

TNSDC Virtual Internship Program-2023

PROJECT PRESENTATION



Personal Finance and Health management system
using machine learning in python

Created by:

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OF TECHNOLOGY**

ABSTRACT

- This project is a personal finance and health management system that utilizes machine learning algorithms to predict various outcomes related to health and finance.
- The project aims to help users make informed decisions about their finances and health by providing them with accurate predictions based on their personal data.
- The system includes several modules such as disease prediction, loan approval prediction, credit card scores prediction, insurance amount prediction, and stock market price prediction. The disease prediction module uses machine learning models to predict the likelihood of a user developing various diseases such as heart disease, breast cancer, liver disease, and diabetes.
- The loan approval prediction module uses machine learning algorithms to predict the probability of a user's loan application being approved or rejected by a bank. The credit card score prediction module predicts a user's credit score based on their past credit history. The insurance amount prediction module predicts the amount of insurance coverage a user needs based on their personal information.
- Finally, the stock market price prediction module uses machine learning models to predict the prices of various stocks based on historical data. This project aims to provide users with a comprehensive personal finance and health management solution that leverages machine learning algorithms to improve decision making and increase financial and health-related outcomes.

OBJECTIVE

- The objective of this project is to develop a web-based application for personal finance and health management using machine learning in Python.
- The application aims to help users manage their finances and health by providing personalized recommendations based on their data. It includes

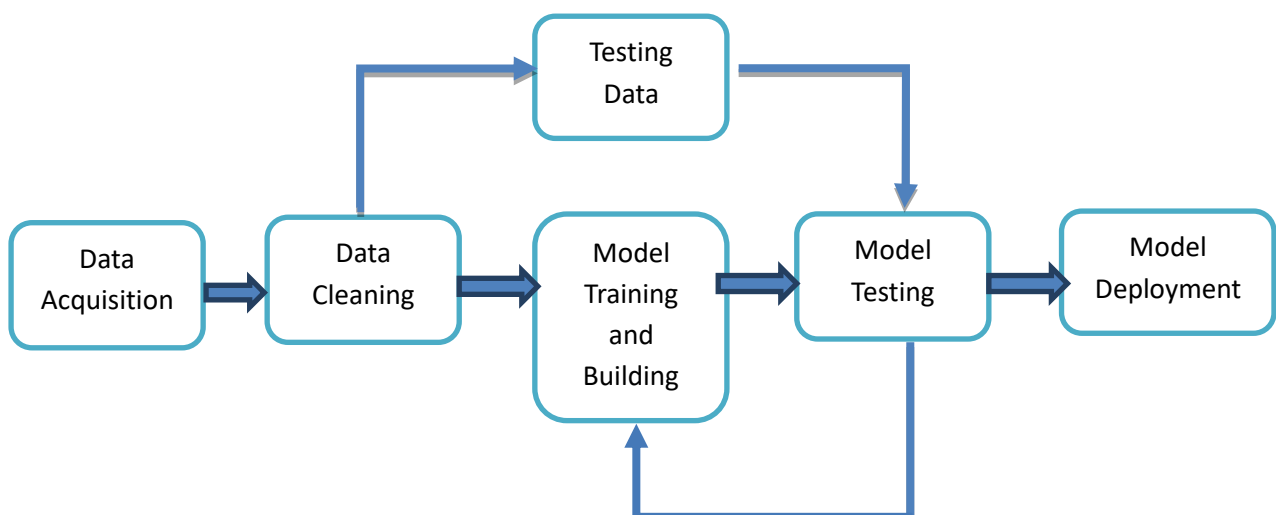
features such as prediction of financial outcomes, disease risk assessment, and personalized health recommendations.

- The application uses machine learning algorithms to analyse the user's data and provide insights and recommendations.
- The goal is to create a comprehensive platform that can help users make informed decisions about their finances and health.

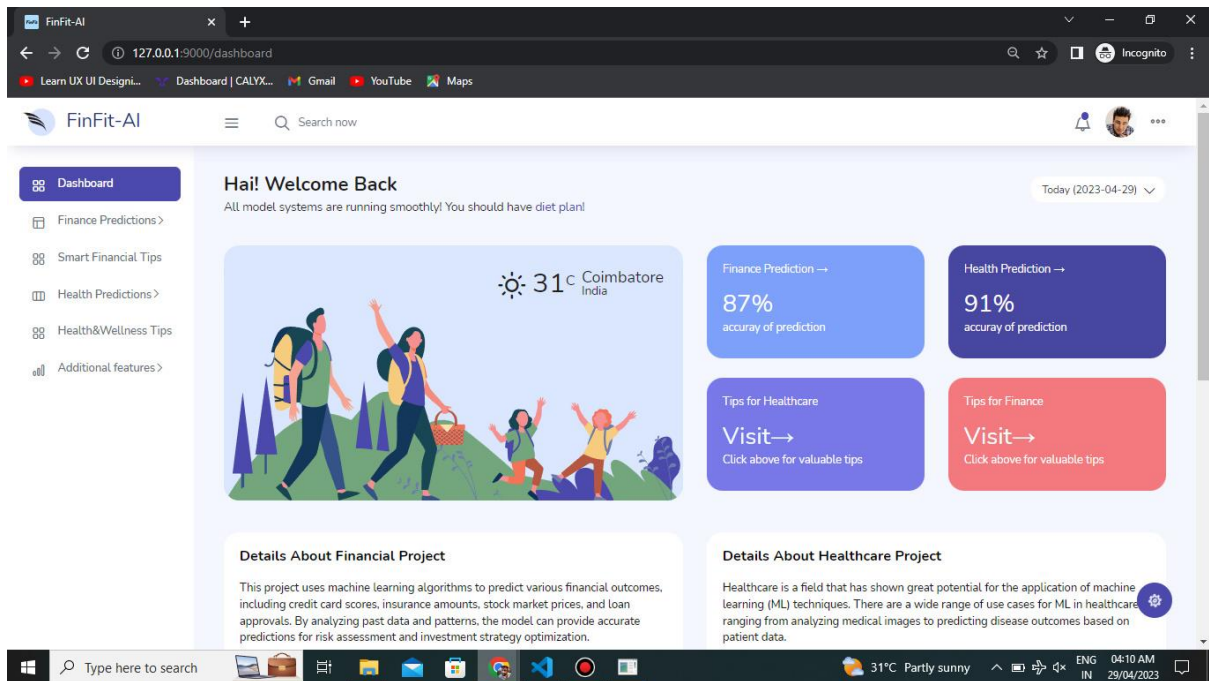
Why machine learning use in this project?

- ❖ In this project, machine learning algorithms are used for predicting health outcomes and financial behaviours.
- ❖ The system takes input data related to a person's medical and financial history and uses it to train different models for predicting outcomes such as the likelihood of developing a disease, credit score prediction, insurance amount prediction, stock market price prediction, and loan approval prediction.
- ❖ The user can then input their personal information and the system will use the trained models to provide predictions and insights for making informed decisions related to their health and finances.
- ❖ The machine learning algorithms used in this project include decision trees, logistic regression, support vector machines, random forests, and gradient boosting and etc..

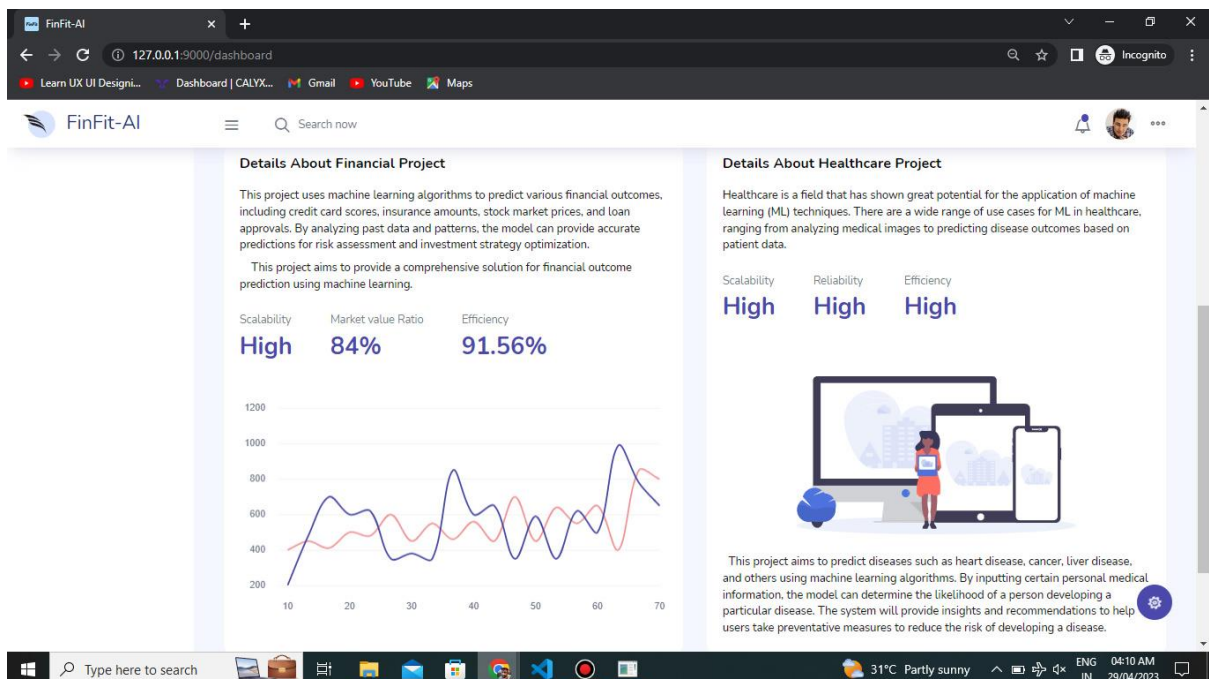
MACHINE LEARNING PROCESS



Project Screenshots (with outputs)



Dashboard Pages



Project contains features are,

Finance related Pages

- 1. Health insurance amount Prediction**
- 2. Stock market price Prediction & analysing**
- 3. Loan Approval Prediction**
- 4. Credit card Scoring Prediction**

Health related Pages

- 1. Hearth Disease Prediction**
- 2. Liver Disease Prediction**
- 3. Diabetes Prediction**
- 4. Breast Cancer Prediction**
- 5. Kidney Disease Prediction**

Tips Pages

- 1. Smart Finance Tips**
- 2. Health & wellness Tips**

Additional Pages

- 1. BMI**
- 2. BMR**
- 3. Diet Plan Tracker**

Finance related Pages

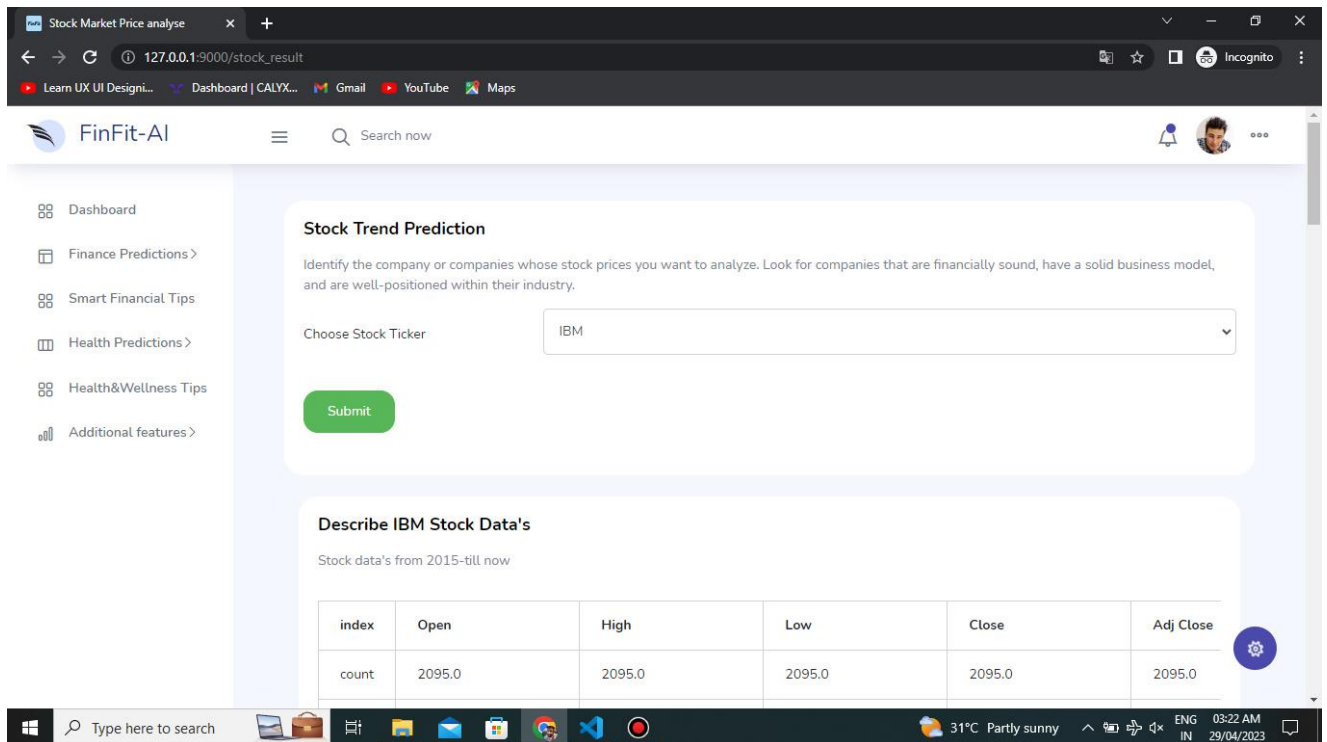
1. Health insurance amount Prediction

The screenshot shows a web browser window with the URL `127.0.0.1:9000/health_insurance`. The page is titled "Health Insurance amount Prediction" and features a sidebar with navigation options: Dashboard, Finance Predictions (selected), Smart Financial Tips, Health Predictions, Health&Wellness Tips, and Additional features. The main content area is titled "Get A Quick Assessment Of Health Insurance Amount With Just One Click" and includes a paragraph explaining health insurance. Below the text is a blue graphic of a shield with a cross and a hand holding a scroll. To the right, there is a form titled "Please Fill Out Below Details." with the following fields: Age (text input), Gender (dropdown menu showing "Male"), Body Mass Index(BMI) (text input with a link "if you want calculate BMI value, Click here"), Number of Children's (text input), and Smoker (radio buttons for "Yes" and "No"). The Windows taskbar at the bottom shows the date as 29/04/2023 and the time as 03:27 AM.

Output:

The screenshot shows the same web browser window, but the URL is now `127.0.0.1:9000/health_insurance_predict`. The page displays the "Usage Of Health Insurance Amount Prediction:" section with a list of benefits: Long-Term Savings, Financial Security, Life Cover Against Uncertainty, and Retirement Planning Option. To the right, the form is partially filled out: Smoker (radio buttons for "Yes" and "No"), Region (dropdown menu showing "southwest"), and a "Predict" button. Below the form, the "Result" section displays the output: "Medical Insurance cost for your based on details: ₹. 1,163.58 /-". The Windows taskbar at the bottom shows the date as 29/04/2023 and the time as 03:29 AM.

2. Stock market price Prediction & analysing



Stock Trend Prediction

Identify the company or companies whose stock prices you want to analyze. Look for companies that are financially sound, have a solid business model, and are well-positioned within their industry.

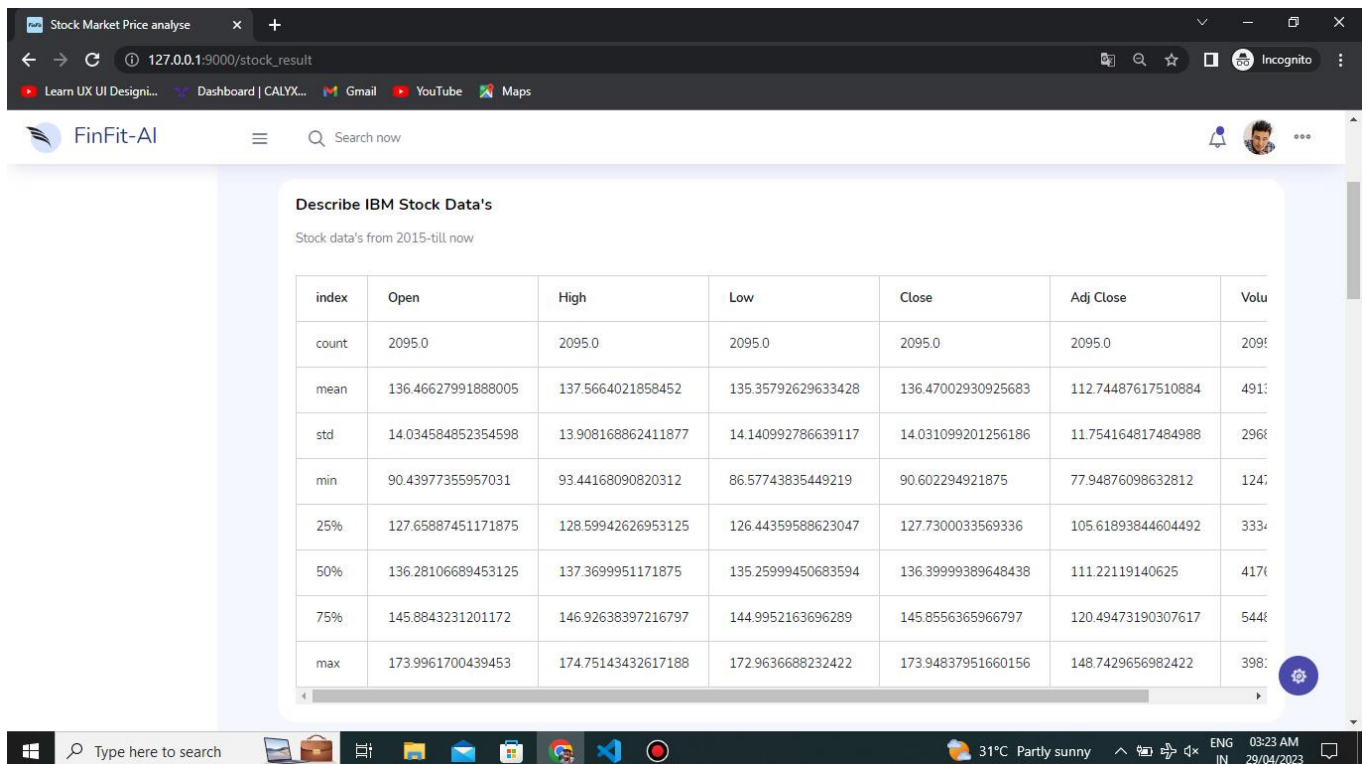
Choose Stock Ticker:

Describe IBM Stock Data's

Stock data's from 2015-till now

index	Open	High	Low	Close	Adj Close
count	2095.0	2095.0	2095.0	2095.0	2095.0

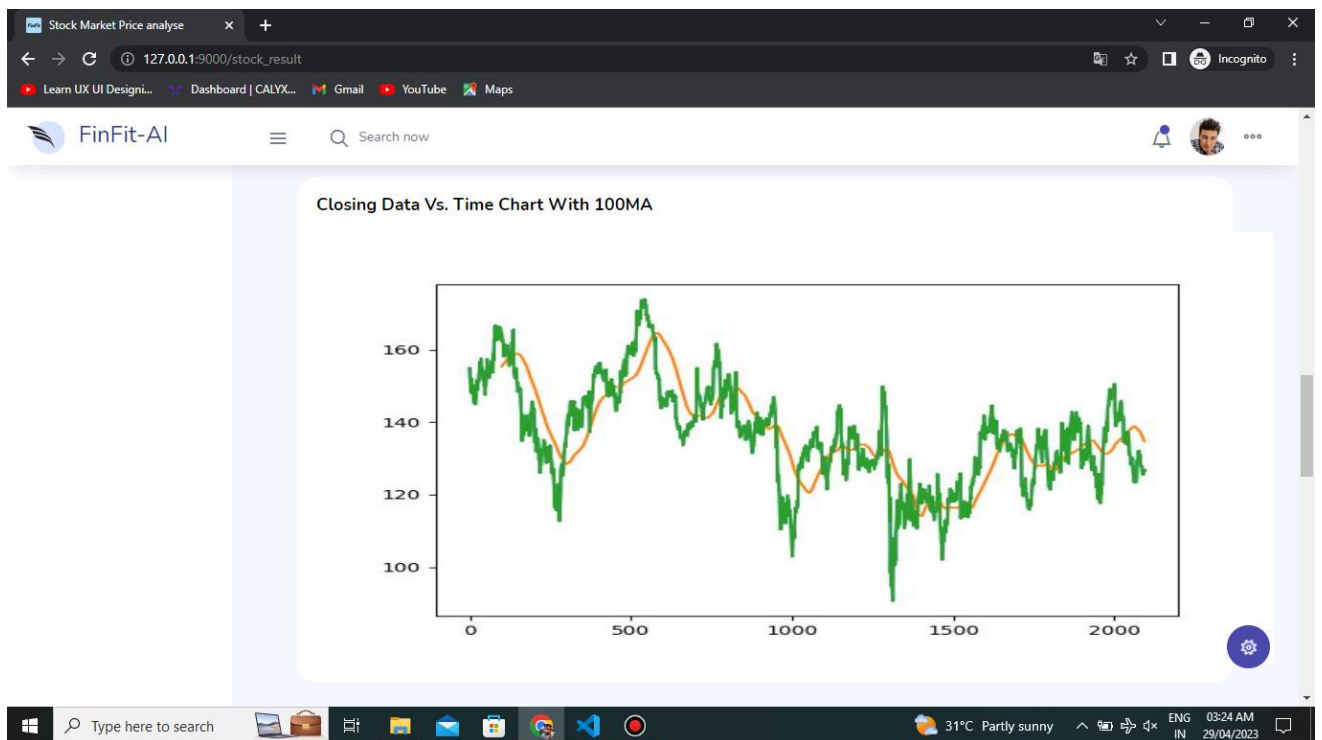
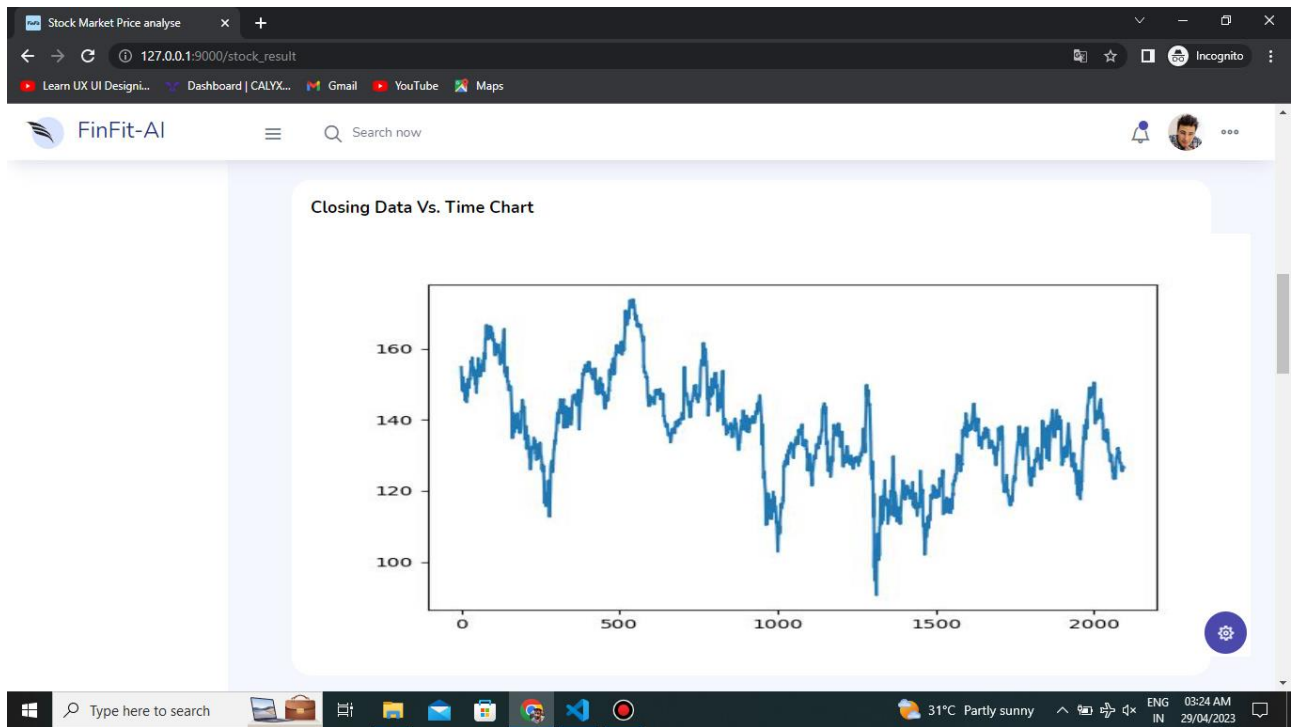
Output:

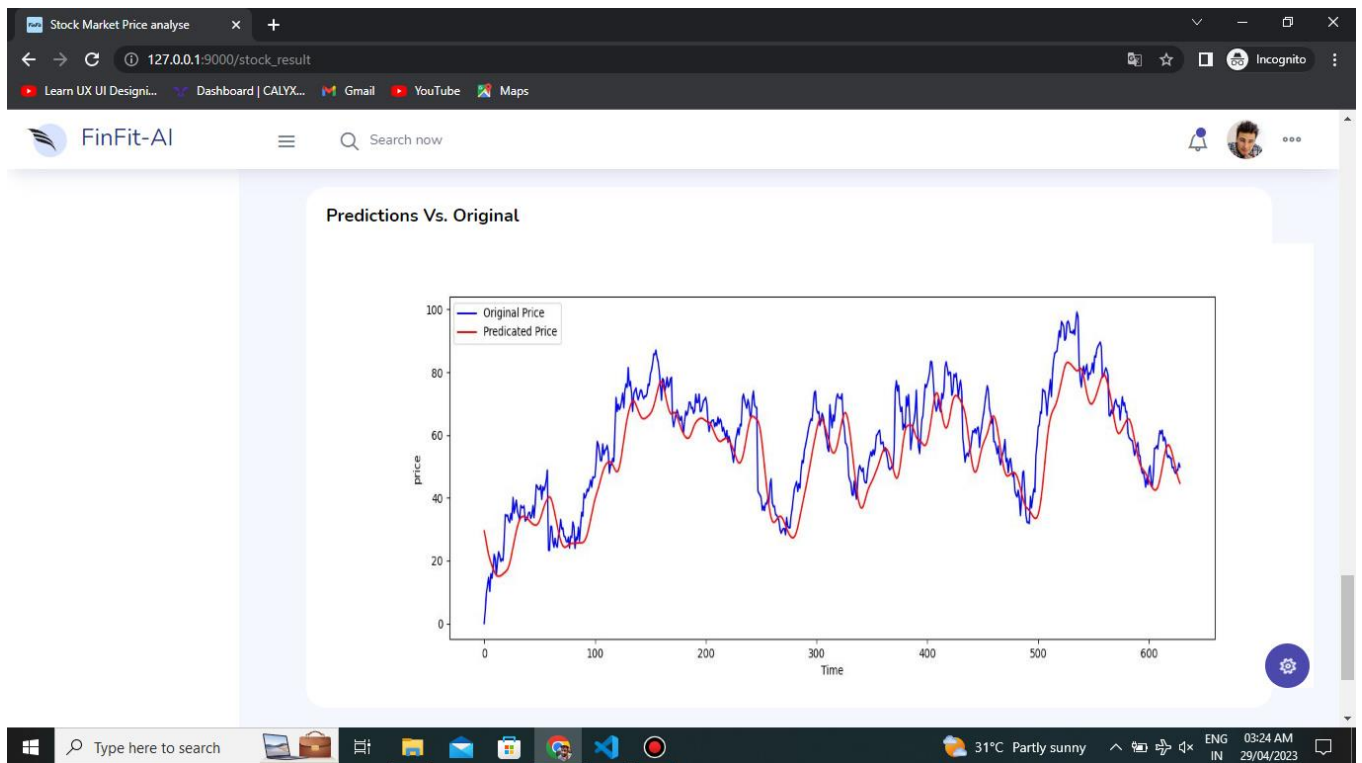
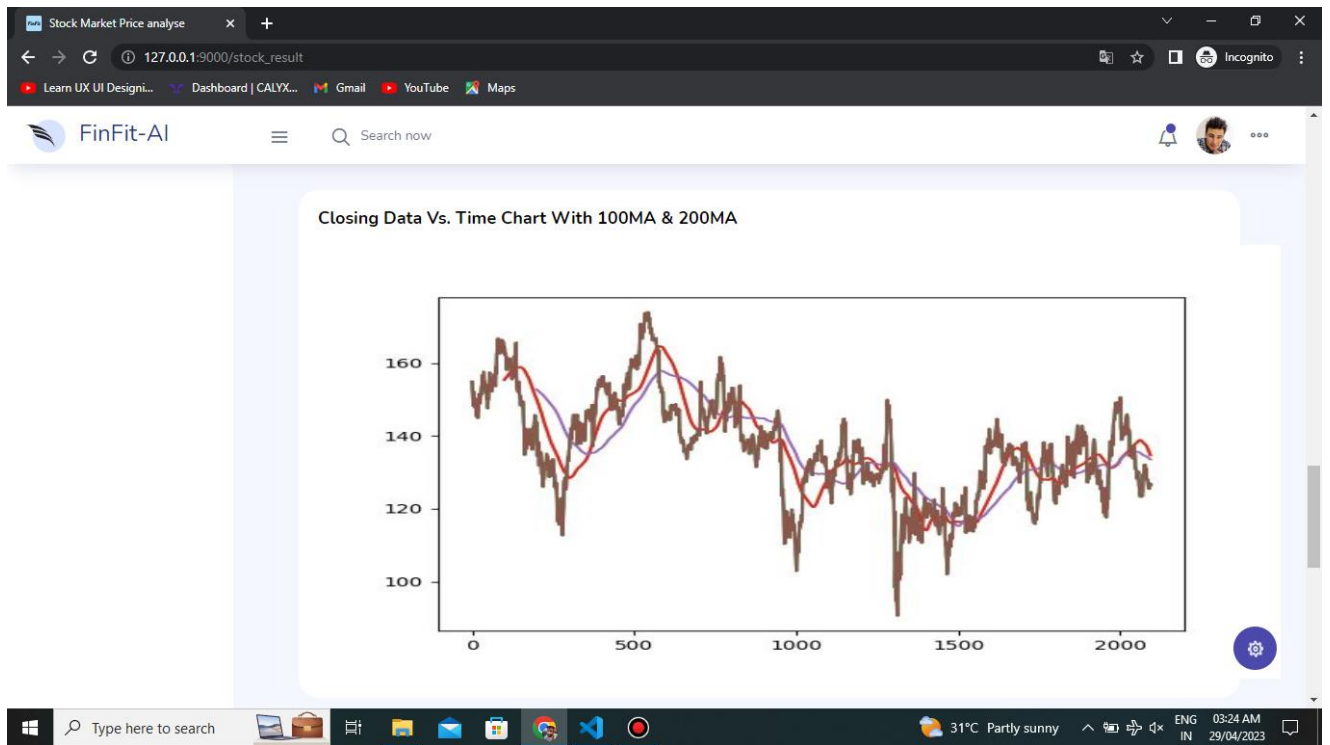


Describe IBM Stock Data's

Stock data's from 2015-till now

index	Open	High	Low	Close	Adj Close	Volu
count	2095.0	2095.0	2095.0	2095.0	2095.0	2095.0
mean	136.46627991888005	137.5664021858452	135.35792629633428	136.47002930925683	112.74487617510884	491.1
std	14.034584852354598	13.908168862411877	14.140992786639117	14.031099201256186	11.754164817484988	296.8
min	90.43977355957031	93.44168090820312	86.57743835449219	90.602294921875	77.94876098632812	124.1
25%	127.65887451171875	128.59942626953125	126.44359588623047	127.7300033569336	105.61893844604492	333.4
50%	136.28106689453125	137.3699951171875	135.25999450683594	136.39999389648438	111.22119140625	417.6
75%	145.8843231201172	146.92638397216797	144.9952163696289	145.8556365966797	120.49473190307617	544.8
max	173.9961700439453	174.75143432617188	172.9636688232422	173.94837951660156	148.7429656982422	398.1





3. Loan Approval Prediction

Loan Approval Prediction

127.0.0.1:9000/Loan_predict

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FinFit-AI

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Dashboard

Finance Predictions >

Smart Financial Tips

Health Predictions >

Health&Wellness Tips

Additional features >

Get A Quick Assessment Of Your Loan Approval With Just One Click

LOANS are the major requirement of the modern world. By this only, Banks get a major part of the total profit. It is beneficial for students to manage their education and living expenses, and for people to buy any kind of luxury like houses, cars, etc. But when it comes to deciding whether the applicant's profile is relevant to be granted with loan or not, Banks have to look after many aspects.

Loan approval prediction is a machine learning application that helps predict the likelihood of a loan being approved based on various factors such as credit score, income, employment history, and loan amount. This

Please Fill Out Below Details.

Gender: Male

Married: ☒ Yes ☐ No

How many peoples Dependents on you?

Are You Educated? ☒ Yes ☐ No

Are you Self ☒ Yes ☐ No

Result

Sorry to say this, loan is rejected

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Output:

Loan Approval Prediction

127.0.0.1:9000/Loan_predict

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Finance Predictions >

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Are You Educated? ☒ Yes ☐ No

Are you Self ☒ Yes ☐ No

Result

Sorry to say this, loan is rejected

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4. Credit card Scoring Prediction

The screenshot shows a web browser window with the URL `127.0.0.1:9000/Credit_Card_Score`. The application is titled "FinFit-AI" and has a sidebar menu with options: "Dashboard", "Finance Predictions" (expanded), "Smart Financial Tips", "Health Predictions", "Health&Wellness Tips", and "Additional features". The "Finance Predictions" menu includes "Health insurance", "Loan approval", "Credit Card Scoring", and "Stock Market Price". The main form is titled "Please Fill Out Below Details." and contains the following fields:

Field	Value
Occupation	Developer
Annual Income	₹ 430000
Monthly Income	₹ 27000
Number of holds Bank Accounts	4
Number of holds Credit Card	3
Interest Rate of your Credit card	9.4
No. of loans taken from the bank	2
Days delay from Payment Date?	2
How many times paid Delayed?	45
Number of credit inquiries	34.23

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray displays the weather as "31°C Partly sunny" and the time as "03:35 AM 29/04/2023".

Output:

The screenshot shows the result page of the Credit Card score Prediction form. The URL is `127.0.0.1:9000/Credit_predict`. The form fields are:

Field	Value
paid minimum amount for loan?	Yes
Count of EMI per month	
Amount Invested by month	₹
Bank montly Balance	₹

A yellow "Predict" button is located below the form fields. The result is displayed in green text:

Result
Your credit card score is Good

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray displays the weather as "31°C Partly sunny" and the time as "03:35 AM 29/04/2023".

Health related Pages

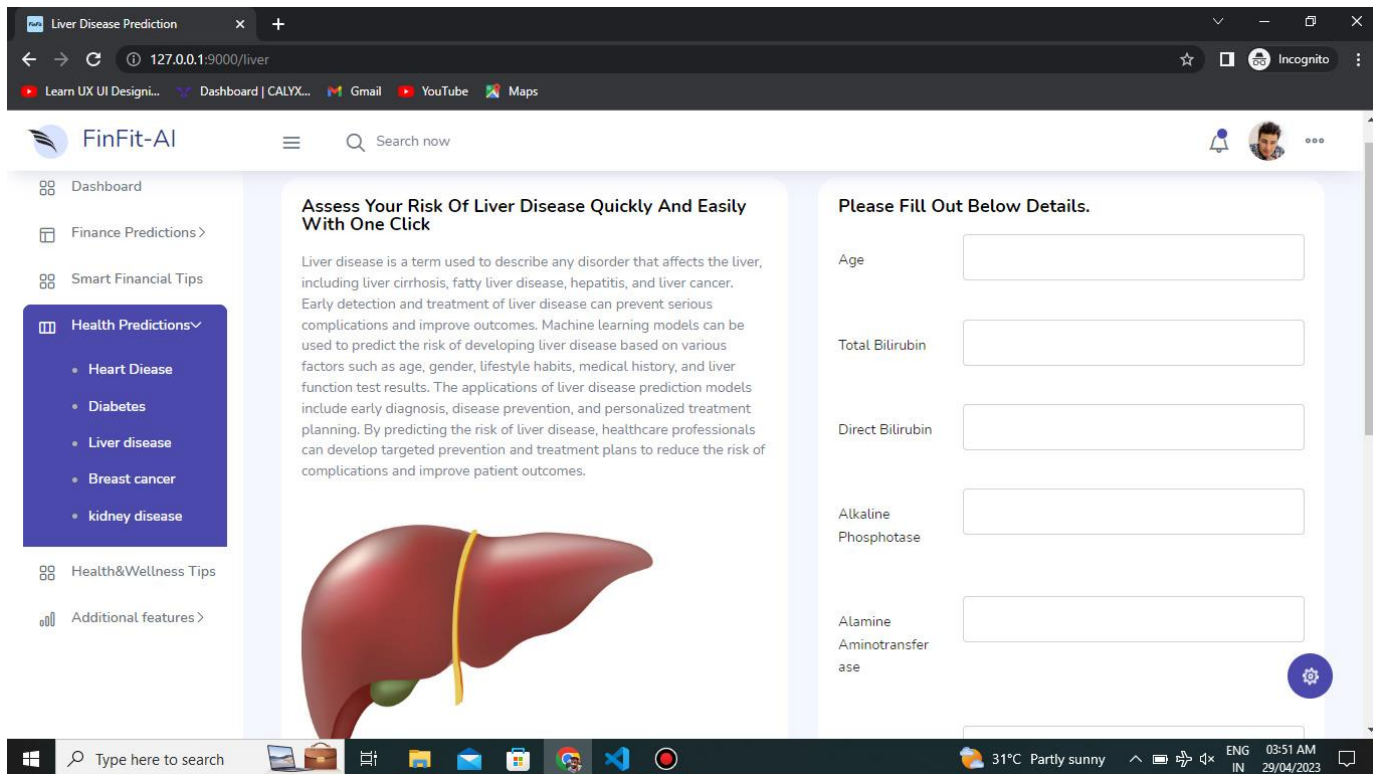
1. Hearth Disease Prediction

The screenshot shows a web browser window with the URL `127.0.0.1:9000/Heart`. The page is titled "Heart Prediction" and features a sidebar with navigation options: Dashboard, Finance Predictions, Smart Financial Tips, Health Predictions (selected), Health&Wellness Tips, and Additional features. The main content area is divided into two sections. The left section, titled "Assess Your Risk Of Heart Disease Quickly And Easily With One Click!", includes a paragraph about heart disease and a 3D illustration of a heart with an ECG line. The right section, titled "Please Fill Out Below Details.", contains four input fields: "Chest Pain Type" (a dropdown menu showing "Typical Angina"), "Resting Blood Pressure (in mm Hg)" (a text input field), "Serum Cholesterol in mg/dl" (a text input field), and "Fasting Blood Sugar" (a text input field showing "Fasting Blood Sugar < 120 mg/dl"). A Windows taskbar is visible at the bottom of the browser window.

Output:

The screenshot shows the same web browser window, but the URL is now `127.0.0.1:9000/heart_predict`. The page displays the results of the heart disease prediction. The left section, titled "Early Detection", lists five benefits: "✓ Early Detection", "✓ Customized Treatment Plans", "✓ Resource Optimization", "✓ Patient Empowerment", and "✓ personal health monitoring". The right section, titled "Maximum Heart Rate Achieved", contains a text input field. Below this, there are two radio buttons for "Exercise Induced Angina": "Yes" (selected) and "No". At the bottom of the right section are two buttons: "Predict" (yellow) and "Cancel" (grey). The "Result" section at the bottom of the page displays the message: "No need to fear. You have no dangerous symptoms of the disease". A Windows taskbar is visible at the bottom of the browser window.

2. Liver Disease Prediction



FinFit-AI Search now

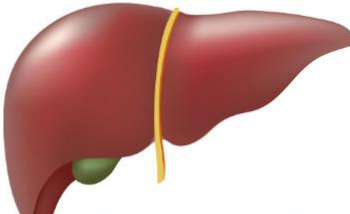
Dashboard
Finance Predictions >
Smart Financial Tips
Health Predictions

- Heart Disease
- Diabetes
- Liver disease**
- Breast cancer
- kidney disease

Health&Wellness Tips
Additional features >

Assess Your Risk Of Liver Disease Quickly And Easily With One Click

Liver disease is a term used to describe any disorder that affects the liver, including liver cirrhosis, fatty liver disease, hepatitis, and liver cancer. Early detection and treatment of liver disease can prevent serious complications and improve outcomes. Machine learning models can be used to predict the risk of developing liver disease based on various factors such as age, gender, lifestyle habits, medical history, and liver function test results. The applications of liver disease prediction models include early diagnosis, disease prevention, and personalized treatment planning. By predicting the risk of liver disease, healthcare professionals can develop targeted prevention and treatment plans to reduce the risk of complications and improve patient outcomes.



Please Fill Out Below Details.

Age

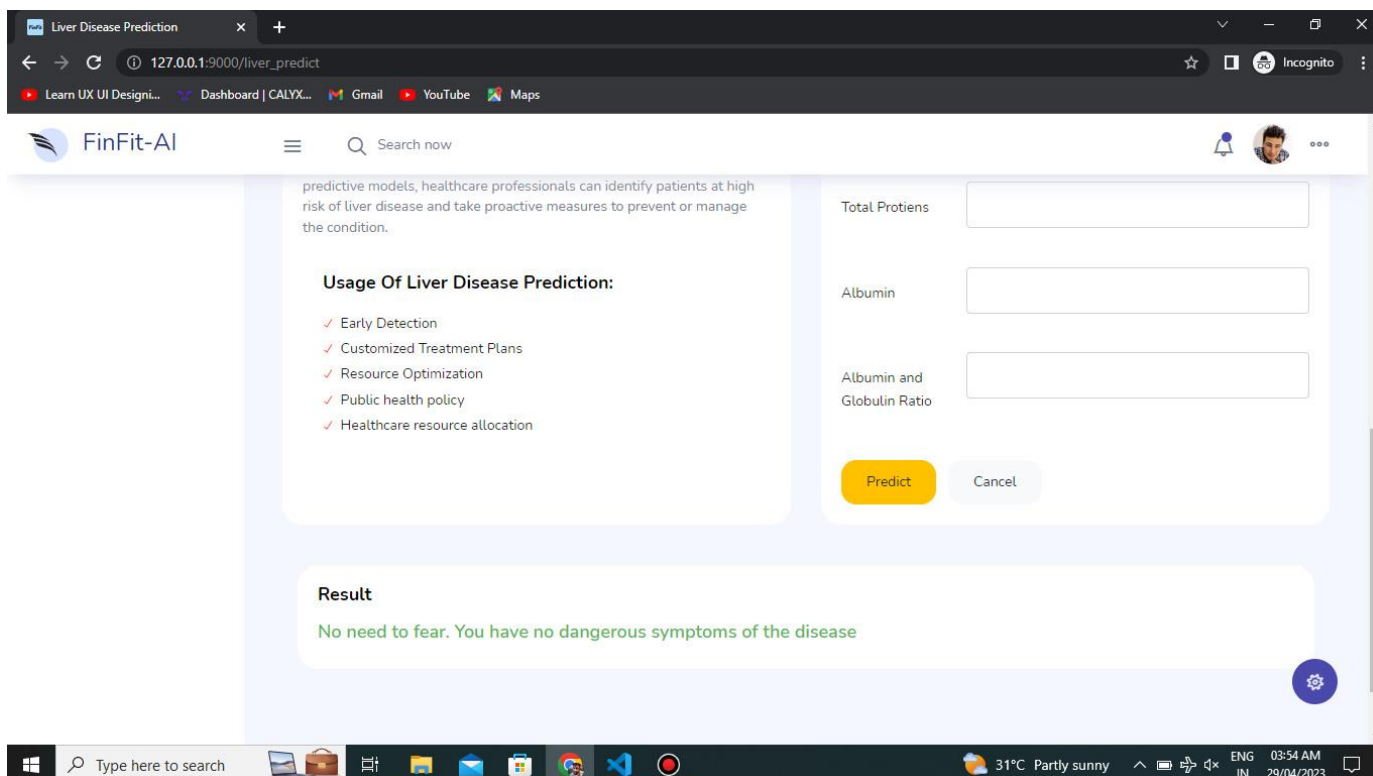
Total Bilirubin

Direct Bilirubin

Alkaline Phosphatase

Alamine Aminotransferase

Output:



FinFit-AI Search now

predictive models, healthcare professionals can identify patients at high risk of liver disease and take proactive measures to prevent or manage the condition.

Usage Of Liver Disease Prediction:

- ✓ Early Detection
- ✓ Customized Treatment Plans
- ✓ Resource Optimization
- ✓ Public health policy
- ✓ Healthcare resource allocation

Result

No need to fear. You have no dangerous symptoms of the disease

Please Fill Out Below Details.

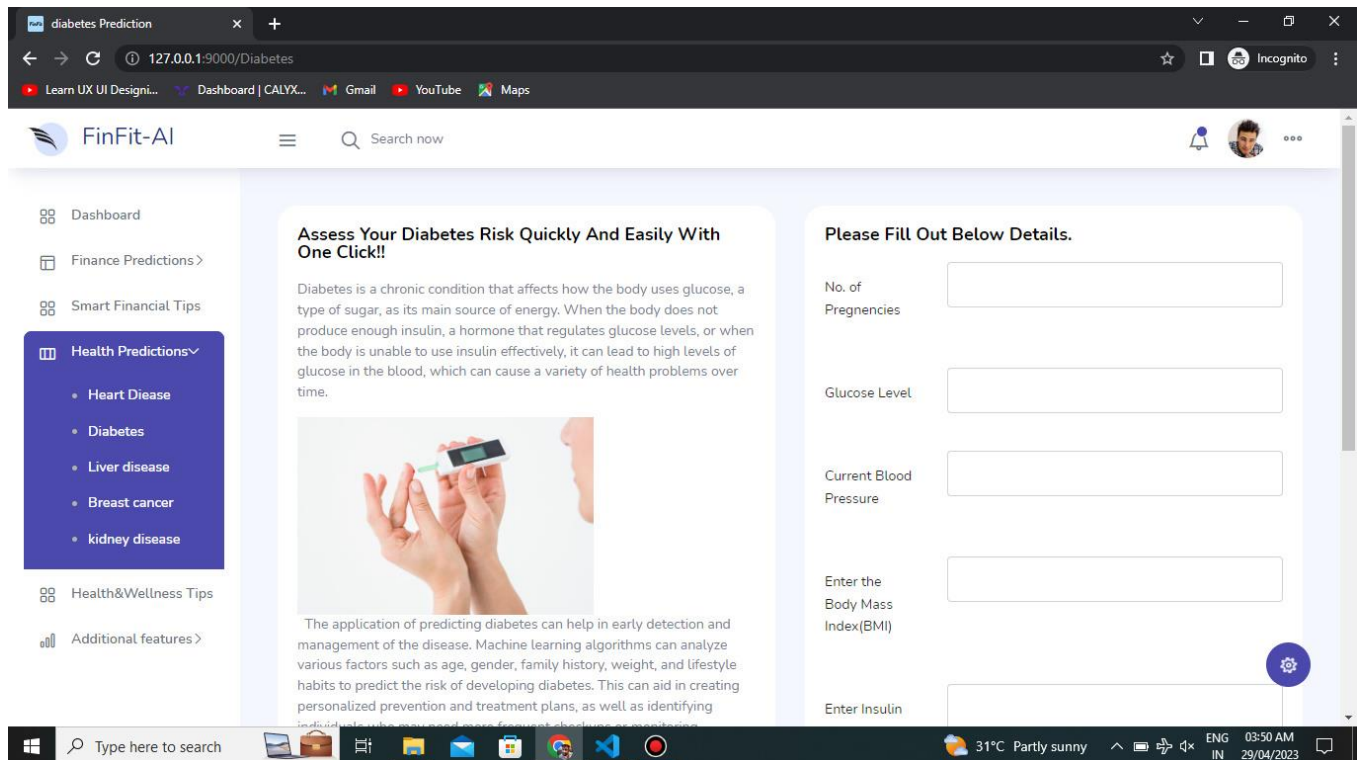
Total Proteins

Albumin

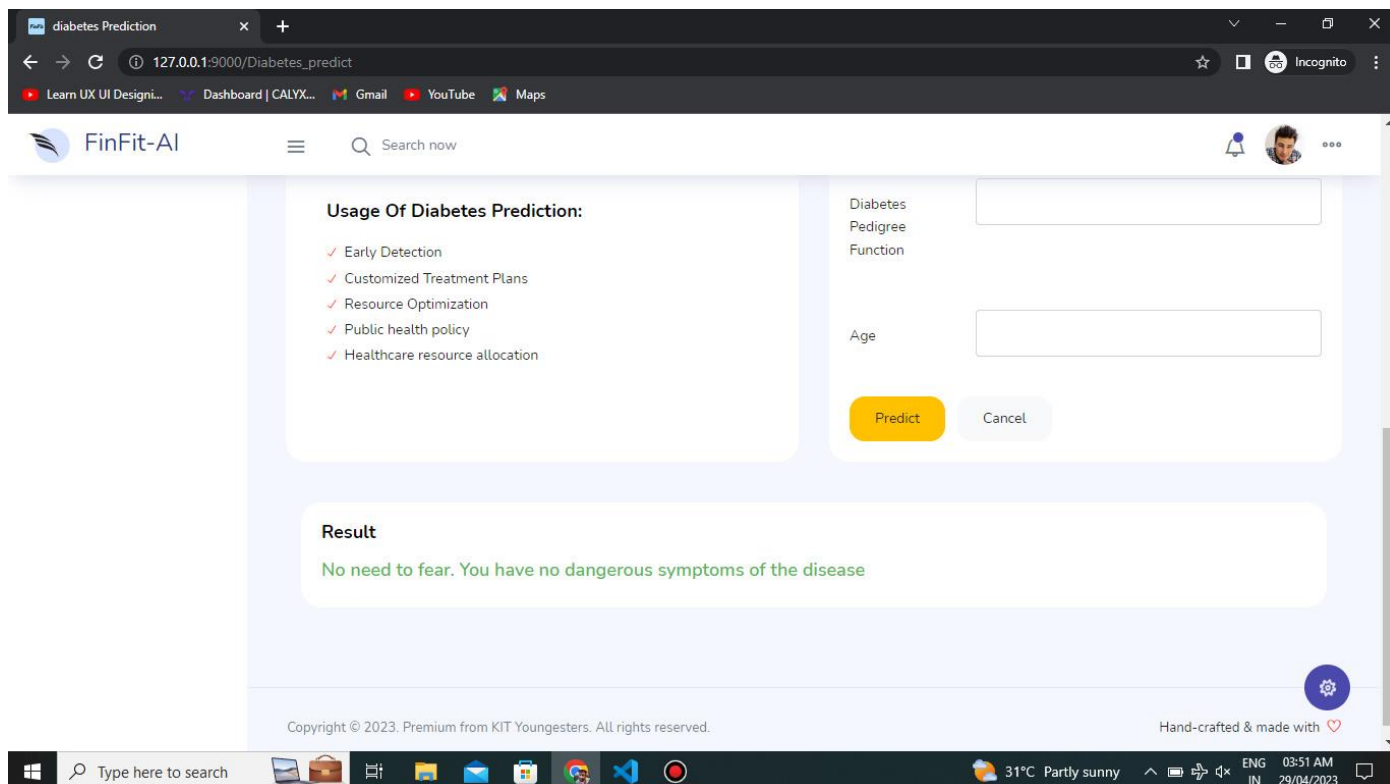
Albumin and Globulin Ratio

Predict **Cancel**

3. Diabetes Prediction



Output:



4.Breast Cancer Prediction

Get A Quick And Easy Breast Cancer Risk Assessment With Just One Click

Breast cancer is a type of cancer that develops in the breast tissue. It usually begins with the formation of a lump in the breast or the surrounding area. Breast cancer can affect both men and women, but it is more commonly found in women. It is the second most common type of cancer among women worldwide.

The early detection of breast cancer is important for effective treatment. The most common method of detection is through mammography, which is a type of X-ray that can detect the presence of abnormal growths or tumors in the breast tissue. Other methods of detection include clinical breast exams, breast self-exams, and breast ultrasound. Machine learning algorithms can be used to predict the risk of breast cancer in individuals. These algorithms use various factors such as age, family history, lifestyle habits, and medical history to determine the likelihood of developing breast cancer.

Please Fill Out Below Details.

Mean of the Concave Points

Mean of the Area

Mean of the Radius

Mean of the Perimeters

Output:

The early detection of breast cancer is important for effective treatment. The most common method of detection is through mammography, which is a type of X-ray that can detect the presence of abnormal growths or tumors in the breast tissue. Other methods of detection include clinical breast exams, breast self-exams, and breast ultrasound. Machine learning algorithms can be used to predict the risk of breast cancer in individuals. These algorithms use various factors such as age, family history, lifestyle habits, and medical history to determine the likelihood of developing breast cancer.

Usage Of Breast Cancer Prediction:

- ✓ Early Detection
- ✓ Customized Treatment Plans
- ✓ Resource Optimization
- ✓ Patient Empowerment
- ✓ overall understanding of the disease.

Result

No need to fear. You have no dangerous symptoms of the disease

5.Kidney Disease Prediction

Kidney Disease Prediction

127.0.0.1:9000/kidney

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Smart Financial Tips

Health Predictions▼

Heart Disease

Diabetes

Liver disease

Breast cancer

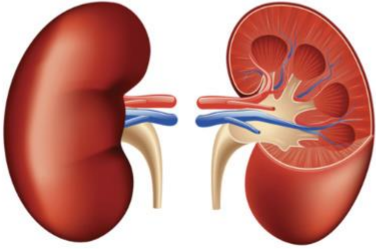
kidney disease

Health&Wellness Tips

Additional features>

Get A Quick And Easy Kidney Disease Risk Assessment With Just One Click

Kidney disease is a medical condition that occurs when the kidneys fail to function properly. It can be caused by a range of factors such as diabetes, hypertension, infections, and autoimmune disorders. Early diagnosis and management of kidney disease can prevent the development of complications and improve the quality of life for patients.



Kidney disease is a condition where the kidneys are damaged and cannot function

Please Fill Out Below Details.

Blood Pressure

Albumin

Blood Sugar Level

Blood Urea level

Haemoglobin Level

White Blood Cells Count

Type here to search

31°C Partly sunny

ENG IN

04:06 AM

29/04/2023

Output:

Kidney Disease Prediction

127.0.0.1:9000/kidney_predict

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Health Predictions▼

Heart Disease

Diabetes

Liver disease

Breast cancer

kidney disease

damage to the kidneys and potentially delay the need for dialysis or a kidney transplant.

Usage Of Kidney Disease Prediction:

✓ Early diagnosis and treatment

✓ Customized Treatment Plans

✓ Monitoring disease progression

✓ Patient Empowerment

✓ overall understanding of the disease.

Hypertension Level

☒ Yes

☐ No

Appetite

☒ Yes

☐ No

Anemia

☒ Yes

☐ No

Predict

Cancel

Result

No need to fear. You have no dangerous symptoms of the disease

Type here to search

31°C Partly sunny

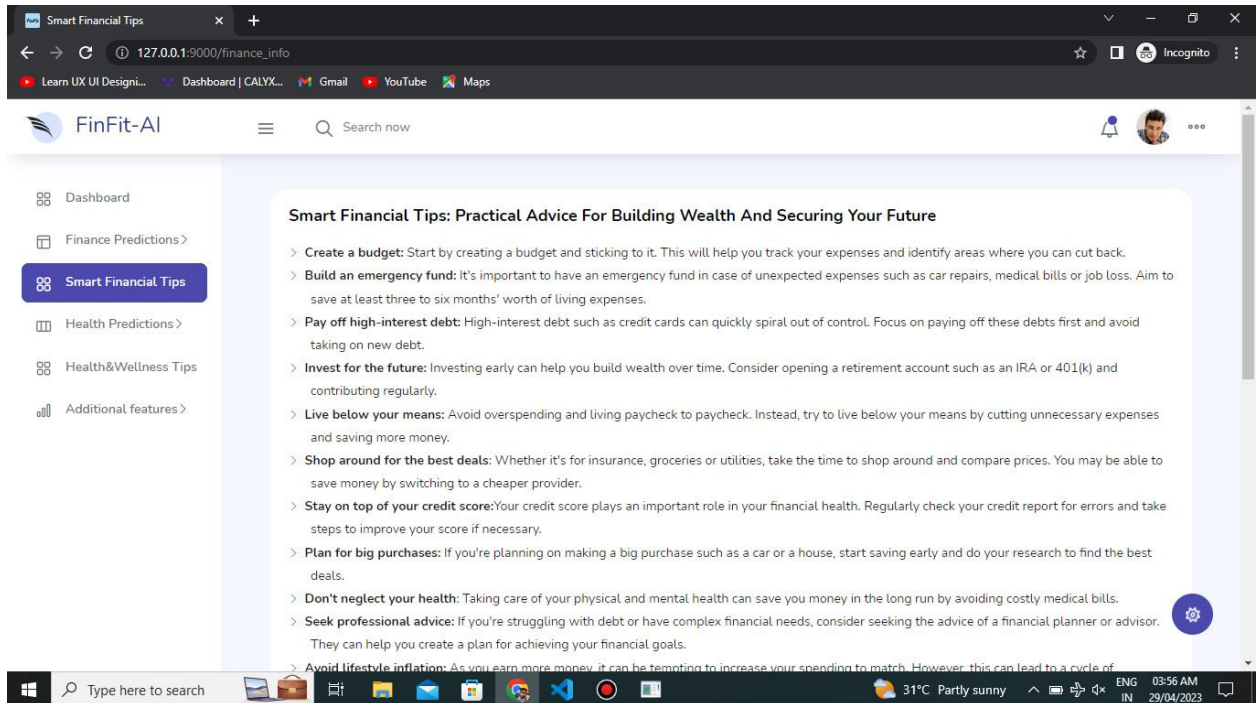
ENG IN

04:09 AM

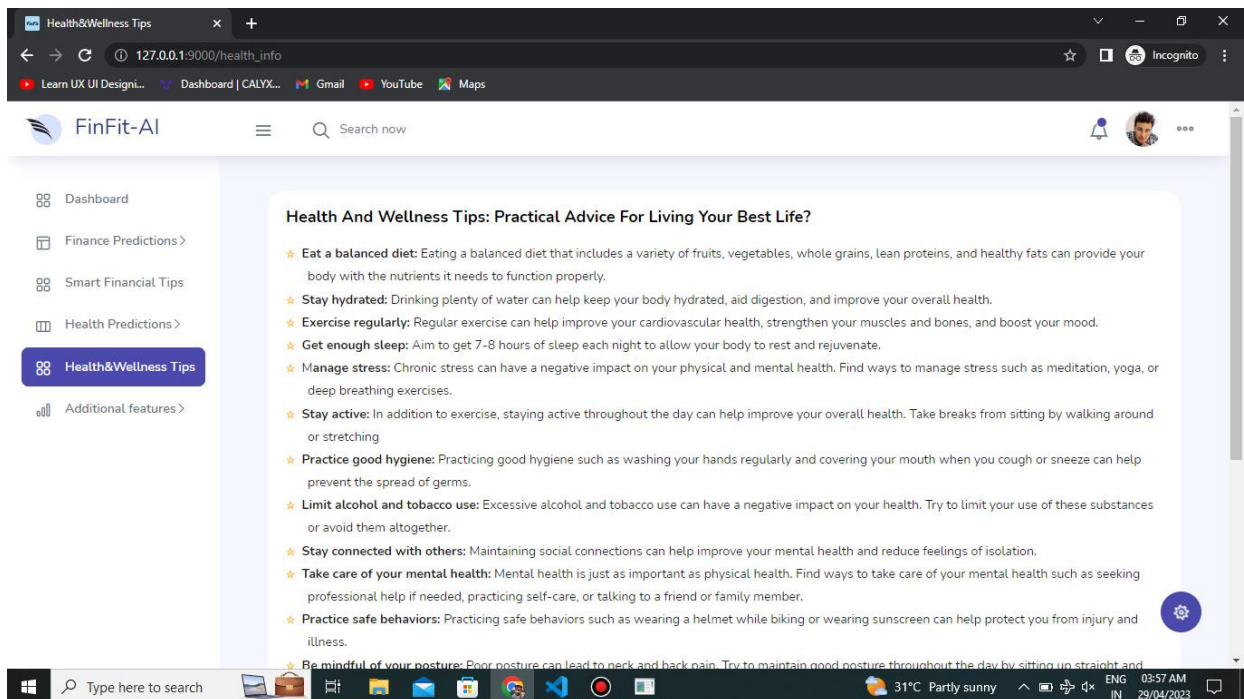
29/04/2023

Tips Pages

1. Smart Finance Tips



2. Health & wellness Tips



Additional Pages

1. BMI

The screenshot shows a web browser window with the URL `127.0.0.1:9000/bmi_result`. The page is titled "BMI" and features the "FinFit-AI" logo and a search bar. A sidebar on the left contains links to "Dashboard", "Finance Predictions", "Smart Financial Tips", "Health Predictions", "Health&Wellness Tips", and "Additional features". The main content area is titled "BMI Calcator" and includes a description: "The Body Mass Index (BMI) Calculator can be used to calculate BMI value and corresponding weight status while taking age into consideration." Below this, there are two input fields: "Body Weight" with a placeholder "Weight in kg" and "Body Height" with a placeholder "Height in cm". A green "Submit" button is positioned below the input fields. The "Result" section displays the message: "Your body have Over weight and your body BMI value is 32.24". The Windows taskbar at the bottom shows the system time as 03:58 AM on 29/04/2023, with a temperature of 31°C and weather "Partly sunny".

2. BMR

The screenshot shows a web browser window with the URL `127.0.0.1:9000/bmr_result`. The page is titled "BMR" and features the "FinFit-AI" logo and a search bar. A sidebar on the left contains links to "Dashboard", "Finance Predictions", "Smart Financial Tips", "Health Predictions", "Health&Wellness Tips", and "Additional features". The main content area is titled "BMR Calculation" and includes a description: "The basal metabolic rate (BMR) and calorie calculator is an excellent tool for estimating how many calories your body needs on a daily basis depending on the amount and intensity of your exercise regime." Below this, there are several input fields: "Age" (21), "Gender" (Male selected, Female unselected), "Weight" (56), "Height" (189), and "Region" (Extra active (very hard exercise/sports & physical job or 2x training)). A green "Submit" button is positioned below the input fields. The "Result" section displays the message: "your body BMR value is 3861.34". The Windows taskbar at the bottom shows the system time as 04:01 AM on 29/04/2023, with a temperature of 31°C and weather "Partly sunny".

3. Diet Plan Tracker

The screenshot shows a web browser window with the URL `127.0.0.1:9000/diet_tracker`. The application is titled "FinFit-AI" and has a sidebar menu with options: Dashboard, Finance Predictions, Smart Financial Tips, Health Predictions, Health&Wellness Tips, and Additional features. The main content area is titled "Diet Plan Tracker" and contains a form with the following fields and values:

Field	Value
breakfast calories	788
lunch calories	198
dinner calories	422
exercise	14500
bmr	21.9

Below the form, there is a green "Submit" button and a link: "if you want calculate bmr value, Click here". At the bottom of the form, a red message states: "You will lose 20.077 lbs. per week". The browser's taskbar at the bottom shows the Windows logo, a search bar, and various application icons. The system tray on the right indicates a temperature of 31°C, "Partly sunny" weather, and the date/time: 04:03 AM, 29/04/2023.

- **Project Code:**

<https://drive.google.com/drive/folders/1dGeCHnLIDNbxUoGJhP8g1wLVWf9oaHk8?usp=sharing>

- **Demonstration Video:**

<https://youtu.be/oe5JsUQQIS4>