SYNOPSIS OF MCS-044

ON

**Online Appointment System**

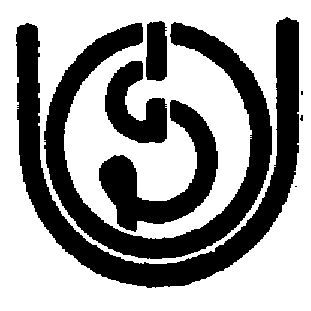
**SUBMITTED BY:**

**ENROLLMENT NO :**

**NAME :**

**PROGRAMME : MCA**

**STUDY CENTRE :**



**Indira Gandhi National Open University**

**Maidan Garhi**

**New Delhi – 110068.**

**ACKNOWLEDGEMENT**

The satisfaction that accompanies that the successful completion of any task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success.

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We also thank our colleagues who have helped in successful completion of the project.

**1. INTRODUCTION**

**1.1 About Project**

**‘Online Appointment System’** is a website that provides online medical services to everyone hardly matters whether the people live in metro or a remotely located village. The system helps to automate all the activities of existing manual system. Users can connect through their home internet or approach any nearby kiosk to get these services.

The system design is motivated by factors like very few doctors or no doctors at remote locations, limited hour services and lack of sophisticated medical equipments and there are no patients’ or lab data management. This system can maintain all the previous history and lab data like patients’ health reports and lab reports.

It can be used by the patients to take online appointments of doctors, view their previous health records, lab reports etc. The doctors can give online appointments, e-prescriptions and view the patient’s history. This system can be entered using a username and password. It is accessible either by admin, doctors or patients/kiosk manager. The data can be retrieved easily. The interface is very user-friendly.

**2. PROJECT ANALYSIS**

**2.1 Purpose of the project**

The purpose of the project entitled **“Online Appointment System”** provides online medical services to everyone hardly matters whether they live in metro or a remotely located village. Users can connect through their home internet or approach any nearby kiosk to get these services. What motivate to build this system are:

1) Very few or no doctors at remote locations.

2) Limited hour services and lack of sophisticated equipments.

3) No patients/lab data management.

The main function of the system is that it can be used by the patients to take online appointments of doctors, view their previous health records, lab reports etc. The doctors can give online appointments, e-prescriptions and view the patient’s history. This site will help you to find the blood donators and eye donators. The users can register and store their details and retrieve these details as and when required, and also to manipulate these details meaningfully.

**2.2 Existing system**

Existing system refers to the system that is being followed till now. The sophisticated medical equipments and services are not available in all the areas. Presently all the hospital functionalities are done manually.

That is if a patient want to consult a doctor he take appointment and wait till his chance called. Out-patient and in-patient tickets are distributed directly. So, all these procedures will be a time consuming one.

**2.2.1 Draw backs of existing system**

1) Very few or no doctors at remote locations

2) Limited hour services and lack of sophisticated medical equipments

3) No patients history/lab data management

4)Various changes to information like patient details, medical details are difficult to make as paper work is involved.

5) Time consuming.

**2.3 Proposed System**

The drawback of the existing system is lack of doctor’s availability and lack of sophisticated equipments. It is difficult to handle the whole system manually and it is less accurate and to keep the data in case files for future reference because it may get destroyed. Moreover it is very difficult to retrieve data. Redundancy of data may occur and this may lead to the inconsistency. The manual system is so time-consuming.

The proposed system is very easy to operate. Speed and accuracy are the main advantages of proposed system. The medical services are provided online to everyone. There is no redundancy of data. The user’s details are easily stored, retrieved and used at any time. The proposed system will easily handle all the data and the work done by the existing systems. The proposed systems eliminate the drawbacks of the existing system to a great extent and it provides tight security to data.

**2.3.1 Advantages of proposed system**

1. Provides online medical services to all people whether they are in metro or remotely located areas.

2. Users can connect through their home internet or approach any nearby kiosk to get the services.

3. Patients can make online appointments; look their previous health records, doctor’s prescriptions, lab reports and medical expenses.

4. Doctor’s can give online appointments, e-prescriptions, and view patient’s history.

5. Kiosk manager can see/adjust appointments, perform day open and close activities.

6. In case of any medical error patient can register a complaint. Patient’s grievance and feedback goes to admin and he can forward to specific doctor to answer.

7. Since all the hospital data management is automated, it reduces the paper work and the users’ data can be stored and retrieved at faster speed and accuracy

8. The site has online help manuals for patients.

9. This website helps to find the blood donators and eye donators.

10. Ensures data accuracy and security.

11. Administrator controls the entire system.

12. Reduce the damages of the machines.

13. Minimize manual data entry.

14. Greater efficiency.

15. User friendly and interactive.

**3. REQUIREMENT ANALYSIS**

**3.1 Purpose and scope**

**Purpose:**

The main purpose of the system is to provide online medical services to all the people situated in any location.

**Scope:**

The scope of the **Online Appointment System** is as follows:

The **Online Appointment System** has good potential to grow since it provides specialty health care to the remote hospitals. The growth could be the connectivity between

a) District hospitals/ health centers and super-specialty hospitals in the cities.

b) Community Health Centers at block level and district hospital and

c) Primary Health Centre at village level and community health centers for health care and delivery of medical advice. Further, there could be a network of super-specialty hospitals providing telemedicine consultation to any of the regions.

**3.2 Users of the system**

1. Patients

2. Doctors

3. Kiosk Manager

4. Admin

**4. SPECIFIC REQUIREMENTS**

**4.1 Functional and Non-Functional Requirements**

**Functional Requirements**

1.Users profile management and registration.

2.Patients to make online appointment, look their previous health records, doctor’s prescriptions, lab reports and medical expenses.

3.Doctor’s to give appointments, e-prescriptions, and view patient’s history.

4.Kiosk Manager to see/adjust appointments, perform day open and close activities and calculate his commission.

5.In case of any medical error (wrong medication or lab report) patient can register a complaint. Patient’s grievance and feedback goes to Admin he can forward it to any doctor to answer.

6.Facilitate appropriate communication between all stakeholders - Discussion forum/chat/mail/polls

7.Site should have details online help manual for patients. Local language support is essential.

8.Admin to take backup of all kind of data, view log and generate system reports.

**Non-Functional Requirements**

1. Secure access of confidential data (user’s details). SSL can be used.

2. 24 X 7 availability

3. Better component design to get better performance at peak time

4. Flexible service based architecture will be highly desirable for future extension

**4.2 User Interface Requirements**

1. Professional look and feel

2. Use of AJAX at least with all registration forms

3. Browser testing and support for IE, NN, Mozilla, and Fire fox.

4. Reports exportable in .XLS, or any other desirable format.

**Hardware and software Configurations**

1. **Hardware Requirements**

Processor : Intel Pentium IV 2.4 GHZ or above

Clock speed : 700 MHZ

System bus : 32 bits PCI Ethernet card

RAM : 512MB of RAM

HDD : 10 GB or higher

**2. Software Requirements**

OS : MS WINDOWS XP/2000(client/server)

User Interface : HTML, CSS

Client-side Scripting : JavaScript

Programming Language : Java

Web Applications : Servlets, JSP, JDBC

IDE/Workbench : My Eclipse 6.0

Database : Oracle 10G

Server Deployment : Tomcat 5.x

**4.3 Proposed System Architecture**

|  |  |  |
| --- | --- | --- |
| Application Layer  Role\_UI  Patient\_UI  SLA\_UI  Permission\_UI  KioskManager\_UI  Service\_UI  Receivable\_UI  Doctor\_UI | Business Layer  Role  Permission  SLA  Doctor  KioskManager  Service  Patient  Receivable | Data Layer  Role  SLA  Patient  Receivable  KioskManager  Service  Doctor  Permission |

**5. SYSTEM REQUIREMENTS**

**5.1 Technologies used**

1. J2EE
2. HTML
3. JavaScript

**J2EE**

Java Platform, Enterprise Edition or Java EE is a widely used platform for server programming in the Java programming language. The Java EE Platform differs from the Java Standard Edition Platform (Java SE) in that it adds libraries which provide functionality to deploy fault-tolerant, distributed, multi-tier Java software, based largely on modular components running on an application server.

**HTML**

HTML, an initialism of Hypertext Markup Language, is the predominant markup language for web pages. It provides a means to describe the structure of text-based information in a document — by denoting certain text as headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other

objects. HTML is written in the form of labels (known as tags), surrounded by angle brackets. HTML can also describe, to some degree, the appearance and semantics of a document, and can include embedded scripting language code which can affect the behavior of web browsers and other HTML processors.

**JavaScript**

JavaScript is a script-based programming language that was developed by Netscape Communication Corporation. JavaScript was originally called Live Script and renamed as JavaScript to indicate its relationship with Java. JavaScript supports the development of both client and server components of Web-based applications. On the client side, it can be used to write programs that are executed by a Web browser within the context of a Web page. On the

server side, it can be used to write Web server programs that can process information submitted by a Web browser and then update the browser’s display accordingly.

**5.2** **Tools Used**

* + - 1. Eclipse 4.3
      2. Tomcat 8.0
      3. Oracle 10G

**ECLIPSE 4.3**

Eclipse is a multi-language software development platform comprising an IDE and a plug-in system to extend it. It is written primarily in Java and is used to develop applications in this language and, by means of the various plug-ins, in other languages as well—C/C++, Cobol, Python, Perl, PHP and more.

**TOMCAT 8.0**

Apache Tomcat (or Jakarta Tomcat or simply Tomcat) is an open source servlet container developed by the Apache Software Foundation (ASF). Tomcat implements the Java

Servlet and the Java Server Pages (JSP) specifications from Sun Microsystems, and provides a "pure Java" HTTP web server environment for Java code to run.

**ORACLE 10G**

The Oracle Database (commonly referred to as Oracle RDBMS or simply Oracle) consists of a relational database management system (RDBMS) produced and marketed by Oracle Corporation. Oracle had become a major presence in database computing.

**6. SYSTEM DESIGN**

**6.1 DATA FLOW DIAGRAM**



**Authentication Data Flow Diagram:**



**Level 1 Data Flow Diagram for Admin:**



**Level 1 Data Flow Diagram for Doctor:**



**Level 1 Data Flow Diagram for Patient:**



**Admin**

**Level 2 Data Flow Diagram:**



**Level 3 Data Flow Diagram:**



**Doctor:**

**Level 2 Data Flow Diagram:**



**Level 3 Data Flow Diagram:**



**Patient:**

**Level 2 Data Flow Diagram:**



**Level 3 Data Flow Diagram:**



**6.2 Database Design**

**6.2.1 E-R Diagram**

views

Takes

Appointment

Admin

Reports

generates

Booking

TeleMedicine

Centers

Doctor

maintains

complicants

Sends

Complicants

Patient

Fig 1: ER Diagram

**Database Tables**

**Admin**

|  |  |
| --- | --- |
| Username | Password |

**Complicants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PatientName | Complication | RegDate | Status | Date\_of\_availability | Timings |

**Patient**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| LoginName | Age | Height | Weight | BloodGroup | BP | Sugar | RegDate |

**Reports**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Login  Name | Doctor  Name | Location | Specialization | BP | Sugar | Complication | Prescription | Date\_of\_last\_report |

**TelemedicineCenters**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Country | State | City | Contact Person | Contact No |

**Doctor**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DoctorName | Specialization | Qualification | Adate | HospitalName |

**Booking**

|  |  |  |  |
| --- | --- | --- | --- |
| LoginName | DoctorName | Adate | Timings |

**Logindetails**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Login  Name | Password | First  Name | Last  Name | Login  type | Contact-no | Reg  Date | Questionid | Answer | Password  Modified  Date |

**LoginProfile**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Loginid | BirthDate | City | State | Country | Pincode | Locale | ProfileModifiedDate |

**Loginaudit**

|  |  |  |
| --- | --- | --- |
| Loginid | LoginDate | Login-desc |

**Questionbase**

|  |  |
| --- | --- |
| Questionid | Questiondetails |

**Limitations and Enhancements**

**Limitations of the system:**

* + Only the permanent users can access the system.
  + Advanced techniques are not used to check the authorization.

**Future Enhancements:**

* Based on the future security issues, security can be improved using emerging technologies.
* Attendance module can be added
* sub admin module can be added
* Video conference can be added to our system

**Name of the Use Case:** Login

**Description:**

Every user of the system should login to access the services provided by **Online Appointment System** system.

**Pre Condition:** Each user must have a valid user id and password**.**

**Post condition:** Home Page will be displayed.

**Flow of events:**

* Invoke the **Online Appointment System** Login page.
* Enter the valid User ID and Password.
* Click on Login button to access Home page.

**Alternative Flow of Events:**

* + - * If the user is new Click on Register Link.
      * Enter all the details and get registered to the site.

**Name of the Use Case:** Registration

**Description:**

Every new user can register by clicking Register Link

**Pre Condition:** The user must be a new user to the system.

**Post condition:** Registration page is displayed.

**Flow of events:**

* Invoke the **Online Appointment System** Login page.
* Click on New user Register Link to access Registration page.

**Alternative Flow of Events:**

* + - * If the user is already register enter login id and password and click on login button.

**Name Of The Use Case:** Update Profile

**Description:**

After valid user login to the system, all the profile of the user is displayed. User can view his profile and can make necessary changes.

**Pre Condition:** The user must have valid id and password.

**Post condition:** The updated user profile is displayed.

**Flow of events:**

* Invoke the **Online Appointment System** Login page.
* Enter login details and click on login button.
* Profile related to the user is displayed.
* User can view his personal profile and also can make changes.

**Alternative Flow of Events:**

* + - * If the user is already register enter login id and password and click on login button.

**Name Of The Use Case:** Take appointments

**Description:**

After valid user login to the system, the patient can make a request to the doctor to give online appointments.

**Pre Condition:** The user must have valid id and password.

**Post condition:** The required appointment schedule is displayed to the patient.

**Flow of events:**

* Invoke the **Online Appointment System** Login page.
* Enter login details and click on login button.
* A form to request for appointment is displayed.
* Patient should the valid details like date and time of appointments and click on register button.

**Alternative Flow of Events:**

* + - * If the user is already register enter login id and password and click on login button.

**Name Of The Use Case:** View Details

**Description:**

After valid user login to the system, all the details of the specific user are displayed.

**Pre Condition:** The user must have valid id and password.

**Post condition:** The details of the user are displayed.

**Flow of events:**

* Invoke the **Online Appointment System** Login page.
* Enter login details and click on login button.
* Details related to the user are displayed.
* User can view all his details.

**Alternative Flow of Events:**

* + - * If the user is already register enter login id and password and click on login button.

**6.3 System Specific Modules**

There are four modules in our project. They are:

**Admin**

The admin will have control over the entire system. There is no registration for him but he should have username and password to login into the system to provide security. He can view everyone’s profiles associated with the hospital. He can interact with the doctors and also patients through chats, mails, discussion forums etc. In case of any medical errors like wrong medication and lab reports, the patients can register complaint. The patients’ grievances and feedback goes to admin and then he forwards them to specific doctors to answer. He takes backup of every data; view logs and generate reports according to them.

**Doctors**

All the doctors associated to the hospital should register. Only registered people can have access to the site. The doctors can vies and update their profiles. The entire patient’s database is accessible to them. They can give online appointments, e-prescriptions .They can view patient’s history to know their health status and suggest new medication. He can set online appointment request enable or disable. He can communicate with admin, patients and other users through mails, chat and discussion forums.

**Patients**

The patients should get registered to get online medical services. They can connect through home internets or approach any nearby kiosk manager to get these services. The patients can view and update their profiles. They can also view the doctor’s profiles only to know their specialization, their success stories so that they can approach those specific doctors to get treatment. The patients’ can take online appointments; look their previous health records, doctor’s prescriptions, lab reports and medical expenses. They can also send online payment for their medical expenses. Incase of any errors they can register a complaint to the hospital admin. They can also give feedback and suggestions which goes to admin.The

patients’ can communicate with the admin, doctors or other patients through mails, chats or discussion forums etc.

**Kiosk Manager**

The kiosk manager associated to a small area should get registered. He acts as communication link between the patients and hospital. The patients can approach him to get those online medical services. He maintains the patient’s database associated with a small area. He can see/adjust appointments, perform day open and close activities. He gets commission for acting as a communication link and helping the patients to get these online medical services. He can also interact with the admin, doctors and others through chats, mails and discussion forums.

**6.4 System Evolution**

Our system will provide online medical services to the users who get registered to the site. Any user with valid user id and password can access the system.

**System to be changed:**

There may be a chance of giving wrong medication to the patient. So to avoid that more security can be provided. Video conferencing can also be added

**Change Proposal:**

The change proposal to the existing system is to computerize the existing system that exists today, that is to reduce work being done manually and time consumption and to reduce paper work.

**System understanding:**

Complete understanding of the system that is to be generated i.e. a brief study of the requirements and Designing the system that is to be developed

**System Validation:**

Validation can be fined in many ways, but a simple definition is that validation succeeds when software functions in a manner that can be reasonably expected by the customer, i.e. the customer expected output i.e. fulfilling all the customer specified requirements.

**Modified System:**

Modified system provides online medical services which is not available for existing system such that request appointments, viewing lab and patient medical information can be done through online.

# SYSTEM TESTING

System testing is the stage before system implementation where the system is made error free and all the needed modifications are made. The system was tested with test data and necessary corrections to the system were carried out. All the reports were checked by the user and approved. The system was very user friendly with online help to assist the user wherever necessary.

**Test Plan:**

A test plan is a general document for the entire project, which defines the scope, approach to be taken, and schedule of testing, as well as identifying the test item for the entire testing process, and the personal responsible for the different activities of testing. This document describes the plan for testing, the knowledge management tool.

Major testing activities are:

* Test units
* Features to be tested
* Approach for testing
* Test deliverables
* Schedule
* Personal allocation

**Test units:**

Test Case specification is major activity in the testing process. In this project, I have performed two levels of testing.

* Unit testing
* System testing

The basic units in Unit testing are:

* Validating the user request
* Validating the input given by the user
* Exception handling

The basic units in System testing are:

* Integration of all programs is correct or not
* Checking whether the entire system after integrating is working as expected.
* The system is tested as whole after the unit testing.

Other Testing Strategies:

**Alpha Testing:**

This was done at the developer’s site by a customer. The software is used in a natural setting with the developer “looking over the shoulder” of the user and recording errors and usage problems. Alpha tests are conducted in a controlled environment**.**

**Beta Testing:**

This was conducted at one or more customer sites by the end-user of the software. Unlike alpha testing, the developer is generally not present. Therefore, the beta test is a “live” application of the software in an environment that cannot be controlled by the developer. The customer records all problems that are encountered during beta testing and reports these to the developer at regular intervals. As a result of problems reported during beta tests, software engineers make modifications and then prepare for release of the software product to the entire customer base.

**Test deliverables:**

The following documents are required besides the test plan

* Unit test report for each unit
* Test case specification for system testing
* The report for system testing
* Error report

The test case specification for system testinghas to be submitted for review before the system testing commences.

**FUTURE SCOPE OF THE PROJECT**

This project will enhance the patients and the hospital to serve more quickly and efficiently. This software is developed in order to computerize the activities which take more time, if done manually.

Hospital billing system will enable the patient and hospital staff to make things faster and can get information quickly. If we want any information about patient, we can access it quickly.

**7. CONCLUSION**

The **Online Appointment System** is a web-based application for primarily providing online medical services to everyone hardly matters whether the people live in metro or a

remotely located village. This application software has been completed successfully and was also tested successfully by taking “test cases”. It is user friendly, and has required options, which can be utilized by the user to perform the desired operations.

The goals that are achieved by the system are instant access, improved productivity, optimum utilization of resources, efficient management of records, simplification of the operations, less processing time and getting required information, user friendly.