

HEALTHWAVE

A MINOR PROJECT REPORT

Submitted in partial fulfilment of the requirement for the award of Degree of
Master of Computer Applications

Submitted to



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MASTER OF COMPUTER APPLICATIONS

ACROPOLIS INSTITUTE OF TECHNOLOGY & RESEARCH, INDORE

SESSION 2019-2020

BONA FIDE CERTIFICATE

This is certified that this project report “**HEALTHWAVE**” is the bona fide work of “**Rishabh Shukla(0827CA16DD15) and Animesh Chourey (0827CA16DD07)**” who carried out the project under my supervision.

Signature of HOD

Signature of Supervisor

Prof. Geeta Santhosh

Prof. Jayant Bihare

HEAD OF THE DEPARTMENT

Project Guide

MCA

(Associate Professor)

MCA

Project Coordinator

External

Prof. Jayant Bihare

Signature of Coordinator

Signature of External

EXECUTIVE SUMMARY

“HEALTHWAVE is a hospital website which will allow user access to all facility of the hospital and user can access form everywhere in the world. Our project HEALTHWAVE include appointment of the patient and storing the patient detail into the system. The all data is accessible by the administrator. Only they can add database of doctors and department. The data can be retrieved easily. The interface is user-friendly. The data are well protected for personal use and make the data processing very fast

Language and Tools

- Processor: CORE i3, i5
- Hard Disk:126 GB
- RAM :8 GB D. Software Requirements
- Operating system: Windows XP/8/10
- Database: SQLite
- Database connectivity: Django
- Server: Apache Tomcat 5/6
- Scripting: Python, Html, Css.
- Server Side: Python Django
- Python version: Python 3.6

Software Development Life Cycle

1. **Planning:** The planning is the foremost phase in the systems advancement process and it determines that whether there is a need for the new system or not. So we planned to build an application for Hospital Online Website named HealthWave.
2. **System Analysis and Requirement:** In this phase we determine the need of the business, responsible persons of the project and the deadline of the project
3. **System Design:** The system design is the third phase of SDLC and this explains the required specifications, features of operations of the proposed system. The hardware components, software components, and network capabilities are considered in this phase.
4. **Development:** In the fourth phase of SDLC we did all the backend work like programming and database connectivity.
5. **Integration and Testing:** In this phase, we test the proposed system and the same time the system's integration and system's testing will be done at this stage.
6. **Implementation:** In the sixth phase of SDLC, the major codes of the programs are written and the proposed system will be installed.
7. **Maintenance:** This is the final phase of SDLC and this involves the maintenance and time to time updating of the system.

Requirement Analysis

Requirement specification

Functional Requirements Specification

It maintains two level of user: -

1. Administrator level

2. User level The Software include

- To increase efficiency of managing the Hospital, Doctors.
- It tracks all the information of Doctors, Employee.
- Manage information of doctors.
- Manage the details about appointments.
- Keeps tracks of the donations.

Non-Functional Requirement:

Reliability: The capability to maintain the specified level of performance is called reliability. This application is a web-based application that runs on any device that

has a browser. Availability: The application will be available for 99% of the time and

Security: The business logic is hidden from the users and is much safer and thus avoids unauthorized or illegal access or database corruption. Security of the user's information is also safe as there is a login facility. Maintainability:

Maintenance is typically done after the software development has been completed.

As the time evolves, so do the requirements and needs.

1.1 Security Requirement: The project provides post facility only to admin other than admin other user only read post no one can add or change the post. Only registered user can get access of “**HealthWave**”.

1.2 Safety Requirement: All the information of user should be handled properly on the client side as well as server side.

2.2 Performance Requirement: The User Interface of application should be fast and responsive. The application should be run on fast server so user don't wait for any action perform in application.

Design Constraints

1. User Interface Constraints: Using this system is fairly simple and intuitive. A user familiar with basic navigation skills should be able to understand all functionality provided by the system.

2. Software Constraints: The system will be intended to run on Python 3.6 and above.

3. Assumptions and dependencies: Most of hospital websites have a lot of redundant features which are rarely used. Our new system focuses on the features which are most important to the patient who wants to view our website and the can also book the appointment to visit the doctor.

4. Hardware Constraints: The system should have 2gb or above RAM.

5. System Design Constraints: The system shall be implemented in Django.

Project Plan

1. 1.Scope management

2. 1. HEALTHWAVE will provide secure access to documents. It uses authenticity services provided by User ID's.
3. 2. HEALTHWAVE aimed at eliminating the many facility of the hospitals. We can view the complete facility of hospital from everywhere in the world.
4. 3. HEALTHWAVE provides a dedicated personal e-storage space to users.
5. 4. HEALTHWAVE reduce the administrative overheads of hospital. It is also easy for users to receive the services available at hospital and viewing every information of hospital.
6. 5. To sign up f or your HEALTHWAVE, you need your Login details which you fill when you register in HEALTHWAVE.

7. People Management:

All users will be easily managed by HealthWave. Every user can book the appointment and get access to departments. Admin has access of every user he can manage all users easily.

2.People management

S No	Activity	Planned start date	Planned end date	Actual start date	Actual end date	Person Assigned	Remarks
1	Identify project	17-09-2019	19-09-2019	19-09-2019	20-09-2019	Rishabh, Animesh	
2	Making Project plan	21-09-2019	23-09-2019	24-09-2019	26-09-2019	Rishabh, Animesh	
3	System Study	27-09-2019	29-09-2019	29-09-2019	30-09-2019	Rishabh, Animesh	
4	System Design	1-10-2019	5-10-2019	6-10-2019	8-10-2019	Rishabh, Animesh	
5	System Testing	8-10-2019	8-10-2019	9-10-2019	11-10-2019	Rishabh, Animesh	
6	Implementation	13-10-2019	16-10-2019	17-10-2019	19-10-2019	Rishabh, Animesh	

8. Risk Management: Five main risk impact areas

- New, unproven technologies
- User and functional requirements
- Application and system architecture
- Performance

9. Communication Plan:

There's no single right way to communicate on a project. In fact, our communication plan can and should include a variety of communication methods. Here are a few to consider:

- Email
- Meetings (in-person, phone, or video chat)
- Discussion boards
- Status reports

10. Time Management Plan:

After we have identified and prioritize the tasks it is time to estimate how much time it will take to complete them. We include all constraints and other factors in our estimation. Most of the time things will not go as planned, so include buffer times for unforeseen events into our project schedule.

After all the planning and estimating, we create a project schedule which includes all tasks and their duration.

Feasibility Analysis

The following are the various types of feasibility studies:

1. Technical Feasibility: This is concerned with specifying the equipments and the software to satisfy the user requirements. The technical needs of the system vary considerably but include:

- The facility to produce outputs in a given time.
- Response time under certain conditions.
- Ability to process a certain volume of transactions at a specified speed.

2. Economical Feasibility: Economic analysis is the most frequently used method for evaluating the effectiveness of a new system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If benefits outweigh costs, then the decision is made to design and implement the system.

3. Operational Feasibility: We show a proper error message when any mistakes are made by any message. We provide help and a guideline menu to help the user.

Feasibility Study Report

The result of the Feasibility Study provides us with the following facts:

- The automated system would increase the efficiency of the system.
- The automated system would increase customer's satisfaction.
- The automated system has many requirements such as Efficiency cost effectiveness, prompt service, Reliability.
- The automated system should be simple to use, incorporate all necessary services and maintainable.

Methodology Adopted

A methodology is a model, which we employ for the design, planning, implementation and achievement of their project objectives. We adopted Software Development Life Cycle (SDLC) for this software development.

SDLC: This is a conceptual model used in software development project. SDLC also heavily emphasizes on the use of documentation and has strict guidelines on it. we used all the phases of SDLC to develop our project.

Phases of SDLC:

- Requirement gathering and analysis
- Design
- Implementation or coding
- Testing
- Deployment
- Maintenance

System Design

System design is the process of designing the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system.

Here are some elements of system

- **Architecture** - This is the conceptual model that defines the structure, behavior and more views of a system. We used flowcharts to describe and illustrate our system.
- **Modules** - These are components that handle one specific task in a system. A combination of the modules makes up the system.

Some modules of our system are:

1. Login Module

2. Appointment module

3. Donate Module

4. Contact Module

- **Components** - This provides a particular function or group of related functions. They are made up of modules.
- **Interfaces** - This is the shared boundary across which the components of the system exchange information and relate.

Coding Methods

We used modular programming method for our software development rather than using top down or structured programming method.

Modular Programming: Modular programming is the process of subdividing a computer program into separate sub-programs. A module is a separate software component. It can often be used in a variety of applications and functions with other components of the system.

- Each sub-module contains something necessary to execute only one aspect of the desired functionality.
- Modular programming emphasis on breaking of large programs into small problems to increase the maintainability, readability of the code and to make the program handy to make any changes in future or to correct the errors.

Advantages of Using Modular Programming Approach –

- **Ease of Use:** This approach allows simplicity, as rather than focusing on the entire thousands and millions of lines code in one go we can access it in the form of modules. This allows ease in debugging the code and prone to less error.
- **Reusability:** It allows the user to reuse the functionality with a different interface without typing the whole program again.
- **Ease of Maintenance:** It helps in less collision at the time of working on modules, helping a team to work with proper collaboration while working on a large application.

Testing

Testing is a process of executing a program with the aim of finding error. To make our software perform well it should be error free. If testing is done successfully it will remove all the errors from the software.

- All the test should meet the customer requirements
- To make our software testing should be performed by third party
- Exhaustive testing is not possible. As we need the optimal amount of testing based on the risk assessment of the application.
- All the test to be conducted should be planned before implementing it

Steps: Software is tested from two different perspectives:

- (1) Internal program logic is exercised using —White box test case design Techniques.
- (2) Software requirements are exercised using —black box test case Design techniques. In both cases, the intent is to find the maximum number of errors with the Minimum amount of effort and time.

Testing Methodologies:

A strategy for software testing must accommodate low-level tests that are necessary to verify that a small source code segment has been correctly implemented as well as high-level tests that validate major system functions against customer requirements. A strategy must provide guidance for the practitioner and a set of milestones for the manager. Because the steps of the test strategy occur at a time when

deadline pressure begins to rise, progress must be measurable and problems must surface as early as possible. Following testing techniques are well known and the same strategy is adopted during this project testing.

Types of Testing: -

1. Unit Testing

It focuses on smallest unit of software design. In this we test an individual unit or groups of inter related units. It is often done by programmer by using sample input and observing its corresponding outputs.

Ex

- a) In a program we are checking if loop, method or function is working fine
- b) Misunderstood or incorrect, arithmetic precedence.
- c) Incorrect initialization

2. Integration Testing

The objective is to take unit tested components and build a program structure that has been dictated by design. Integration testing is testing in which a group of components are combined to produce output.

Integration testing are of two types:

- I. Top Down

II. Bottom up

(a) Black Box testing: - It is used for validation. In this we ignore internal working mechanism and

Focuses on what is the output?

(b) White Box testing: - It is used for verification. In this we focus on internal mechanism i.e.

How the output is achieved?

6.2.2 Test Cases:

A test case is a specification of the inputs, execution conditions, testing procedure, and expected results that define a single test to be executed to achieve a particular software testing objective, such as to exercise a particular program path or to verify compliance with a specific requirement , a test case is a set of conditions or variables under which a tester determines whether the software satisfies requirements and functions properly.

A test case has pre-requisites, input values and expected results in a documented form which cover the different test scenarios. Test cases are the set of positive and negative executable steps of a test scenario which has a set of pre-conditions, test data, expected result, post-conditions and actual results.

Test cases have a great impact on the testing phase. Writing test cases is almost as important as the testing process itself. The activity of writing test cases helps you think through the details and ensures you're approaching the tests from as many angles as possible. The value of having test cases long-term is that anyone can go in and retest using the test case. Test cases are powerful artifacts that are beneficial to future teammates, as well as a good source of truth for how a system and particular feature work.

Maintenance

Software maintenance is widely accepted as a part of SDLC nowadays. It stands for all the modifications and updates done after the delivery of software product.

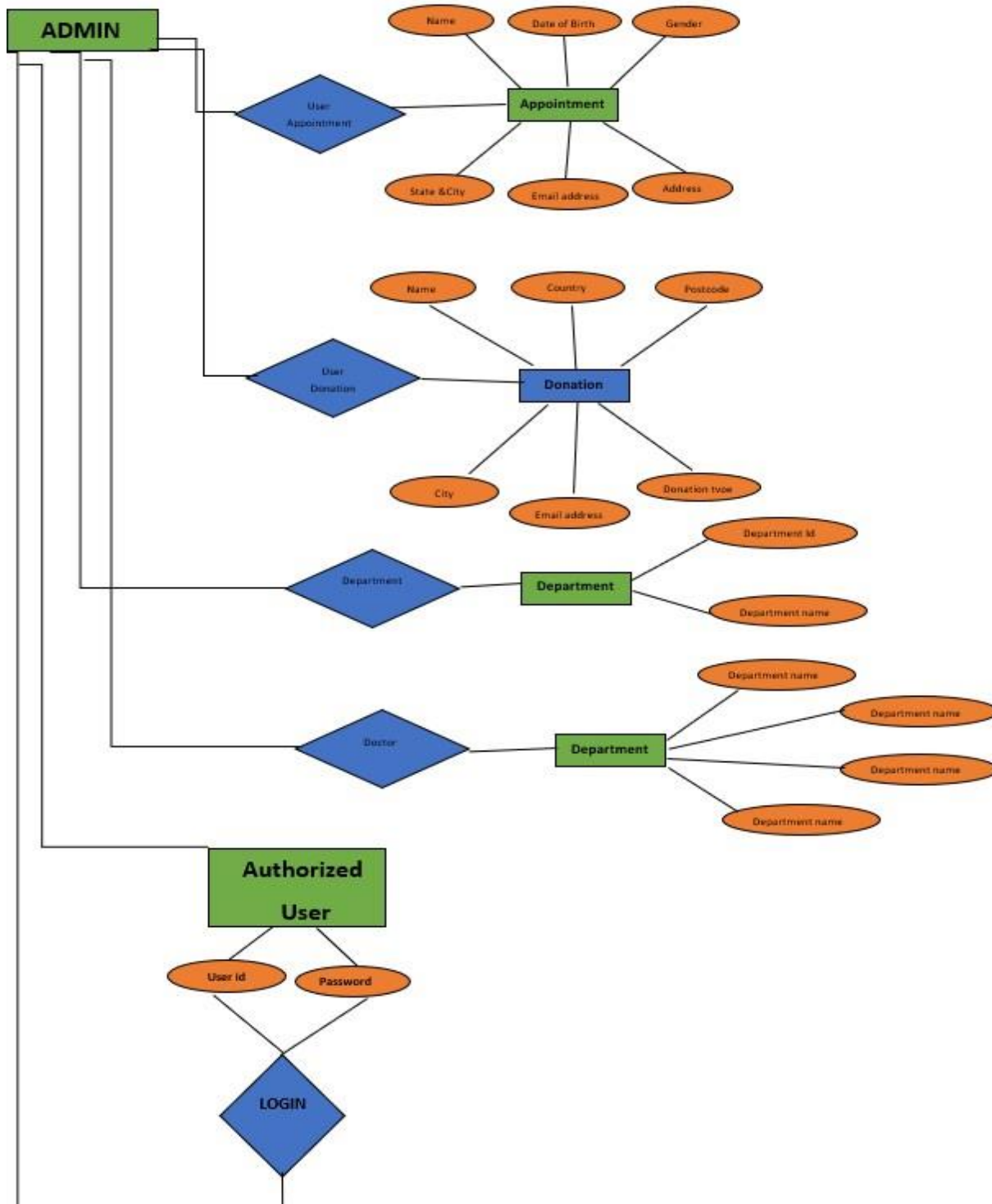
Following are some types of maintenance based on their characteristics:

- **Corrective Maintenance** - This includes modifications and updates done in order to correct or fix problems, which are either discovered by user or concluded by user error reports.
- **Adaptive Maintenance** - This includes modifications and updates applied to keep the software product up-to date and tuned to the ever changing world of technology and business environment.
- **Perfective Maintenance** - This includes modifications and updates done in order to keep the software usable over long period of time. It includes new features, new user requirements for refining the software and improve its reliability and performance.
- **Preventive Maintenance** - This includes modifications and updates to prevent future problems of the software. It aims to attend problems, which are not significant at this moment but may cause serious issues in future.

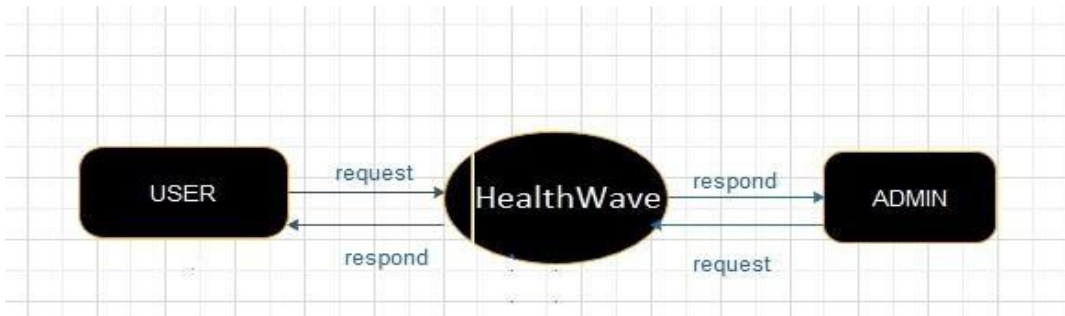
List of Tables:

1. Appointment
2. Department
3. Donation
4. Login
5. Contact
6. Admin Info
7. Doctor

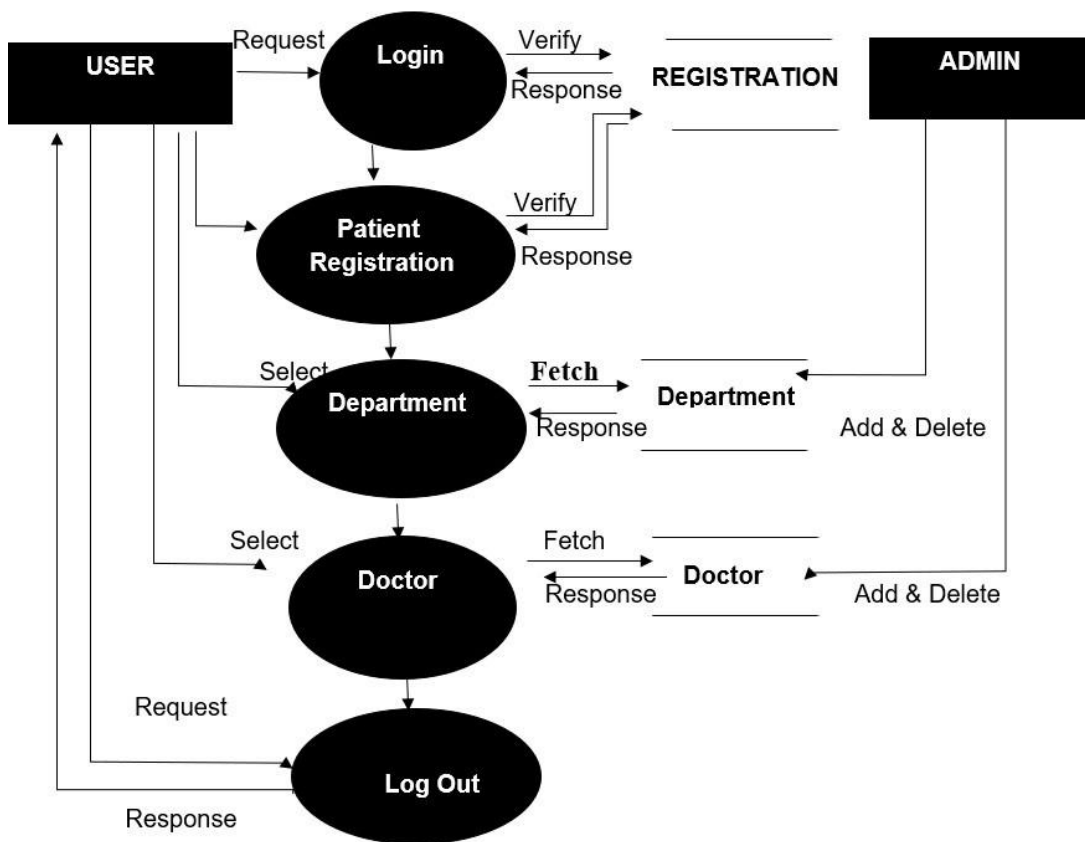
ER-Diagram



Data Flow Diagram



Level-1 DFD

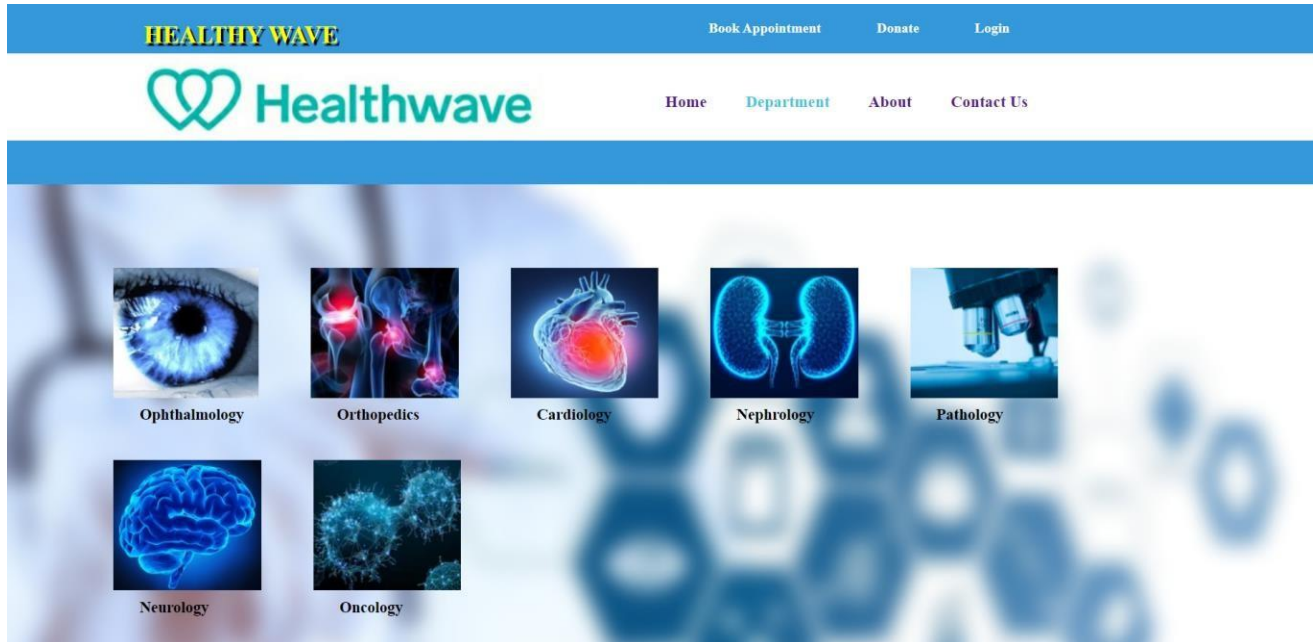


Screenshots of User Side

Home page



Department page



Appointment page

HEALTHY WAVE[Book Appointment](#)[Donate](#)[Login](#)

[Home](#)[Department](#)[About](#)[Contact Us](#)

Fill Appointment Form



Fill Appointment Form

Requester Information

Who is this appointment for: ☐ Self ☐ Other

First Name:

Last Name:

Gender: ☐ Male ☐ Female

Mobile Number:

Birth Date: Date: Month: Year:

Address:

Email address:

State & City:

Does the patient have health insurance? ☐ Yes ☐ No ☐ International Patient

Have you previously attended our facility? ☐ Yes ☐ No

Select which appointment type(s) you require

- ☐ Cervix Checkup
- ☐ Heart Checkup
- ☐ Eye Checkup
- ☐ Hearing Test

Donation Page

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Donation Form



First Name

Last Name

Email:

Country:

Address:

City:

Mobile no:

Postcode:

Type of Donation ☐ Love Offering ☐ Building Expansion ☐ One Time Donation

Donation Amount

About Page

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About

Why Choose Health Wave?



More experience

Every year, more than a million people come to Health Wave for care. Our highly specialized experts are deeply experienced in treating rare and complex conditions.



The right answers

Getting effective treatment depends on identifying the right problem. In a recent study, 88 percent of patients who came to Health Wave for a second opinion received a new or refined diagnosis.



Seamless care

At Health Wave, every aspect of your care is coordinated and teams of experts work together to provide exactly the care you need. What might take months elsewhere can often be done in days here.



VISION

To render the same level of service to the poor that the rich will get in a good hospital.



MISSION

Healthwave shall provide the best possible medical treatment, delivered most efficiently, in the shortest possible time, at minimum cost to all sections of the society, irrespective of cast, creed or religion.




MOTTO

A patient is the most important person in our hospital. He is not an interruption to our work. He is the purpose of it. He is not an outsider in our hospital, he is part of it. We are not doing him a favor by serving him, he is doing us a favor by giving us an opportunity to do so.

Contact Page

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Contact Us

Contact Us

For further inquiries, help or suggestions. You may contact us through the following.

Phone : 8989430759
9824383111

Mail : anichourey@gmail.com
risshukla@gmail.com

Address: HB-101/102 Khajuri
Nagar, Near Palasiya Sq,
Indore

Send us a Message

First Name

Last Name

Email

Contact Number

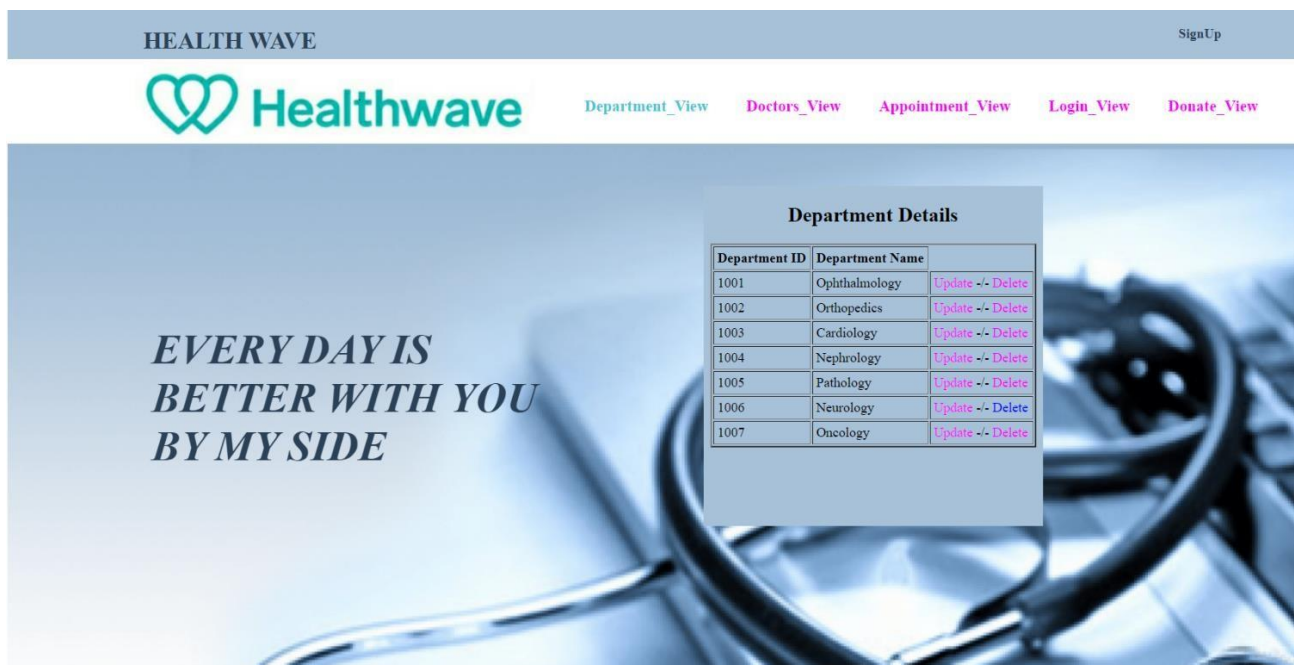
Message

Screenshots of Admin Side

Admin Home Page



Admin Department Page



Admin Doctor Info Page

HEALTH WAVE

SignUp



Department_ViewDoctors_ViewAppointment_ViewLogin_ViewDonate_View

*EVERY DAY IS
BETTER WITH YOU
BY MY SIDE*

Doctors Details

Doctor ID	Doctor Name	Doctor Pic	Doctor Department	
1	Ankit Gupta	Ankit Gupta-full.jpg	Ophthalmology	Update -/ Delete
2	Anshul Agrawal	Anshul Agrawal-full.jpg	Ophthalmology	Update -/ Delete
3	Deepti Agnihotri	Deepti Agnihotri-full.jpg	Ophthalmology	Update -/ Delete
4	Aviral Jain	Aviral Jain-full.jpg	Orthopedics	Update -/ Delete
5	Hiren Shah	Hiren Shah-full.jpg	Orthopedics	Update -/ Delete
6	Sonia Daga	Sonia Daga-full.jpg	Orthopedics	Update -/ Delete
7	Parul Baldi	Parul Baldi-full.jpg	Cardiology	Update -/ Delete
8	Ajay Gupta	Ajay Gupta-full.jpg	Cardiology	Update -/ Delete
9	Aditi Jain	Aditi Jain-full.jpg	Cardiology	Update -/ Delete
10	Alok Modi	Alok Modi-full.jpg	Nephrology	Update -/ Delete
11	Veena Vangani	Veena Vangani-full.jpg	Nephrology	Update -/ Delete
12	Arun Jain	Arun Jain-full.jpg	Nephrology	Update -/ Delete
13	Charu Neema	Charu Neema-full.jpg	Pathology	Update -/ Delete
14	Mukesh Gupta	Mukesh Gupta-full.jpg	Pathology	Update -/ Delete
15	Vivek Jha	Vivek Jha-full.jpg	Pathology	Update -/ Delete
16	Abhay Jain	Abhay Jain-full.jpg	Neurology	Update -/ Delete
17	Surekha Soni	Surekha Soni-full.jpg	Neurology	Update -/ Delete
18	Anand Gupta	Anand Gupta-full.jpg	Neurology	Update -/ Delete
19	Ashutosh Soni	Ashutosh Soni-full.jpg	Oncology	Update -/ Delete
20	Pawan Patel	Pawan Patel-full.jpg	Oncology	Update -/ Delete
21	Aashna Jain	Aashna Jain-full.jpg	Oncology	Update -/ Delete

Admin Appointment Info Page

HEALTH WAVE

SignUp



Department_ViewDoctors_ViewAppointment_ViewLogin_ViewDonate_View

Appointment Details

Id	Appointment For	F_Name	L_Name	Gender	Mobile Num	Birth date	Birth month	Birth year	Adress	Email	State	City	HealthInsurance	Attended facility	Appointment type	
2	self	Vibhanshu	Mishra	male	8989898989	1	January	1990	wqqwe	vibh@gmail.com	Madhya Pradesh	Indore	no	yes	eyecheckup	Update -/ Delete
3	self	Anmol123	Agrawal	male	7898647301	7	January	1999	MR10 Indore	anmolag7@gmail.com	Madhya Pradesh	Indore	no	no	eyecheckup	Update -/ Delete
4	self	Sandeep	Upadhyay	male	7470888434	9	July	1999	Mangliya Indore	sandeepupadhyay@gmail.com	Madhya Pradesh	Indore	yes	no	heartcheckup	Update -/ Delete
5	self	Ravi	Verma	male	9109017877	9	August	1998	june Indore	raviverma16@gmail.com	Madhya Pradesh	Indore	yes	no	heartcheckup	Update -/ Delete

Admin Donation Info Page

HEALTH WAVE

SignUp



[Department_View](#) [Doctors_View](#) [Appointment_View](#) [Login_View](#) [Donate_View](#)


Donation Details

Id	F_Name	L_Name	Email	Country	Address	City	Mobile Num	Post Code	Donation Type	Donation Amount		
2	Rishabh	shukla	shukla@gmail.com	India	ijnknjb	Indore	None	7898647301	452010	Love Offering	50	Update -/ Delete
3	Animesh	Chourey	Animesh@gmail.com	India	Indore	Indore	None	8989898989	452010	Building Expansion	50000	Update -/ Delete
4	Jayant	Bihare	jayantbihare@gmail.com	India	Indore	Indore	None	8989898989	452010	One Time Donation	50000	Update -/ Delete

Admin Signup Page

HEALTH WAVE

SignUp



[Department_View](#) [Doctors_View](#) [Appointment_View](#) [Login_View](#) [Donate_View](#)

Employee Registration

Create An Account

First Name

Enter First Name

Last Name

Enter Last Name

Email

Enter Email

Password

Enter Password

Re-Enter Password

Re-enter Password

Gender

☐ Male ☐ Female

Contact No

Enter Contact Number

Address

Enter Address here

State

-----Select-----

Sign Up

Reset

References

- Elmasri and Navathe, “Fundamentals of Database Systems”, 3/e, Addison-Wesley, 2001.
- www.healthwave.com
- Thomas M. Connolly, Carolyn E. Begg, “Database Systems Practical Approach to Design Implementation and Management”, 4/e, Addison-Wesley, 2005.
- <http://www.uml-diagrams.org>