Expt No: 08

Date: 29/04/2022

Software Testing

Aim

To perform testing by developing test cases and test suites for the application Health Consultancy Service.

Software Testing

Testing is an important part of the development life cycle of a software. It is an expensive activity. Hence, appropriate testing methods are necessary for ensuring the reliability of a program

According to the ANSI/IEEE 1059 standard, the testing can be defined as the process of analyzing a software item, to detect the differences between existing and required conditions that is defects/error/bugs and to evaluate the features of the software item.

The purpose of testing is to verify and validate a software and to find the defects present in a software. The purpose of finding those problems is to get them fixed.

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Verification is the process of checking or we can say the testing of software for consistency and conformance by evaluating the results against pre-specified requirements.

Validation looks at the systems correctness that is the process of checking that what has been specified is what the user actually wanted.

Defect is a variance between the expected and the actual result. The defect's ultimate source may be traced to a fault introduced in the specification, design or development (coding) phases.

Project Description

Product Perspective

Hardware Interface

The database connectivity requires a hardware configuration that is online. This makes it necessary to have a fast database system running on a high rpm harddisk permitting complete data redundancy and backup systems to support the primary goal of reliability. The system must be interfaced with the standard output device, keyboard and mouse to interact with this software.

Software Interfaces

Frontend: HTML5, CSS, PHP, BootStrap

Backend: PHP, XAMPP server with MySQL

Memory Constraints

No specific Constraints on memory

operations

the health Consultancy Service System allows the following modes of operation.

* To register as user and view the available doctors and user's history of appointments.

* To register as admin and have the authorization to add new doctors, add new users and view the list of available doctors and users.

* To register as doctor and view the appointment schedule.

* To search for the doctors of specific speciality and to book an appointment from the list of doctors displayed.

* To search for the medicine details (uses, dosage, composition etc) with the name of the medicine.

* To know the first aid methodologies for various accidents.

Product Functions

The Software validates the authentic user by extracting their name and password. After the validation of the user, software allows to the patients to search for doctors of various specialities and to book an appointment.

Using the software, the user can search for the medicine details with its name and also the software can be used to learn about the first aid methodologies which can be useful in saving a life during various kinds of danger.

User characteristics

The intended users of the software need not have specific knowledge as to what is the internal operation of the system.

Thus the end user is at a high level of abstraction that allows easier, faster operation and reduces the knowledge requirements of end user.

The product is absolutely user friendly so the intended users can be the naive users. the product doesnot expect the user to possess any technical background. Any person who knows

to use the mouse and the keyboard can successfully use this service system.

Constraints

The user can login only using their registered unique username and password. In case, the user has forgotten the password, it can be retrieved through forgot password page.

Types of Software Testing

* Unit testing
* Integration testing
* System Testing
* Validation Testing

Unit Testing

Unit Testing is done at the lowest level. It tests the basic unit of the software that is the smallest testable piece of Software. The individual component or unit of a program is tested in unit testing.

Unit testing is of two types.

* Black Box testing
* White Box testing

Black Box Testing

This is also known as functional Testing where the test cases are designed based on input output values only. There are many types of Blackbox testing but the following are the prominent ones.

* Equivalence class partioning

In this approach, the domain of input values to a program is divided into a set of equivalence classes.

* Boundary value analysis

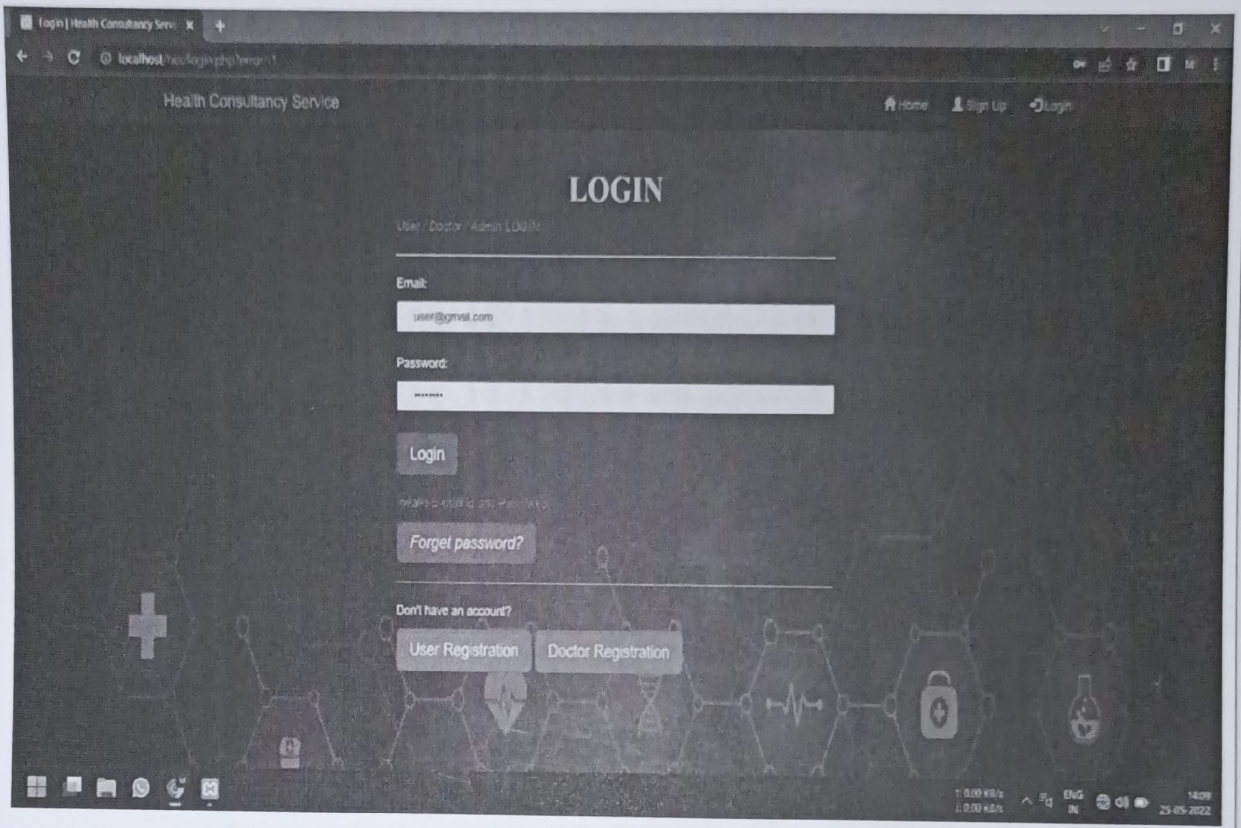
In this approach while designing the test cases, the values at boundaries of different equivalence classes are taken into considerations.

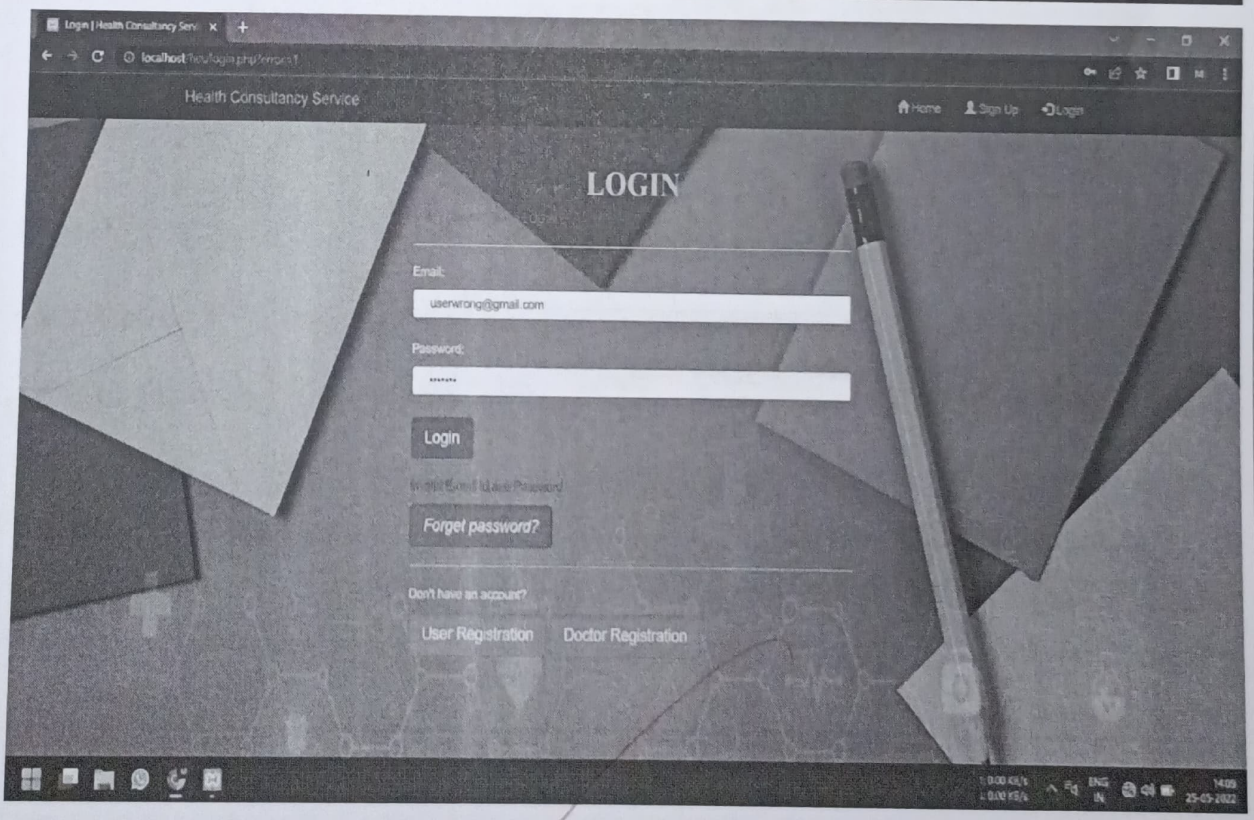
Procedure

Initially the requirements and specifications of the system are examined.

* Tester chooses valid inputs (positive test scenario) to check whether SUT processes them correctly. Also some invalid input (negative test scenario) are choosen to verify that the SUT is able to defect them.

Black Box testing:





* Tester determines expected outputs for all those inputs

* Software tester constructs test cases with the selected inputs.

* The test cases are executed

* Software tester compares the actual outputs with the expected outputs.

* Detects if any are fixed and retested.

White Box Testing

It is also known as Structural testing. In this Testing, test cases are designed on the basis of examination of the code.

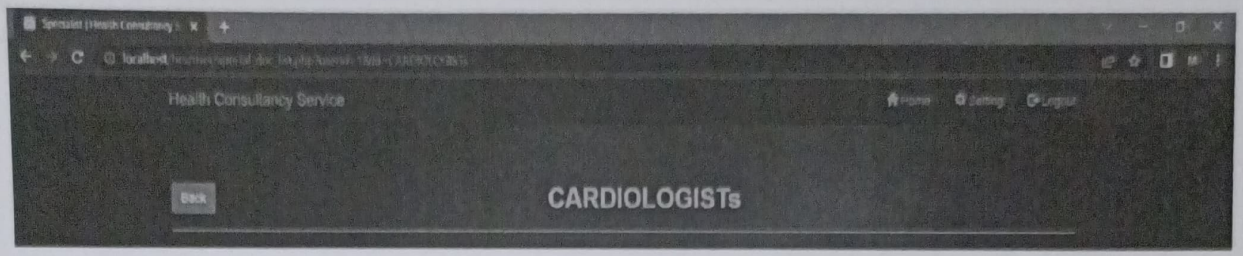
This testing is performed based on the knowledge of how the system is implemented. It includes analyzing data flow, control flow, information flow, coding practices, exception and error handling within the system to test the intended and unintended software behaviour.

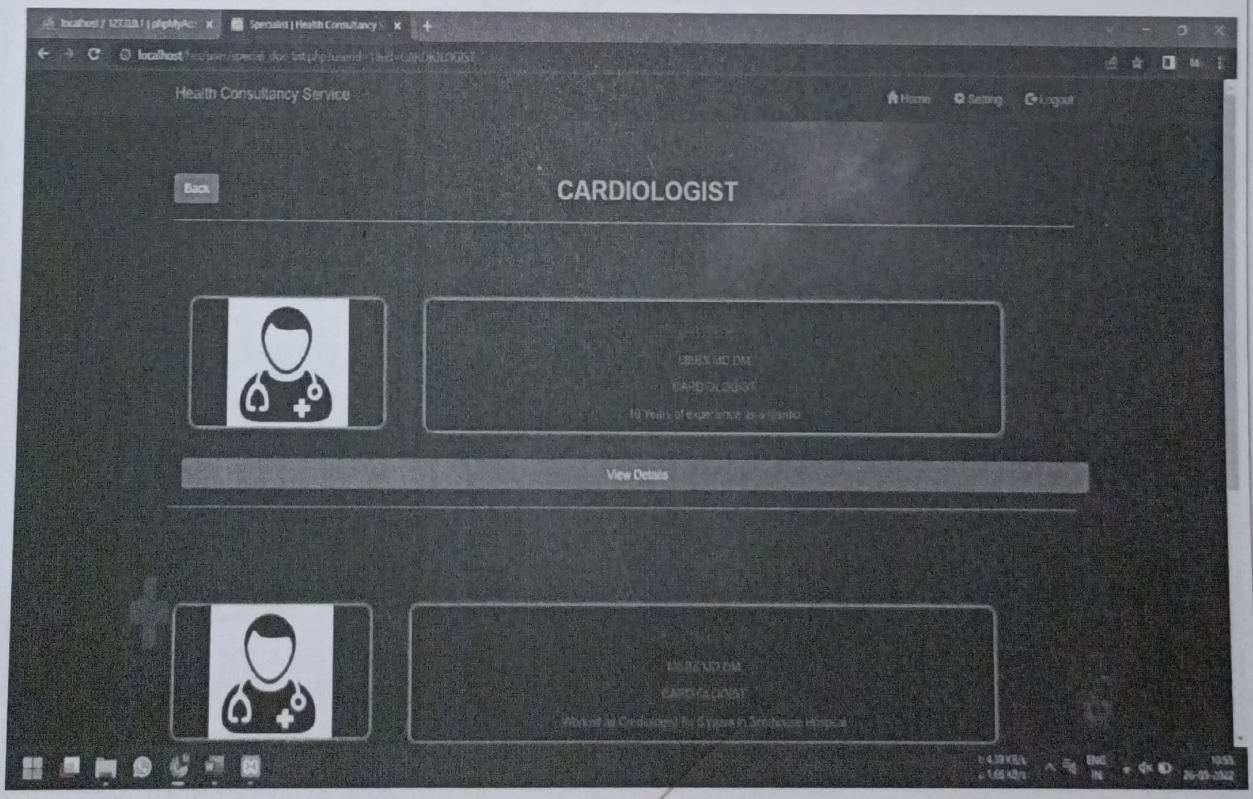
Procedure

Step 1: Identify the features, component, program to be tested.

Step 2: Plot all possible paths in a flowgraph.

White Box testing:





Step 3: Identify all possible paths from the flowgraph

Step 4: Write Test cases to cover every single path on the flowgraph.

Step 5: Execute, rinse, repeat

Integration Testing

Integration testing is defined as a type of testing where the software modules are integrated and tested as a group

A typical software project consists of multiple software modules coded by different programmers.

The purpose of this level of testing is to expose the defects in the interaction between these software modules when they are integrated.

Procedure

Step 1: Prepare and create the integration test plans for Health Consultancy Service System.

Step 2: Design the test scenario's, cases and scripts which includes the modules and sections of code that are integrated to other modules or databases..

Step 3: Execute one of the module and its integrations to identify its defects and bugs.

Integration Testing:

Warning: Undefined variable $conn in **C:\xampp\htdocs\hcs\includes\common.php** on line **5**

Fatal error: Uncaught TypeError: mysqli_select_db(): Argument #1 ($mysqli) must be of type mysqli, null given in C:\xampp\htdocs\hcs\includes\common.php:5 Stack trace: #0 C:\xampp\htdocs\hcs\includes\common.php(5): mysqli_select_db(NULL, 'health') #1 C:\xampp\htdocs\hcs\doctor\doc_schedule.php(2): require('C:\xampp\htdocs...') #2 {main} thrown in **C:\xampp\htdocs\hcs\includes\common.php** on line **5**

Health Consultancy Service

Home Setting Logout

List of your Appointment details

Home

S.No	Appointment ID	User mail	User Contact	Appointment Reason	User Address	Doctor ID	Doctor Name	Scheduled at	COnsulted at	Prescription	Application Submitted At	Last modified at	
1	5	user@gmail.com	1234567890	I need to have an regular checkup	GCT,Coimbatore-13	1	Goutham K	2022-05-31T17:32	2022-05-25 17:49:47	you are alright	2022-05-25 17:33:03	2022-05-25 17:49:47	Edit
2	6	user@gmail.com	1234567890	need cardio	GCT,Coimbatore-13	1	Goutham K	2022-06-28T17:35	0000-00-00 00:00:00		2022-05-25 17:38:19	2022-05-25 17:38:19	Edit

Step 4: when bugs are found, correct the defect by tracking it and retest the defects.

Step 5: Repeat step 3 and step 4 for all modules and integration untill there is no more bugs

Validation testing

* Validation Testing is the process of ensuring if the tested and developed software satisfies the client/user needs.

* The business requirements logic or scenarios have to be tested in detail.

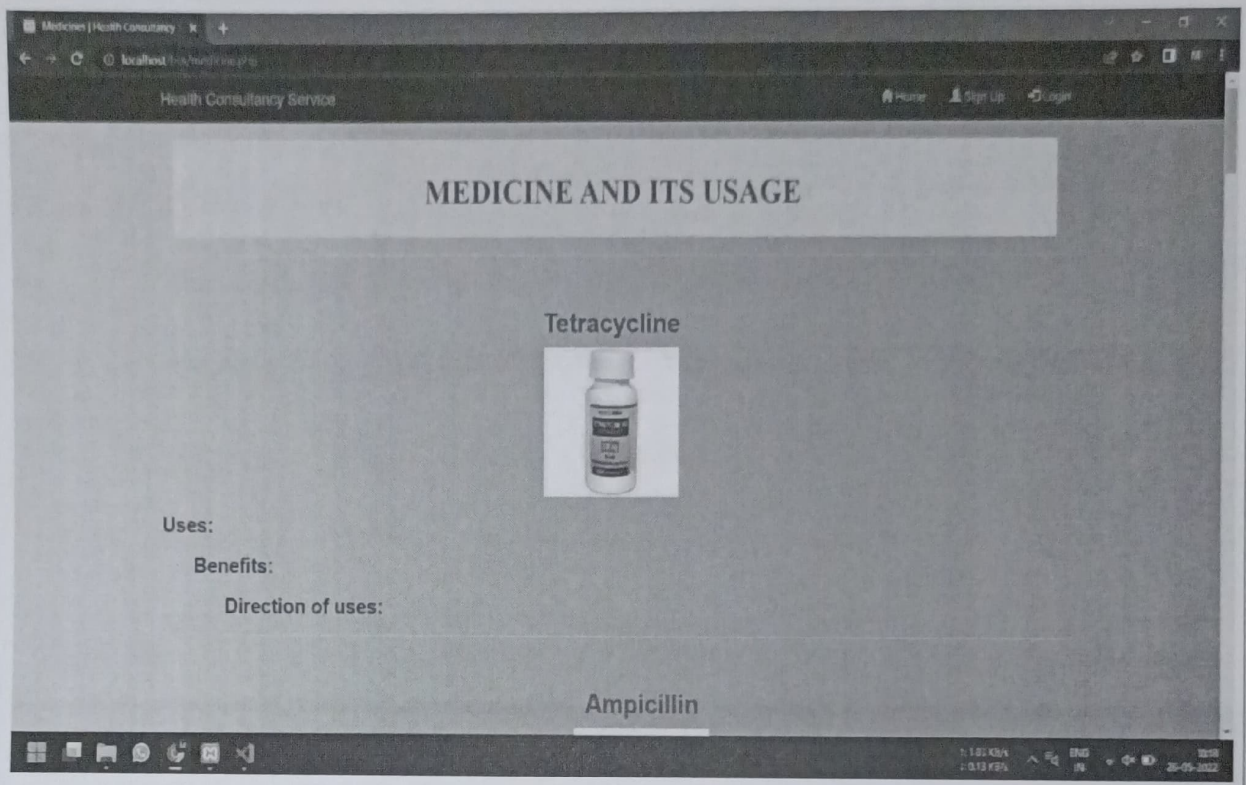
* All the critical functionalities of an application must be tested here.

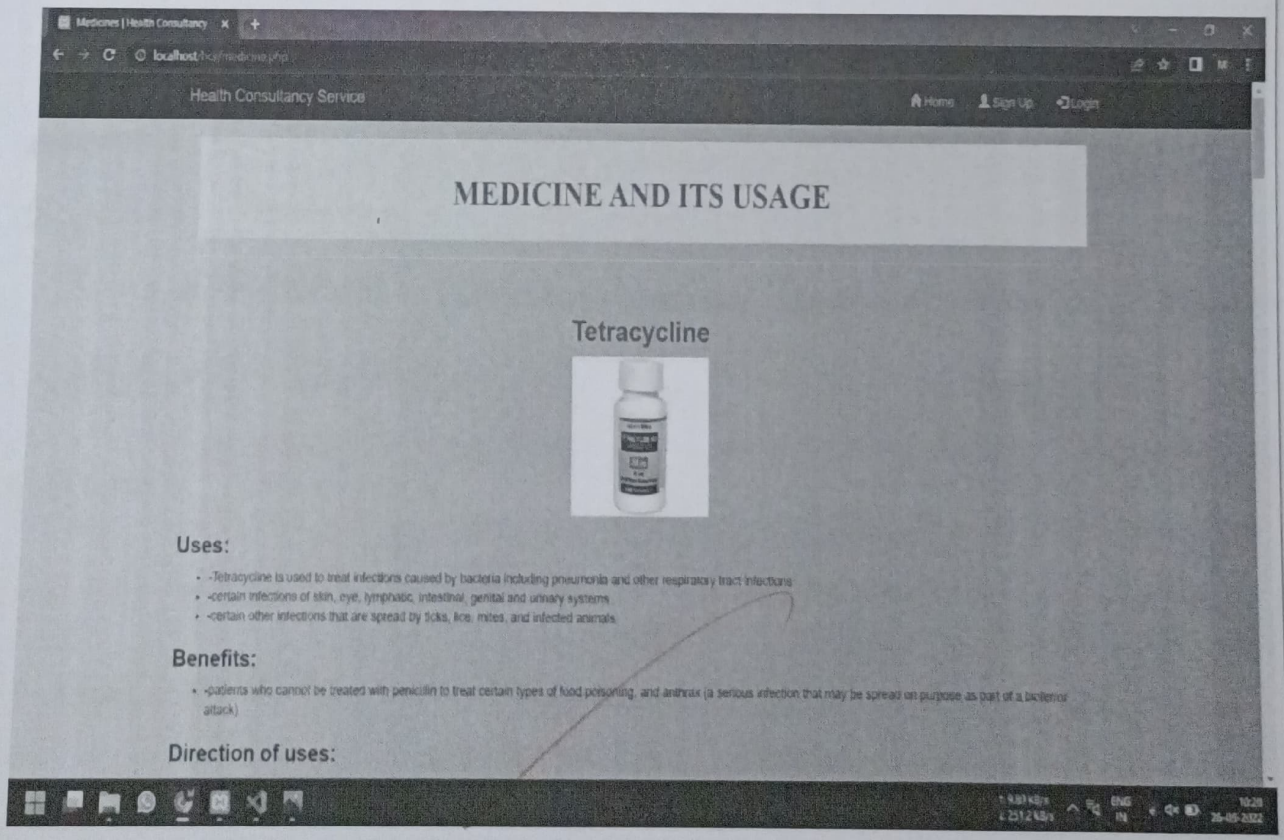
Procedure

Step 1: Define the requirements for validating testing. mapping out the requirements gathering process.

Step 2: Select the team to work on. This process involves selecting the individuals as per their past capacity and technical tuning. So that they can easily tune themselves to the nature of the bug.

Validation Testing :





Step 3: Maintain the documents properly. Any form of testing requires user specification documentation along with several release cases, test cases and manuals that have folted down.

Step 4: Prepare validation report. The software is evaluated as per specifications and a proper validation report is submitted in order to cross check the evaluations along with getting an estimated date and round off for bug removal.

Step 5: Incorporate the necessary changes that have been validated in the last stage.

~~Steps~~:

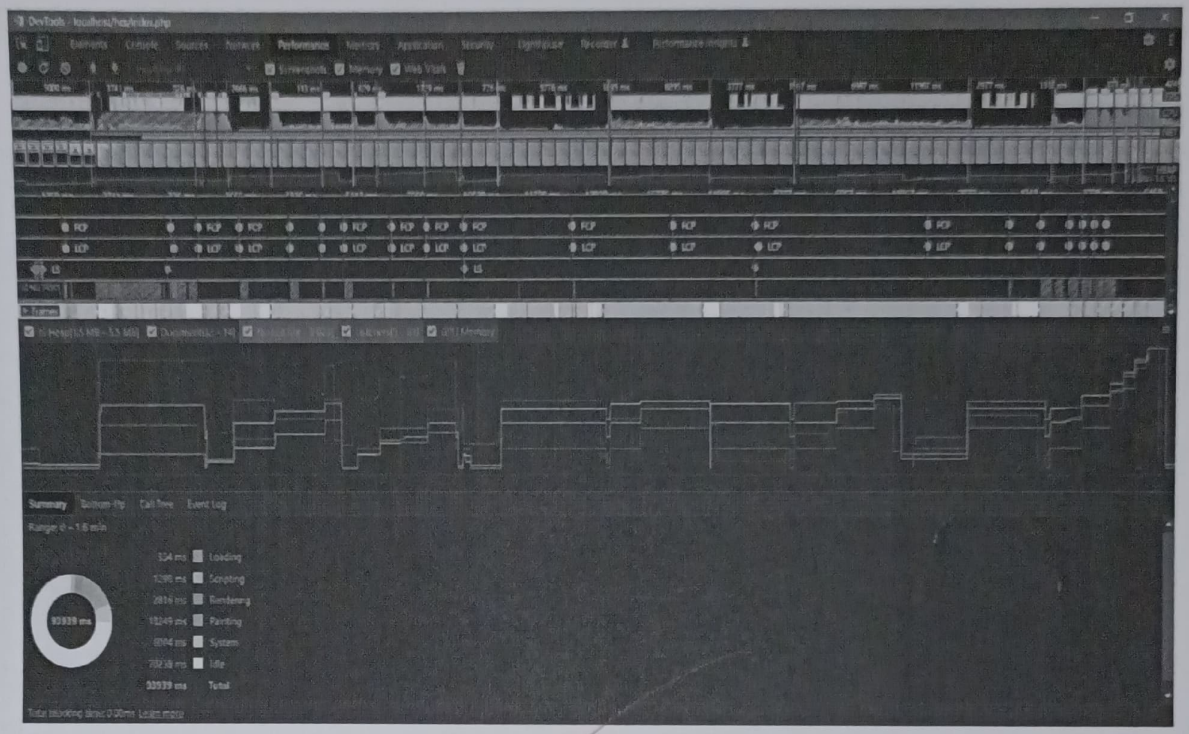
System Testing:

* System Testing is a level of testing that validates the complete and fully integrated software product.

* The purpose of a system test is to evaluate the end to end system specifications.

* System Testing is actually a series of different tests whose sole purpose is to exercise the full computer based system.

System Testing:



Procedure

Step 1: Create and define the System test plan, test cases and test scripts.

Step 2: Prepare the test data required for the testing.

Step 3: Execute the System test cases and script.

Step 4: Report the bugs, Fix it and retest it again.

Step 5: Perform regression testing to verify the impact of the change in the code.

Step 6: Repeat the step 3, 4, and 5 until all the bugs are identified and fixed.

Step 7: Sign off from the testing team.

	Alloted marks	obtained marks
Preparation and viva	10	09
observation	10	08
Design and Implementation	10	09
output	10	08
Record	10	09
Total	50	

Result

Thus the testing has been successfully performed by developing test cases and test suites for the application Health Consultancy Service System.