



EAST WEST UNIVERSITY

Department of Computer Science and Engineering

Course Name: Web Programming

Course Code: CSE479

Section No: 03

Semester: Fall

Project Title: [HealthInsight](#)

Submitted To:

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Introduction

The purpose of this project, **HealthInsight** is to design, build, and test a realistic and useful web-based database application for hospital management using HTML, CSS, JavaScript, Bootstrap, PHP, Flask and MySQL. This report outlines the development process, system architecture, and testing strategies for ensuring a functional and user-friendly application.

Designing

➤ Frontend Design

The frontend of **HealthInsight** is built using **HTML, CSS, JavaScript, Flask and Bootstrap** to ensure a user-friendly, responsive, and interactive experience. Below are the key components along with their image descriptions:

1. Login & Registration Page

- The login page allows users (patients, doctors, and admin) to securely access their accounts.
- It features form validation using JavaScript, Bootstrap styling for responsiveness, and error handling for incorrect credentials.

2. Dashboard

- The dashboard serves as the central hub where users can access different functionalities based on their roles.
- Admins can view hospital statistics, doctors can see their appointments, and patients can track their bookings.

3. Appointment Booking Interface

- Patients can select a doctor, choose an available time slot, and confirm their appointment.
- The interface provides real-time availability updates using JavaScript and AJAX.

4. Billing System

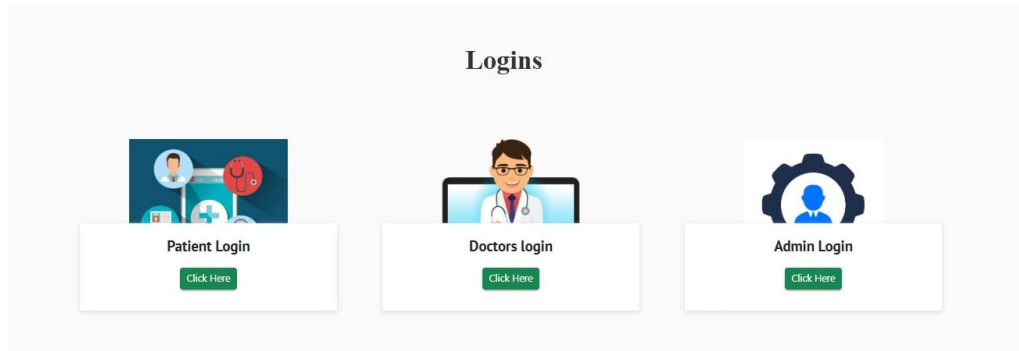
- Patients can view their billing details, make payments, and download invoices.
 - The system calculates service charges dynamically and displays them in a structured format.
-

5. Medical Records Management

- Doctors can update patient records, add prescriptions, and view past medical histories.
- The UI provides an organized format to ensure quick and efficient data retrieval.

6. Disease Prediction Using Flask

- Patients upload medical reports or enter health data via a form on the UI and submit it for prediction.
- The model provides an assumption-based prediction, with a disclaimer that patients must consult a doctor for confirmation and further testing.



The image shows a "User Registration" form. The form has a title "User Registration" and a subtitle "Create a New Account". Below the subtitle, there is a text input field for "Full Name", a text input field for "Address", a text input field for "City", and a "Gender" section with radio buttons for "Female" and "Male". Below the gender section, there are text input fields for "Email", "Password", and "Confirm Password". At the bottom of the form, there is a link "Already have an account? Log in" and a "Register" button. The footer of the form says "© HEALTHINSIGHT".

Admin Login

Sign in to your account

Please enter your username and password to log in.

[Back to Home Page](#)

[Login](#)

© HEALTHINSIGHT

PHI | Patient Login

Sign in to your account

Please enter your name and password to log in.

[Forgot Password?](#)

[Login](#)

Don't have an account yet? [Create an account](#)

HEALTHINSIGHT.

PHI | Doctor Login

Sign in to your account

Please enter your username and password to log in.

[Forgot Password?](#)


[Login](#)


© HEALTHINSIGHT


PHI | Patient Password Recovery

Patient Password Recovery

Please enter your registered name and email to recover your password.

 Registered Full Name

 Registered Email

Reset 

Already have an account? [Log-in](#)

© HEALTHINSIGHT

PHI

SEARCH NAVIGATION

Dashboard

Doctors

Users

Patients

Appointment History

Consultation Queries

Doctor Session Logs


User Session Logs


Reports


Pages


Patient Search


ADMIN | DASHBOARD

Manage Users
Total Users : 3

Manage Doctors
Total Doctors : 10

Appointments
Total Appointments : 12

Manage Patients
Total Patients : 7

New Queries
Total New Queries : 2

HEALTHINSIGHT

HealthInsight

Admin

Admin / Dashboard

0.04185

0.14185

19°C Haze

10:49 AM

HealthInsight

Admin

Admin / Doctor Session Logs

ADMIN | DOCTOR SESSION LOGS

#

User id

Username

User IP

Login time

Logout Time

Status

1.

azad@gmail.com

1

2024-10-28 00:07:33

Failed

2.

azad@gmail.com

1

2024-10-28 00:07:58

Failed

3.

4

azad@gmail.com

1

2024-10-28 00:09:25

Success

4.

15

robi@gmail.com

1

2024-10-28 00:15:47

Success

5.

15

robi@gmail.com

1

2024-10-28 00:26:17

Success

6.

15

robi@gmail.com

1

2024-10-28 10:43:32

Success

7.

15

robi@gmail.com

1

2024-10-28 14:39:12

Success

8.

15

robi@gmail.com

1

2024-10-28 14:39:29

Success

9.

20

smamun@gmail.com

1

2024-10-28 14:44:45

Success

10.

23

mustafzur@gmail.com

1

2024-10-28 14:47:22

Success

11.

15

robi@gmail.com

1

2024-10-28 14:54:24

Success

12.

15

robi@gmail.com

1

2024-11-26 22:23:29

26-11-2024 09:53:53 PM

Success

13.

admin

1

2024-11-26 22:24:12

Failed

14.

mustafzur@gmail.com

1

2024-11-26 22:25:51

Failed

15.

23

mustafzur@gmail.com

1

2024-11-26 22:27:42

Success

16.

15

robi@gmail.com

1

2024-12-03 01:16:34

03-12-2024 12:49:53 AM

Success

17.

15

robi@gmail.com

1

2024-12-03 01:26:39

Success

18.

15

robi@gmail.com

1

2024-12-13 10:45:42

13-12-2024 10:18:39 AM

Success

19.

15

robi@gmail.com

1

2024-12-13 14:18:50

13-12-2024 01:54:06 PM

Success

20.

15

robi@gmail.com

1

2025-02-01 20:40:08

01-02-2025 08:10:30 PM

Success

21.

sadmantajwer@gmail.com

1

2025-02-01 21:31:06

Failed

22.

15

robi@gmail.com

1

2025-02-01 21:31:57

01-02-2025 09:11:13 PM

Success

HealthInsight

Dr. Lutfar Rahman

Doctor / Manage Patients

DOCTOR | MANAGE PATIENTS

Manage Patients

Patient Details

Patient Name

Sadman Tajwer

Patient Email

sadmantajwer@gmail.com

Patient Mobile Number

1791203192

Patient Address

Jamalpur

Patient Gender

male

Patient Age

24

Patient Medical History(if any)

No

Patient Reg Date

2025-02-03 21:13:05

Medical History

#

Blood Pressure

Weight

Blood Sugar

Body Temperature

Medical Prescription

Visit Date

1

80-120

80

5

97 F

Betaloc

2025-02-03 21:13:53

Add Medical History

Prediction

HEALTHINSIGHT

PATIENTS | APPOINTMENT HISTORY

Patients / Appointment History

#	Doctor Name	Patient Name	Specialization	Consultancy Fee	Appointment Date / Time	Appointment Creation Date	Current Status	Action
1.	Dr. Robi	Rahma Mahbub	Neurologists	700	2024-10-24 / 11:30 PM	2024-10-28 00:14:27	Cancel by Doctor	Cancelled
2.	Dr. Md. Moniruzzaman	Mim Bin Hossain	Allergists/Immunologists	700	2024-10-26 / 1:05 PM	2024-10-28 01:46:05	Active	No Action yet
3.	Dr. Robi	Rahma Mahbub	Neurologists	700	2024-10-26 / 2:45 PM	2024-10-28 14:40:27	Active	No Action yet
4.	Prof. Dr. S.M Mamun Iqbal MBBS, MD (Cardiology)	Sauvov	Cardiologists	1000	2024-10-29 / 12:45 PM	2024-10-28 14:43:54	Cancel by Patient	Cancelled
5.	Prof. Dr. Mustafizur Rahman	Rahma Mahbub	Anesthesiologists	1000	2024-10-27 / 3:00 PM	2024-10-28 14:49:18	Active	No Action yet
6.	Dr. Lutfar Rahman	Muhammad Sadman Tajwer	Neurologists	600	2025-02-05 / 6:00 PM	2025-02-03 18:45:45	Cancel by Patient	Cancelled
7.	Dr. Robi	Muhammad Sadman Tajwer	Neurologists	700	2025-02-05 / 7:30 PM	2025-02-03 19:27:13	Active	No Action yet
8.	Dr. Lutfar Rahman	Sauvov	Neurologists	600	2025-02-05 / 7:45 PM	2025-02-03 19:40:32	Active	No Action yet
9.	Prof. Dr. AQM Reza	Sauvov	Cardiologists	1000	2025-02-05 / 7:45 PM	2025-02-03 19:40:54	Active	No Action yet
10.	Dr. Golam Mosthed FCPS, MRCP (UK)	Sauvov	Cardiologists	1000	2025-02-06 / 7:45 PM	2025-02-03 19:41:30	Active	No Action yet
11.	Prof. Dr. S.M Mamun Iqbal MBBS, MD (Cardiology)	Sauvov	Cardiologists	1000	2025-02-07 / 7:45 PM	2025-02-03 19:41:55	Active	No Action yet
12.	Dr. Azad	Muhammad Sadman Tajwer	Allergists/Immunologists	500	2025-02-02 / 8:00 PM	2025-02-03 19:47:18	Active	No Action yet
13.	Prof. Dr. Mustafizur Rahman	Muhammad Sadman Tajwer	Anesthesiologists	1000	2025-02-02 / 8:00 PM	2025-02-03 19:48:28	Active	No Action yet
14.	Prof. Dr. S.M Mamun Iqbal MBBS, MD (Cardiology)	Tajwer	Cardiologists	1000	2025-02-07 / 8:00 PM	2025-02-03 19:51:17	Active	No Action yet
15.	Dr. Azad	Tajwer	Allergists/Immunologists	500	2025-02-07 / 8:00 PM	2025-02-03 19:51:56	Active	No Action yet

Disease Predictor

Input Your Symptoms

Age	Gender
<input type="text"/>	Select Gender
<small>* Enter your age in years (e.g., 25).</small>	
Fever (°F)	Itching & Bleeding Tendencies
<input type="text"/>	Select Option
<small>* Enter your body temperature (Normal: 98.6 °F).</small>	
Jaundice	Ascites & Spider Angiomas
Select Option	Select Option
Fatigue & Related Symptoms	Cholesterol Issues
Select Option	Select Option
Dark Urine	Blood Pressure (BP)
Select Option	<input type="text"/>
	<small>* Enter value in mmHg (Range: 90-180).</small>
Blood Vomiting (Hematemesis)	Bleeding Tendencies
Select Option	Select Option
Spider Angiomas	Ascites (Fluid Buildup in Abdomen)
Select Option	<input type="text"/>

PREDICT

Prediction Results

Here are the results based on your input.

Predicted Disease: Liver Disease

Confidence Level: 0.6033024157416442

Prediction Analytics Graphs



[View Pie Chart](#) [View Bar Chart](#) [View Line Chart](#) [View Radar Chart](#)

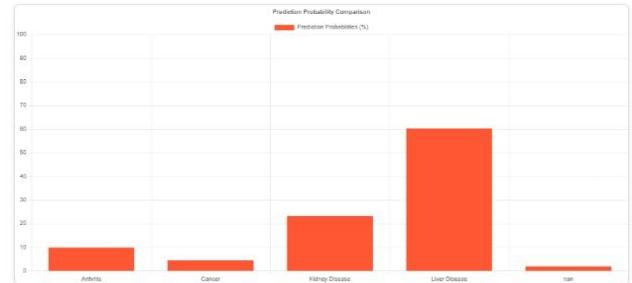
Prediction Results

Here are the results based on your input.

Predicted Disease: Liver Disease

Confidence Level: 0.6033024157416442

Prediction Analytics Graphs



[View Pie Chart](#) [View Bar Chart](#) [View Line Chart](#) [View Radar Chart](#)

Features

Age: 25.0	Gender: 0.0	Fever: 98.0	Itching & Bleeding Tendencies: 0.0
Jaundice: 1.0	Ascites & Spider Angiomas: 1.0	Fatigue, Nausea, Vomiting, and Shortness of Breath: 0.0	Blood Vomiting (Hematemesis): 0.0
Ascites (Fluid Buildup in Abdomen): 4.0	Cholesterol Issues: 0.0	Dark Urine: 0.0	Bleeding Tendencies: 0.0
Spider Angiomas (Small Red Bumps on Skin): 1.0	Blood Pressure (BP): 120.0		

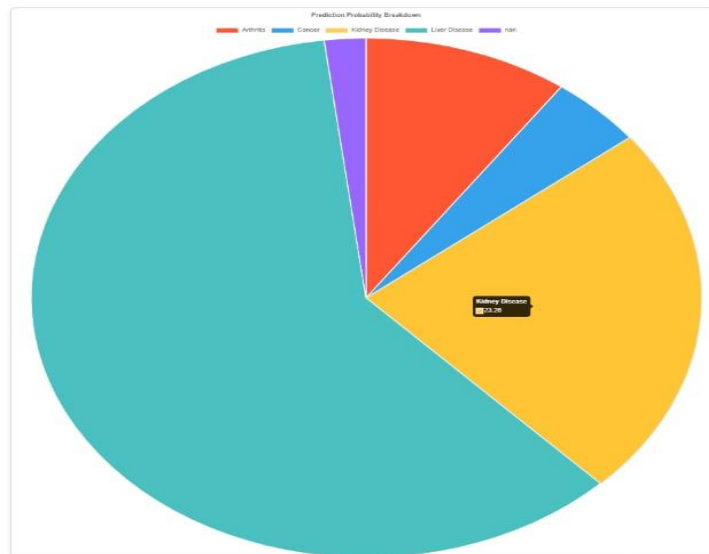
Prediction Results

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Prediction Analytics Graphs



[View Pie Chart](#) [View Bar Chart](#) [View Line Chart](#) [View Radar Chart](#)

➤ Backend Design

The backend of **HealthInsight** is developed using **PHP and MySQL** for efficient server-side processing and data management. Below are the backend functionalities with their corresponding image descriptions:

1. User Authentication System

- Users register and log in using encrypted passwords.
- PHP handles session management and security measures like SQL injection prevention.

2. Database Schema and Structure

- The MySQL database contains tables for users, appointments, billing, and patient records.
- Foreign key relationships ensure data consistency.

3. Appointment Scheduling Logic

- PHP scripts handle appointment availability, booking confirmations, and cancellations.
- AJAX is used to update real-time availability without page reloads.

4. Billing & Payments Processing

- PHP processes invoices and integrates with payment gateways.
- The backend generates PDF receipts dynamically.

5. Medical Records API & Data Handling

- The system allows doctors to update patient data, ensuring secure and accurate record-keeping.
 - Backend validation prevents unauthorized access to patient records.
-

hms

- New
- admin
- appointment
- doctors
- doctorslog
- doctorspecilization
- tblcontactus
- tblmedicalhistory
- tblpage
- tblpatient
- userlog
- users
- information_schema
- mysql
- performance_schema
- phpmyadmin
- test

Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> admin		1	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> appointment		26	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> doctors		11	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> doctorslog		36	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> doctorspecilization		12	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> tblcontactus		5	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> tblmedicalhistory		10	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> tblpage		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> tblpatient		8	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> userlog		48	InnoDB	latin1_swedish_ci	16.0 KiB	-
<input type="checkbox"/> users		8	InnoDB	latin1_swedish_ci	32.0 KiB	-
11 tables	Sum	167	InnoDB	utf8mb4_general_ci	192.0 KiB	0 B

☐ Check all With selected:

Showing 20 rows (filtered) | 25 rows per page | Search this table | Sort by key: None

Extra options

	id	fullName	address	city	gender	email	password	regDate	updateDate
<input type="checkbox"/>	11	Rahma Mahbub	Kazipara	Mirpur	female	rahma@gmail.com	e10adc3949ba59abbe56e057120f883e	2024-10-24 20:48:42	2024-10-28 00:17:59
<input type="checkbox"/>	12	Mim Bin Hossain	Malibagh	Dhaka	male	mimbin@gmail.com	e10adc3949ba59abbe56e057120f883e	2024-10-28 01:43:59	NULL
<input type="checkbox"/>	13	Saurov	Dhaka	Ranpura	male	xyz@gmail.com	40f241a70a31ba5a934306353c4661bb	2024-10-28 14:42:15	NULL
<input type="checkbox"/>	16	Muhammad Sadman Tajwer	Jamalpur	Dhaka	male	sadmantajwer9@gmail.com	e10adc3949ba59abbe56e057120f883e	2025-02-03 18:41:05	2025-02-03 18:52:09
<input type="checkbox"/>	17	Muhammad Sadman Tajwer	Jamalpur	Dhaka	male	sadmantajwer@gmail.com	e10adc3949ba59abbe56e057120f883e	2025-02-03 19:26:27	NULL
<input type="checkbox"/>	18	Saurov	Dhaka	Rampura	male	saurov@gmail.com	e10adc3949ba59abbe56e057120f883e	2025-02-03 19:39:51	NULL
<input type="checkbox"/>	19	Rahma	Dhaka	Rampura	female	rahma@gmail.com	e10adc3949ba59abbe56e057120f883e	2025-02-03 19:49:32	NULL
<input type="checkbox"/>	20	Tajwer	Jamalpur	Dhaka	male	tajwer@gmail.com	e10adc3949ba59abbe56e057120f883e	2025-02-03 19:50:42	NULL

☐ Check all With selected:

Showing 20 rows (filtered) | 25 rows per page | Search this table | Sort by key: None

SELECT * FROM `tblmedicalhistory`

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: | Sort by key: None

Extra options

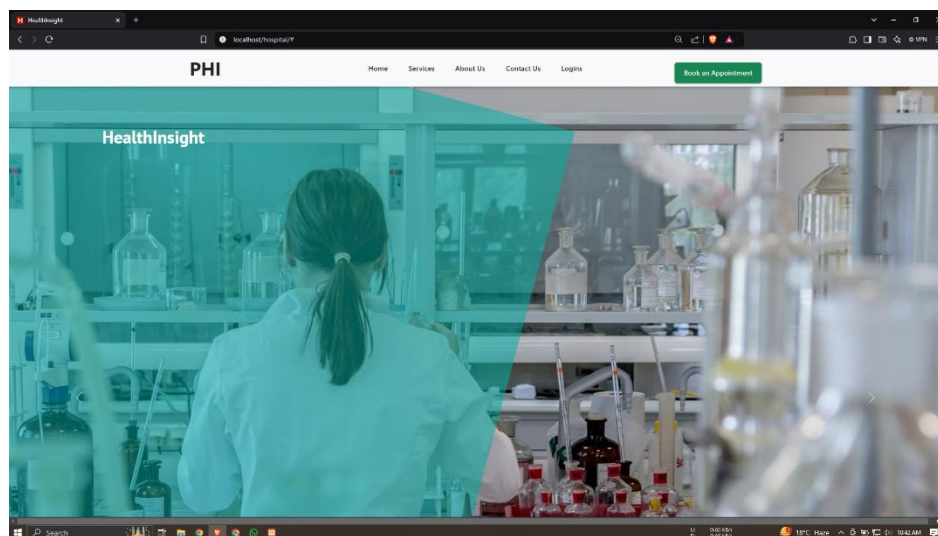
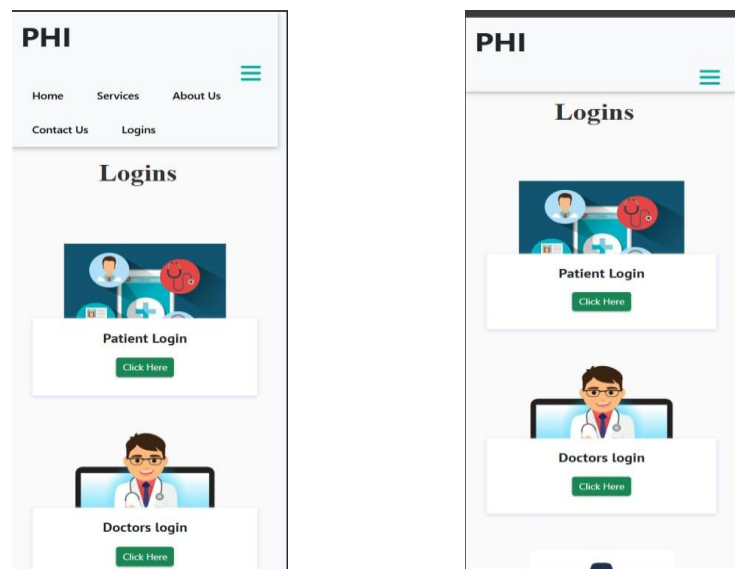
	ID	PatientID	BloodPressure	BloodSugar	Weight	Temperature	MedicalPres	CreationDate
<input type="checkbox"/> Edit Copy Delete	1	1	80/120	120	85	98	Test	2022-11-06 19:19:41
<input type="checkbox"/> Edit Copy Delete	2	3	20	30	40	60	Normal	2024-01-26 09:03:22
<input type="checkbox"/> Edit Copy Delete	3	5	70/80	50	65	60	Normal	2024-03-01 08:33:24
<input type="checkbox"/> Edit Copy Delete	4	6	80-120	5	52	98 F	some Medicine	2024-10-28 00:32:11
<input type="checkbox"/> Edit Copy Delete	5	6	80-122	6	55	97 F	Napa 1+0+1 Fenadin 0+0+1 Bislol 0+1+0	2024-10-28 00:33:30
<input type="checkbox"/> Edit Copy Delete	6	7	80-120	5	52	97 F	cxfgsdtrsdg fdgfdgdf dfgfdhgdg xcfhgfdhfd dsf...	2024-11-26 22:35:01
<input type="checkbox"/> Edit Copy Delete	7	10	80-120	5	55	98 F	fdghureh fnglashfgiua sfanvasufhieuw sdflkjuthiw...	2025-02-02 00:19:37
<input type="checkbox"/> Edit Copy Delete	8	10	80-122	6	80	97 F	2315641 kjhbgyhugv ijhgytuf	2025-02-02 00:22:51
<input type="checkbox"/> Edit Copy Delete	9	12	80-120	5	80	97 F	hfjadfha fhjadkfhasd hdkasjfhds hdsjkfhasd fhs...	2025-02-03 19:24:56
<input type="checkbox"/> Edit Copy Delete	10	13	80-120	5	80	97 F	Betaloc	2025-02-03 21:13:53

☐ Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

Responsive Design

HealthInsight is designed to be fully responsive, ensuring a seamless user experience across desktops, tablets, and mobile devices. The following techniques and frameworks are used to achieve responsiveness:

- **Bootstrap Grid System:** Used to create a flexible layout that adjusts to different screen sizes.
- **CSS Media Queries:** Applied to adapt styles based on device resolution.
- **Mobile-first Approach:** Ensures primary functionalities are accessible on smaller screens before scaling up for larger devices.
- **Adaptive Navigation:** The menu structure adjusts dynamically, enabling easy access to features on touchscreens.



Features and Functionalities

- **HealthInsight** provides an intuitive dashboard for managing hospital operations.
- Patients can register, book appointments, and access their records securely.
- Doctors can view appointments, update medical records, and prescribe medications.
- The billing module automates invoice generation and payment processing.

Conclusion

HealthInsight revolutionizes healthcare management by seamlessly blending HTML, CSS, JavaScript, Bootstrap, PHP, and MySQL to optimize patient records, appointments, and billing. Its responsive design ensures accessibility across devices, while robust backend security protects sensitive data. The system's user-centric approach simplifies workflows for patients, doctors, and administrators, balancing efficiency with scalability. Future-ready enhancements like AI diagnostics and telemedicine promise expanded accessibility. By merging technical precision with compassionate care, HealthInsight exemplifies how structured, secure web applications can transform healthcare today and tomorrow.
