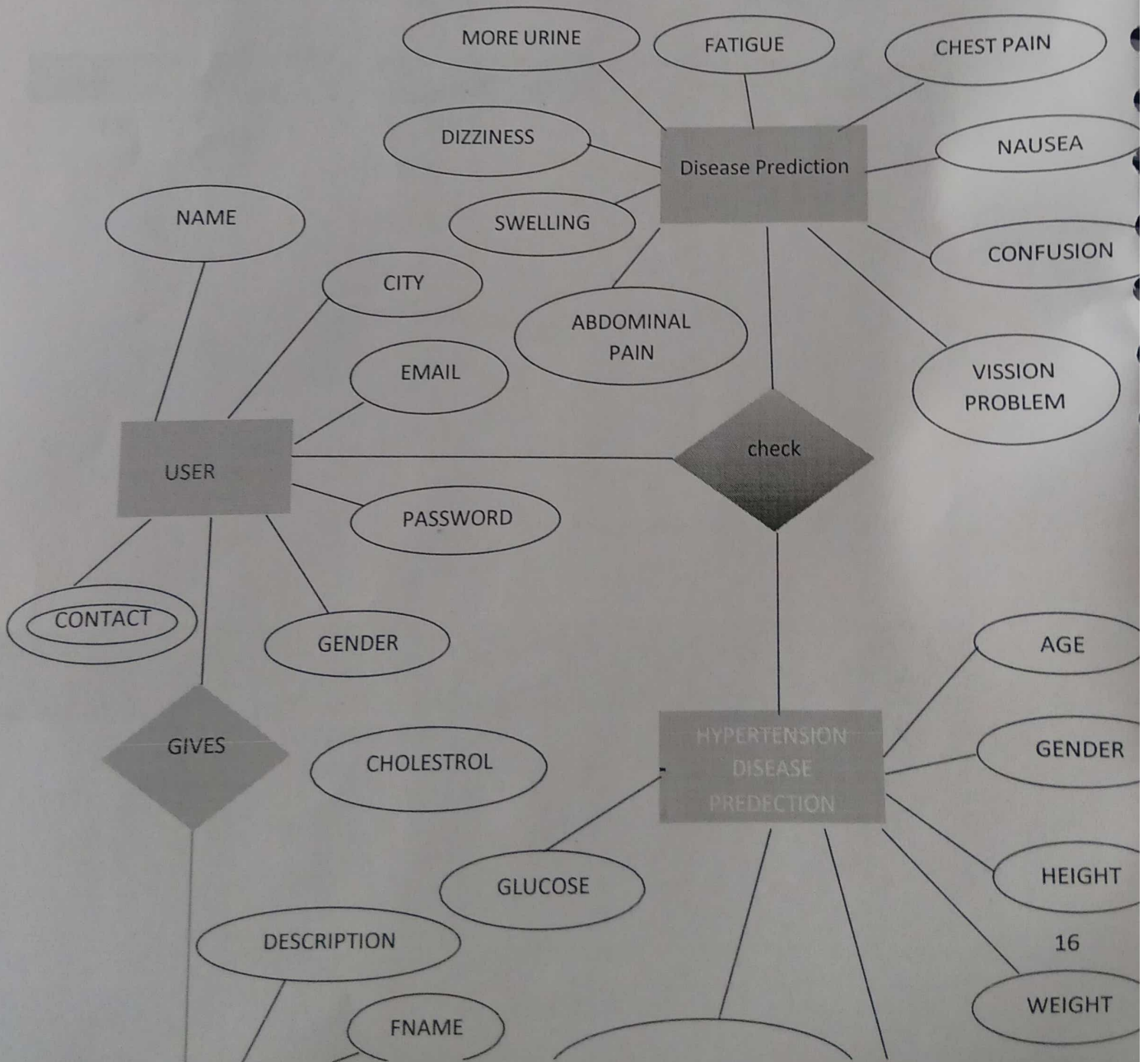
#	Name	Datatype	Key
1	Email	Varchar(50)	Primary
2	Name	Varchar(50)	-
3	Contact	varchar(12)	-
4	Gender	Varchar(10)	-
5	Password	Varchar(50)	-
6	City	Varchar(50)	-

2. Table Name: - Feedback

#	Name	Datatype	Key
1	First Name	Varchar(50)	-
2	Last Name	Varchar(50)	-

3	Email	Varchar(50)	Primary
4	Enter Message	Varchar(500)	-

3. 2 ER DIAGRAM



CHAPTER: -4

4. Testing and Implementation

4.1 Importance of Code: -

What is the importance of software testing?

Project testing is important or better to use the word critical for a project because nobody likes a software with defects.

Just to take an example: If you create an account on Eucapnia and if this web-portal has been full of defects or if you kept received a server error every time, when you are trying to create an account on this web-portal. Would you prefer this software?

I think answer would be NO.

So, when this web-portal will be complete then we have to ensure that every module (features or functionalities) is free from error. That's why project testing is important part of a project.

What is the importance of software implementation?

In the project implementation phase, this phase ensures some parameters like something operating properly in its environment, including analyzing requirements, installation, configuration, customization, execution, testing, systems integrations, user training, and delivery and making necessary changes. If these all are successfully work in the then that means your project is properly setup, otherwise user will face some problems when user use this project, that's why the software implementation is important part for all projects.

4.2 Testing

Testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect-free in order to produce the quality product.

So here we are using three testing approaches to check that the developed system met the specified requirements or not.

4.1.1 Unit Testing:

This is the testing process, which we can do manually because in this testing program is a tested individually using live record, to see whether that program produce satisfied output as the company or not. In this testing, we checked the individual modules of the project will be working properly or not. i.e., we tested each and every unit of the application separately in developer's environment.

4.1.2 Integration Testing:

In integration testing, system consists different modules, where in each module can arise problems during the testing. Integration testing should be developed from the system specification. Firstly, a minimum configuration must be integrated and then tested.

In our project we have done integration testing. In our project we can integrate all module and then we have tested each module with each other, like a user. When a user visit on our web-portal, how the user will react when they saw our web-portal so, each module is tested by me and our development team.

4.1.3 Validation Testing:

Validation testing provides final assurance that software meets all behavioral and performance requirements. Validation can be defining in many ways but a simple definition is that validation succeeds when software function in a manner that can be reasonably by the customer. In this testing we had tested the connectivity or data transfer between a couple of units tested modules.

CHAPTER: 5

5. Implementation:-

✦ **Setting up Visual Studio Code:**

- Open any browser and Type Visual Studio Code Download.
- Go to link <https://code.visualstudio.com/download>
- Click the option Download. 4. Select a folder by clicking Browse or just follow the default path. Then
- select Next.
- Select the required options as per your need by clicking in the checkbox.
- Then select Next.
- Select Install.
- Click Finish to exit Setup.

✦ **Install Python:** Installing Python is quite easy because nowadays web hosting servers have a quick installation for web applications. The author did not want to use quick installation, instead he installed Python manually. A manual installation is slightly harder. First, you have to download the newest version of Python on their website, <https://www.python.org/downloads/>.

Step 1 – Select Version of Python to Install.

Step 2 – Download Python Executable Installer.

Step 3 – Run Executable Installer.

Step 4 – Verify Python is installed on Windows.

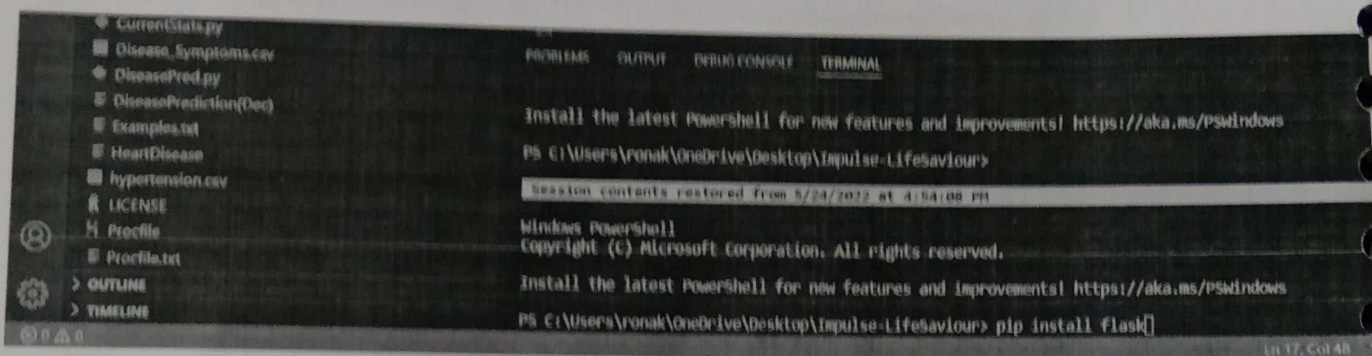
Step 5 – Verify Pip was installed.

Import Flask and Dash:

Step 1: Open Visual Studio Code.

Step 2: Open New Terminal.

Step 3: pip install Flask.



The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the following text:

```
Install the latest Powershell for new features and improvements! https://aka.ms/pswindows
PS C:\Users\ronak\OneDrive\Desktop\Impulse-Lifesaviour>
Session contents restored from 5/24/2022 at 4:54:08 PM
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest Powershell for new features and improvements! https://aka.ms/pswindows
PS C:\Users\ronak\OneDrive\Desktop\Impulse-Lifesaviour> pip install flask[]
```

+ Database:

Step 1: Import sqlite3 package.

Step 2: Use connect () function.

Step 3: Create a database table. ...

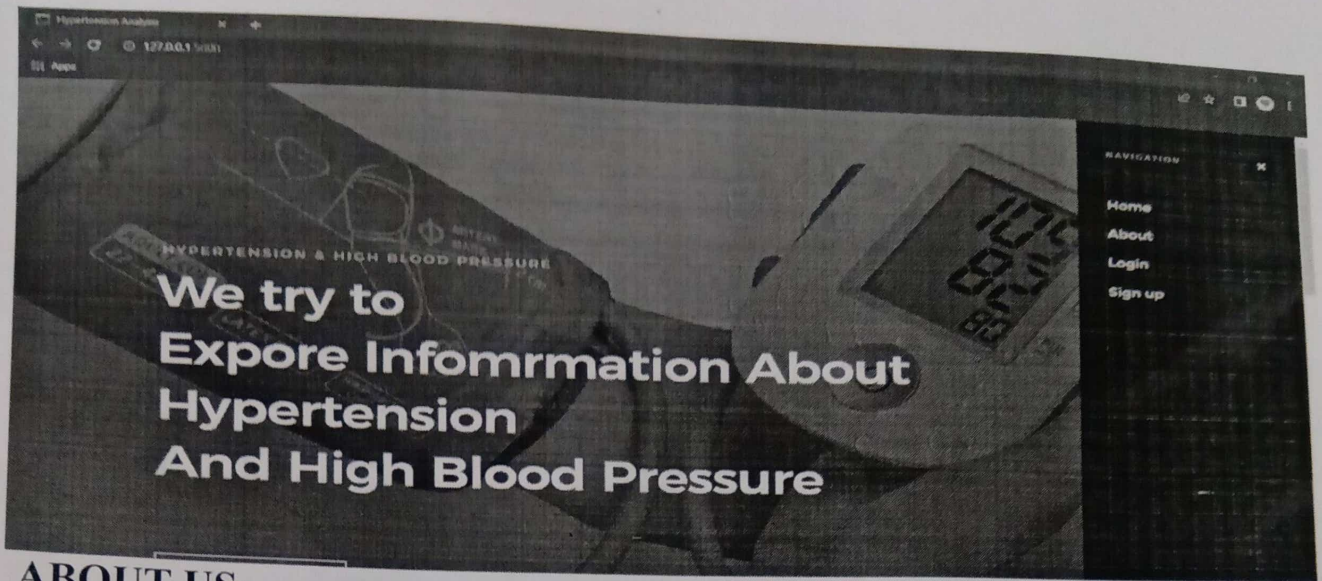
Step 4: Commit these changes to the database.

Step 5: Close the connection

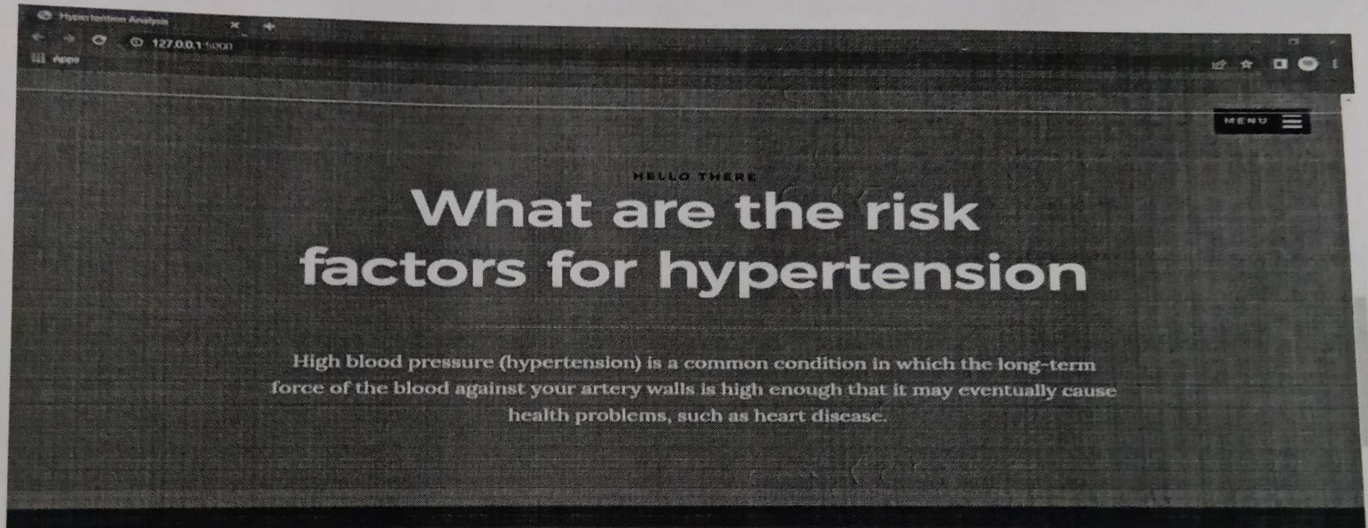
6 SAMPLE INPUT:-

Result & Output: -

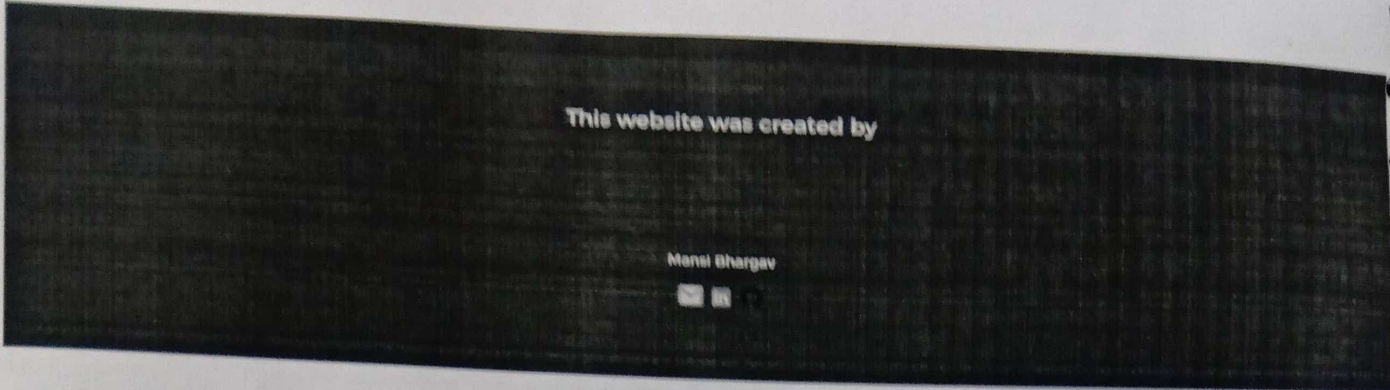
HOME PAGE :-



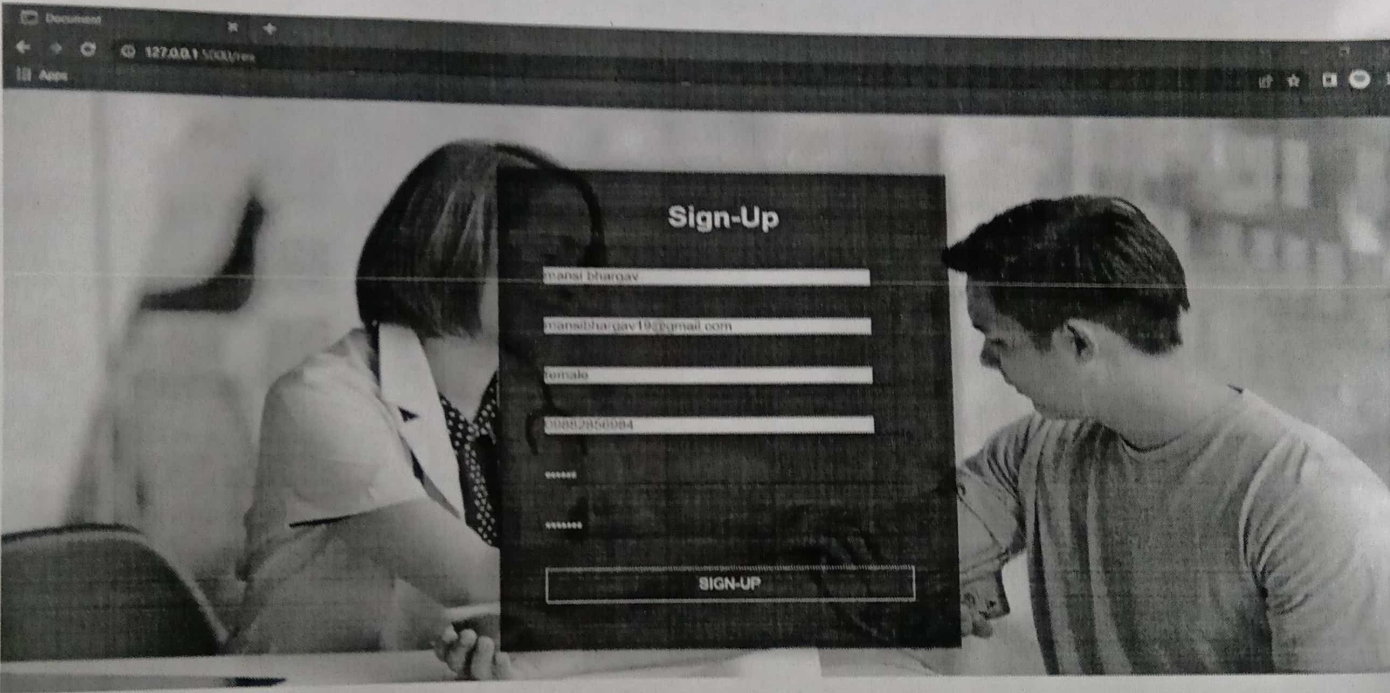
ABOUT US:-

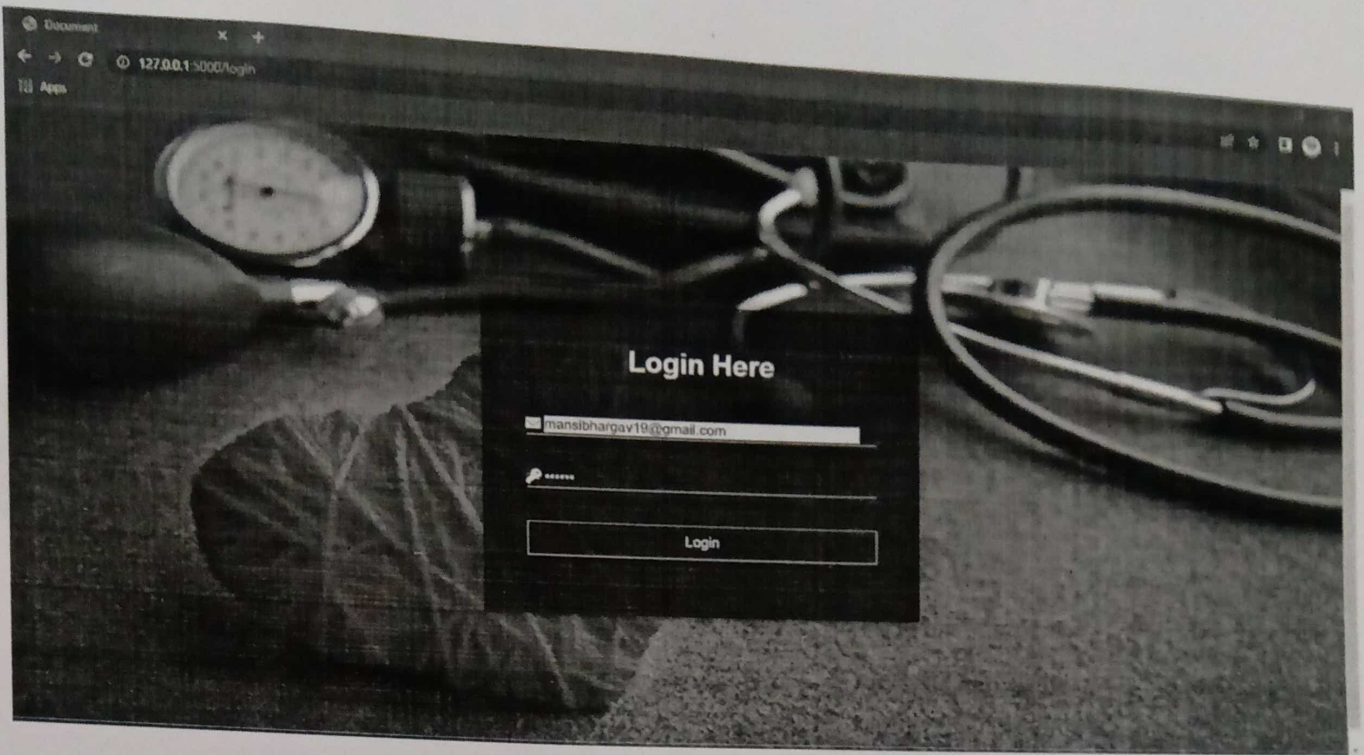


SIGN UP FORM PAGE

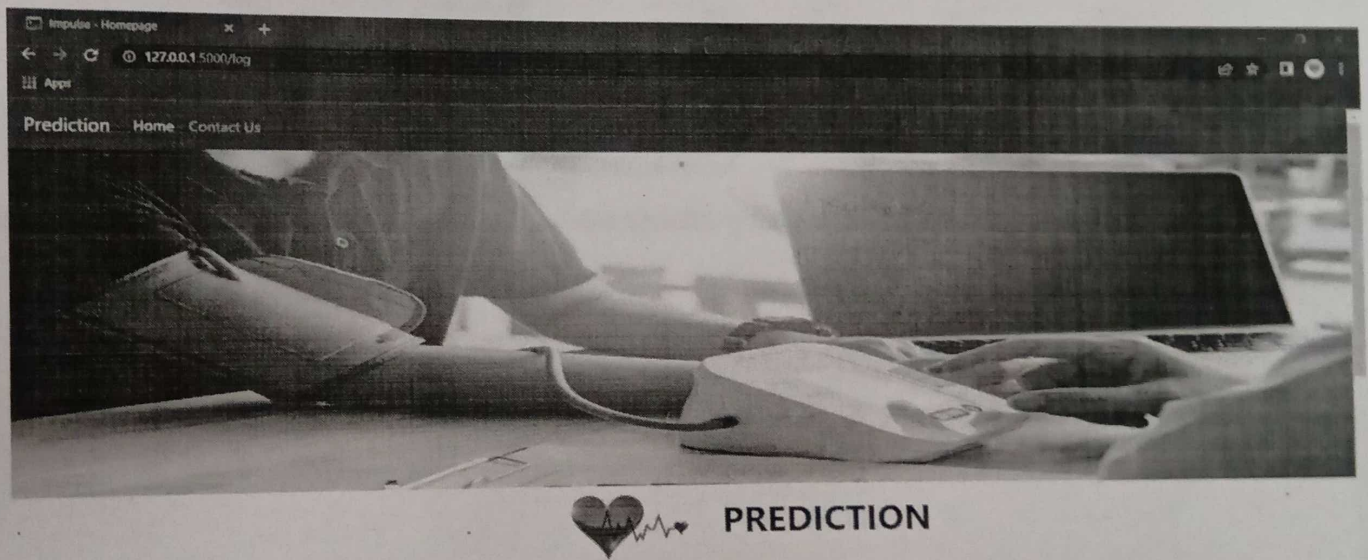


LOGIN FORM PAGE: -





PREDICTION PAGE: -



To insure good health eat lightly ,breath deeply , live moderately,cultivate cheerfulness , and maintain an interest in life.

DISEASE PREDICTION PAGE: -

Disease Prediction based on Symptoms

Track Symptoms And Be Sure

It Predicts Whether you have Dengue, Heart-Attack, Paralysis, Hypertension and much more

Track Now

The Accuracy of Prediction is upto 99%



Medical Condition Prediction

Are you experiencing any of these symptoms below (mark all those applicable)

Fever

Stomach Pain

Itching

Sweating

Cough

Vision problem

Muscle Pain

Vomiting

Confusion

Depression

Shoulder pain

Cold

Arm pain

Headache

Next

- Stiff Neck
- Chest Pain
- Skin rash
- Back Pain
- Low heartbeat
- Yawning
- Swelling
- Nausea
- Low breath
- Fatigue
- Painful Bowel moments
- Dry mouth
- Stool pressure
- Urine Blood

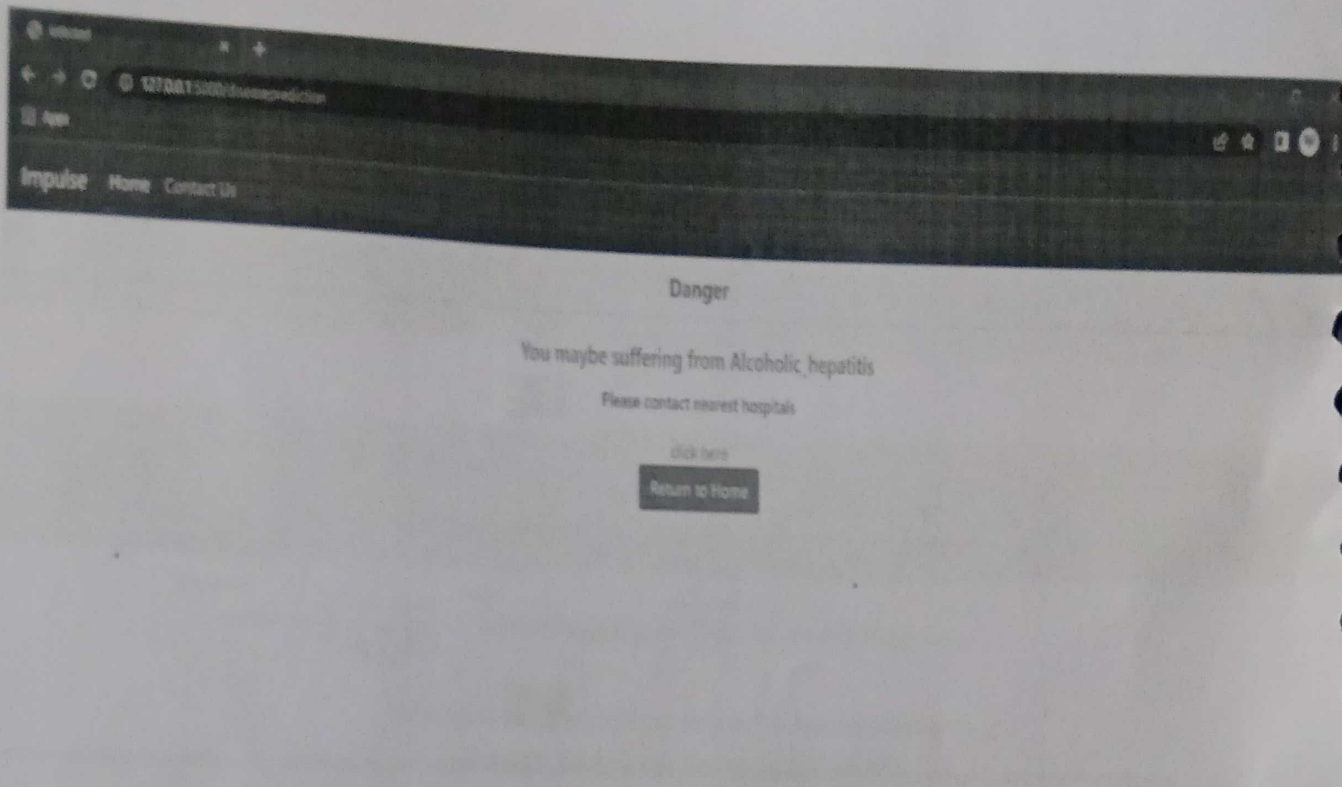
Next

- Anal bleeding
- Muscle cramps
- Sweat
- Rash
- Constipation
- Abdominal Pain
- More Urine
- Muscle spasm
- Bloody stools
- Weight loss
- Bleed
- Fecal leakage
- Dizziness
- Neck pain
- Breath Problems

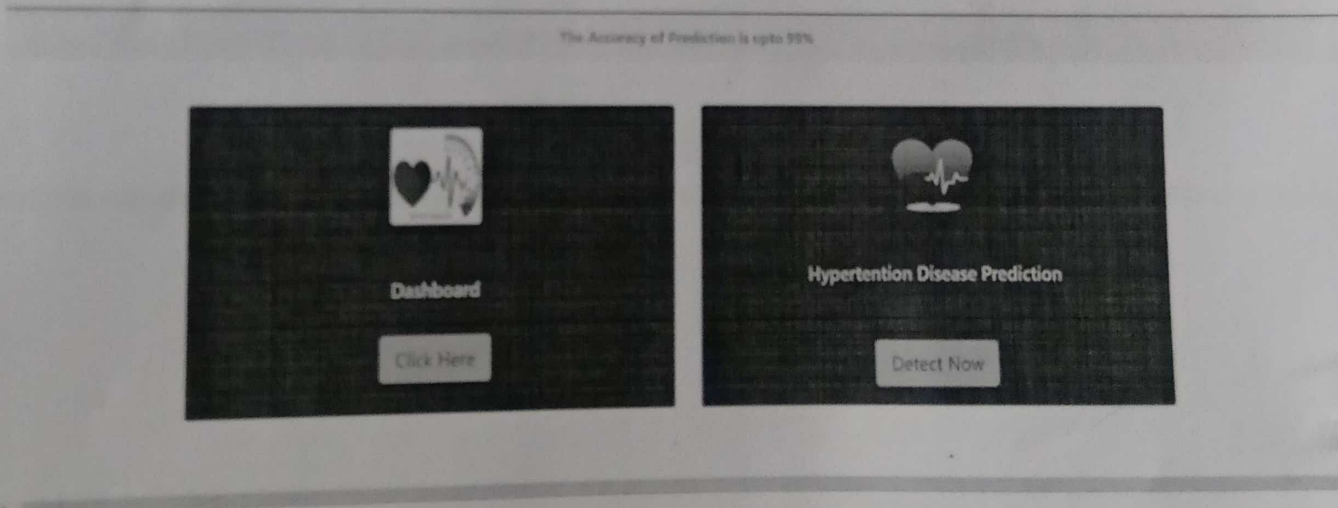
Next

- Anal swelling
- Wheezing
- Anxiety
- Thirsty
- Diarrhea
- More Urine
- Anus itching
- Neck stiff
- Bleeding
- Decreased appetite
- Lump anus
- Hives

Submit



DASHBOARD AND HYPERTENSION PREDICTION PAGE: -



DASHBOARD OF ABOUT HYPERTENSION ANALYSIS: -

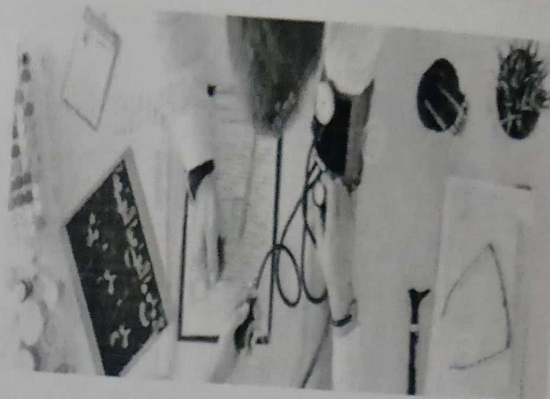
Stage of Hypertention

Normal: systolic less than 120 mm Hg and diastolic less than 80 mm Hg

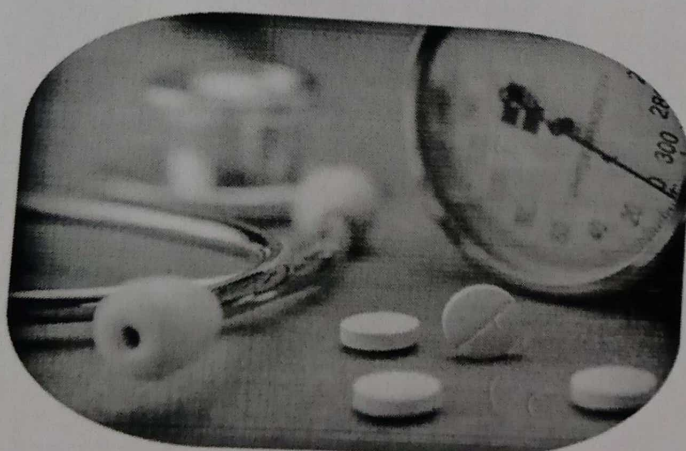
Elevated: systolic between 120-129 mm Hg and diastolic less than 80 mm Hg

Stage 1: systolic between 130-139 mm Hg or diastolic between 80-89 mm Hg

Stage 2: systolic at least 140 mm Hg or diastolic at least 90 mm Hg



Types of Hypertension



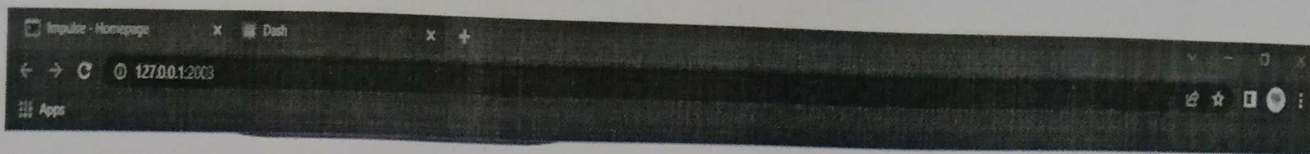
When people talk about hypertension, they are usually referring to one of the two types, namely:

Primary hypertension

Secondary hypertension

Primary hypertension is also known as essential hypertension. This is the most prevalent form of hypertension and it has no identifiable cause.

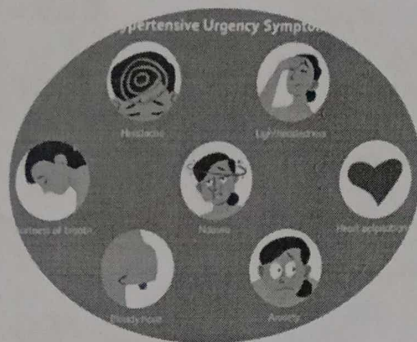
Secondary hypertension is caused by an underlying disease or even medication. Thyroid dysfunction, sleep apnea and diabetes have been linked to secondary hypertension. Chemicals such as amphetamines, antidepressants and even caffeine can lead to hypertension.



Symptoms of Hypertension

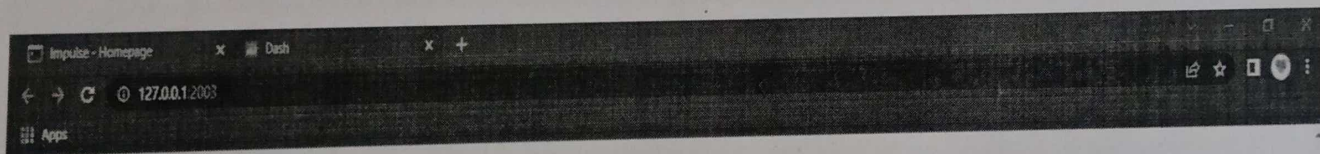
If your blood pressure is extremely high, there may be certain symptoms to look out for, including:

- Severe headaches
- Nosebleed
- Fatigue or confusion
- Vision problems
- Chest pain
- Difficulty breathing
- Irregular heartbeat
- Blood in the urine
- Pounding in your chest, neck, or ears

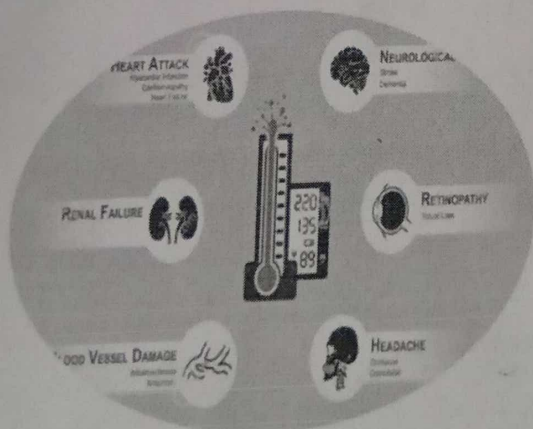


People sometimes feel that other symptoms may be related to high blood pressure, but they may not be:

- Dizziness
- Nervousness
- Sweating
- Trouble sleeping
- Facial flushing



Complication of Hypertension



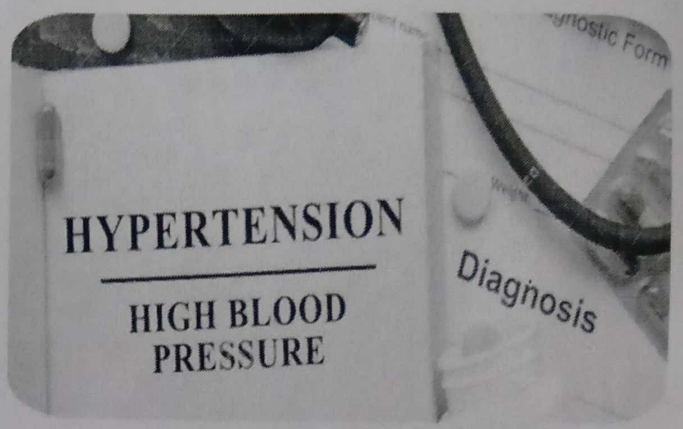
- Heart attack or stroke.
- Aneurysm.
- Heart failure.
- Weakened and narrowed blood vessels in your kidneys
- Thickened, narrowed or torn blood vessels in the eyes.
- Metabolic syndrome.
- Trouble with memory or understanding.
- Dementia.

Diagnosis of Hypertension

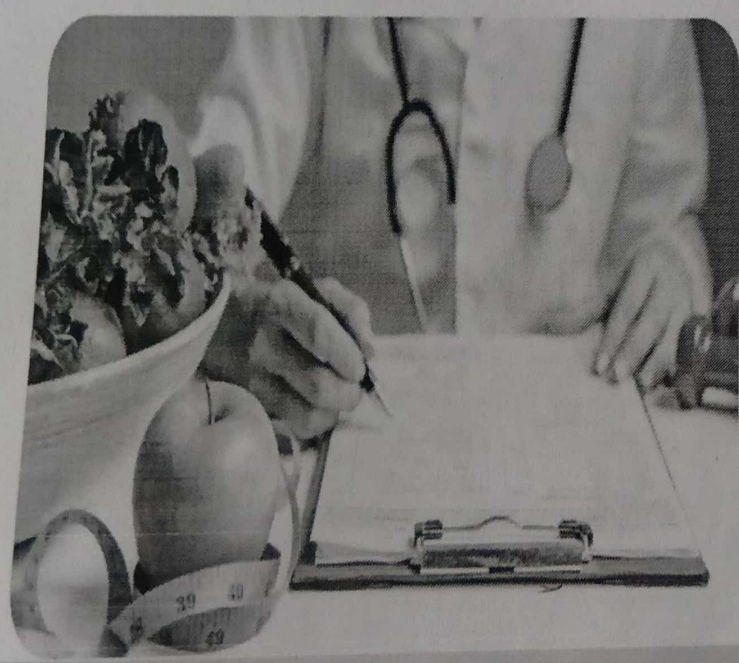
The process of diagnosis is usually carried out by measuring the patient's blood pressure using a sphygmomanometer. At least 3 different elevated readings are required to diagnose this condition. This examination along with additional tests help to identify the causes of high blood pressure and any other complications.

Additional diagnosis might include

- Kidney ultrasound imaging.
- Urine tests.
- Blood tests
- Electrocardiogram (or) ECG Test.



Treatment and Precautions



Weight loss treatment programs like diet and exercise are recommended as high blood pressure and obesity are related to each other.

Having a well-balanced diet including whole grains, fruits, vegetables and low-fat dairy products.

Avoid foods that have high amounts of LDL cholesterol (low-density lipoprotein).

Reduce intake of sodium in the diet.

Increase the intake of calcium and vitamin D.



HYPERTENSION PREDICTION :-

Heart Disease Probabilty Detector

Age : 45

Gender : Male Female

Height : 6 Weight : 67

Systolic blood pressure : 139 Diastolic blood pressure : 140

Cholesterol : High Medium Low Glucose : High Medium Low

Do you smoke ? Yes

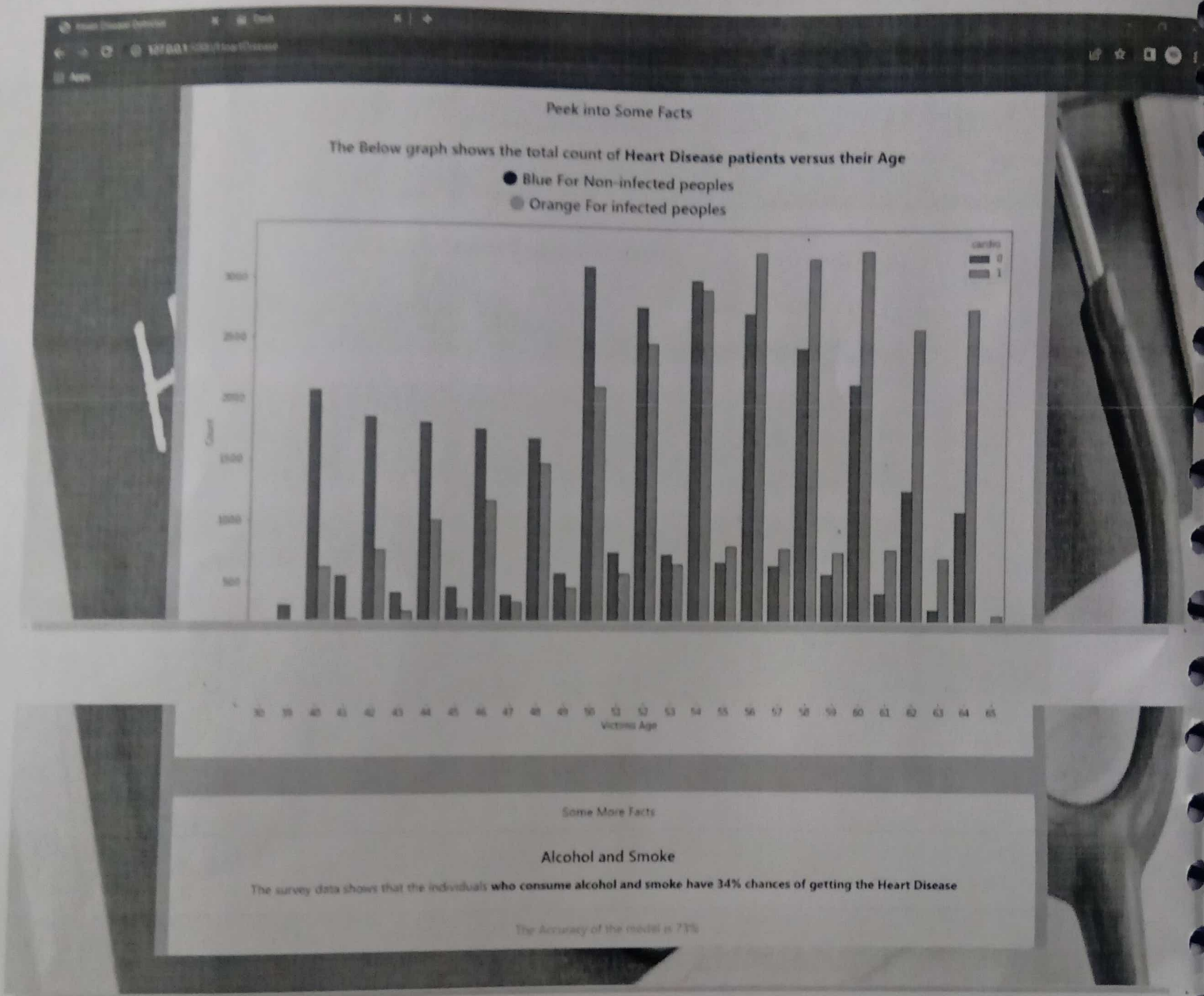
Do you consume alcohol ? No

Are you physically challenged ? Yes

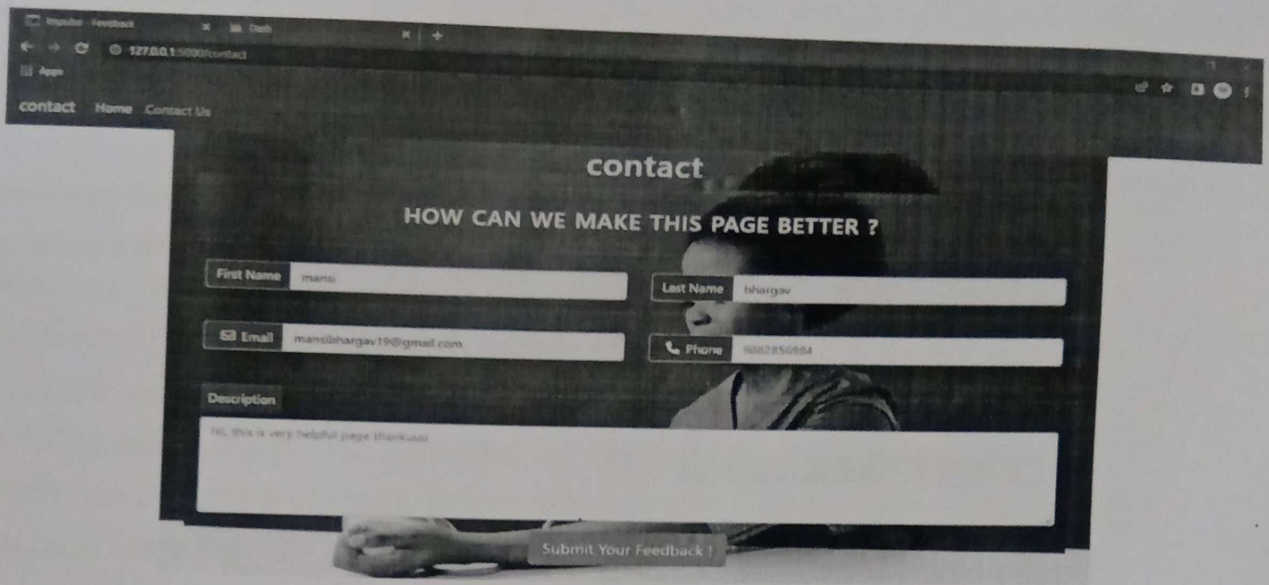
Submit

Peek into Some Facts

GRAPH PAGE: -



FEEDBACK FORM PAGE: -



Chapter:-7

7. Conclusion

7.1 Conclusion

In this project we are using Logistic regression. Logistic regression is a statistical analysis used to determine the effect of the independent variable on the dependent variable with is categorical data. Logistic regression was used in this study is binary logistic as the dependent variable consists of two categories, consisted of hypertension and not hypertension.

This application is very helpful for users. Users, can easily check our hypertension stage. which stage you have on the basis of our symptoms. The Hypertension prediction will clarify the user symptoms with serious of questions and the symptom conformation will be done. Hypertension prediction provide whether it is a mild, moderate or danger zone if it a danger stage user will be

suggested with the doctor details and analgesics for future treatment and also provides food suggestion that means which type of food you have to take. In this project we also be develop a dashboard to provide an information about Hypertension.

This application is going to be very helpful to the users as they can easily check your Hypertension stage, also they can easily get information about Hypertension, they are getting all this just at their home using Smartphone and laptop.

7.2 Future Enhancement:-

1. Regional Language Support
2. Android Application Support
3. Use random forest algorithm
4. Much More facilities can be added...

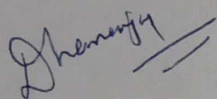
Reference:-

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2. www.webmd.com
3. <https://www.org.com>
4. www.heathcare.com
5. <https://www.heath.info.com>
6. <https://getboostap.com>

ROLE OF MENTOR

I am really really grateful to my Mentor for advising me and introducing the project to me in a easy to understand way which has helped me complete my project easily and effectively on time. I am dearly obliged to Prof.Dhananjay Bisen for giving me an opportunity to work on this project which has provided valuable information about hypertenion analysis using machine learning.

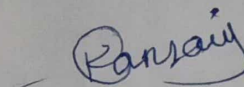
Thank you.



Prof.Dhananjay Bisen

Assistance Professor

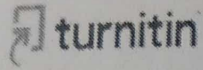
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