A Training Report

On

ONLINE DOCTOR APPOINTMENT SYSTEM

Submitted in partial fulfilment of requirements for the award of the

Degree of

Bachelor of Technology

In

Computer Science & Engineering

Submitted By

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Under the guidance of

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JUNE, 2019

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I hereby declare that the work presented in this report entitled "**ONLINE DOCTOR APPOINTMENT SYSTEM**", in partial fulfilment of the requirement for the award of the degree **Bachelor of Technology** and submitted in **Department of Computer Science & Engineering, Bharati Vidyapeeth's College of Engineering, , New Delhi(Affiliated to Guru Gobind Singh Indraprastha University)** is an authentic record of my own work carried out during the period from June – July 2019 under the guidance of **Sandeep Sir,Sr faculty NIIT**

The work reported in this has not been submitted by me for award of any other degree of this or any other institute.

KAUSHAL SHARMA

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I express my deep gratitude to **SANDEEP SIR**, Sr faculty ,NIIT , for his valuable guidance and suggestion throughout my training. We are thankful to **Rajat Gupta Sir** (CSE,3rd,eve) for their valuable guidance.

I thank my friends and family whose constant encouragement made me code this project

Kaushal Sharma
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PREFACE

Online Doctor appointment is a smart web application, this provides a registration and login for both doctors and patients. Doctors can register by giving his necessary details like timings, fee, category, etc. After successful registration, the doctor can log in by giving username and password. The doctor can view the booking request by patients and if he accepts the patient requests the status will be shown as booking confirmed to the patient. He can also view the feedback given by the patient. The patients must be registered and log in to book a doctor basing the category and the type of problem patient is facing and the location. The search results will show the list of doctors matching patients required criteria and he can select one and send a request the request will be forwarded to admin and admin forward to doctor and if he is available he will send the confirmation request back to admin the admin update the booking request and says confirmed to the patient. the patient can view the status in the status tab and also he will get the mail saying the booking is confirmed.

In the existing medical system, all the functions in medical management are manual. In remote areas, there is lack of sophisticated medical equipment and doctors. Moreover, there is no data recording system in order to keep the previous health reports and lab reports of patients. So, this web-based Medical Management System tries to overcome these drawbacks by providing a perfect link between doctor and patient through e-way. The system is named as "**Virtual Medical Home**". In order to use this system, the requirements listed below under two different headings – functional requirements and user requirements, are to be checked.

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: OVERVIEW

1.1 INTRODUCTION

A. Information System has become an important aspect for any developing business in recent years. As the growing business needs to have accurate information and necessary technology for solving problems and to catch up with ever growing customer needs, Information System Technology has been a key force for organizations to determine their business criteria. Businesses today use information system and use the available technologies because they understand the importance of maintaining and updating data electronically.

B. Using Information System for managing information in the health care such as patient record, patient appointment system, patients scheduling appointment and doctor schedule is not only a simpler way to save time and reduce cost, but also a way to support and improve the health care information to be more accessible and flexible (modifying, saving, deleting, updating) for system users and storing data efficiently. In addition, it improves the quality of data control.

C. Enhancing patient care management is one of the major aims of health care industry today to improve the health care system worldwide. This goal is to be equally if not more important as the other keys of improving the health of the population and managing per capita cost of care. As the population continues to grow, so too does the need for health care services and options. (The Benefits Of Online Appointment Scheduling) Health Care Service providers globally are experiencing an increase in pressure to concurrently reduce cost and improve accessibility and quality of care they deliver especially resolving long waiting times, delays and queue of patients. Thus a Patient Scheduling System is launched as an important component of scheduling and managing appointments. Especially online scheduling software has simplified and automated the process of hospital management for all size of organizations.

D. This project aims to introduce a Patient Scheduling Online Service for health care institutions that would ease off the appointment-scheduling journey for users and pave the path of a better doctor-patient experience. The proposed system advances with online facilities that eliminate the chaos of traditional appointment services. This system offers online appointment booking, to view doctors list, to cancel and update appointments with an administrative portal to manage all the sections. It provides advanced functionality to

streamline the process thus easy access to personal hospital services that help organizations to stay connected with their customers, clients and most importantly patients and can result in significant time and monetary savings. In to order to develop a successfully online Patient Scheduling, the system is required to interact with system database, scheduling module and the administrative module for example, to achieve the best implementation, the scheduling system would be able to interact with several medical health care staff such as physicians, nurse's admin staff and patients.

1.2 OBJECTIVES

A. To develop a system that allows users to have control over their appointment making service.
B. To facilitate the patients with real time health care scheduling.
C. To manage staff resources needed for managing appointments.
D. To maximize operation hours.
E. To make the use of online platform for less customer inconvenience and high productivity among staff.
F. To optimize time savings and monetary savings as both staff time and services translate into expenses and revenue**.**

CHAPTER 2: TECHNOLOGY & SOFTWARE

2.1 TECHNOLOGIES USED

2.1.1 JAVA SERVLET(backend coding)

A. What is a SERVLET?

- Servlet technology is used to create a web application (resides at server side and generates a dynamic web page).
- Servlet technology is robust and scalable because of java language. Before Servlet, CGI (Common Gateway Interface) scripting language was common as a server-side programming language. However, there were many disadvantages to this technology.
- There are many interfaces and classes in the Servlet API such as Servlet, GenericServlet, HttpServlet, ServletRequest, ServletResponse, etc.

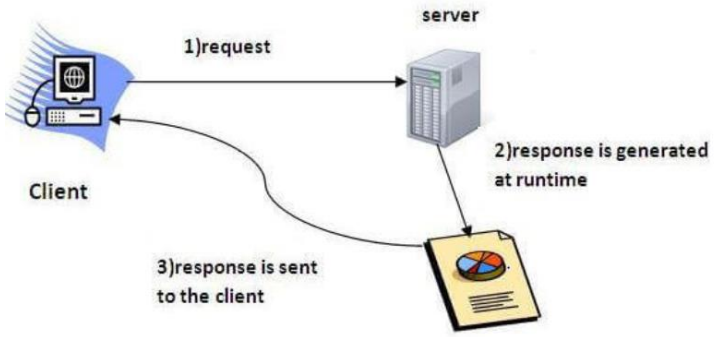


fig2.a

B. What are the advantages of SERVLET?

- Better performance: because it creates a thread for each request, not process.
- Portability: because it uses Java language.
- Robust: JVM manages Servlets, so we don't need to worry about the memory leak, garbage collection, etc.
- Secure: because it uses java language.

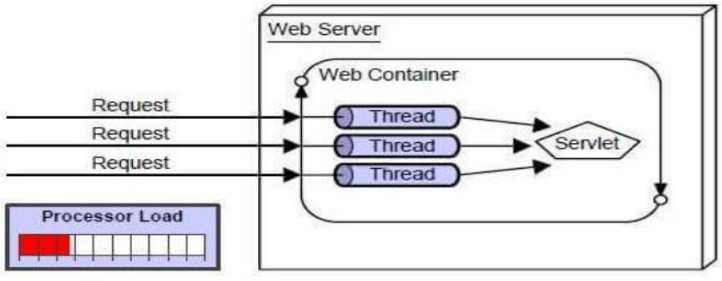


fig2.b

C. The SERVLET API

- The javax.servlet and javax.servlet.http packages represent interfaces and classes for servlet api.
- The javax.servlet package contains many interfaces and classes that are used by the servlet or web container. These are not specific to any protocol.
- The javax.servlet.http package contains interfaces and classes that are responsible for http requests only.
- There are many interfaces in javax.servlet package. They are as follows:
    - Servlet,ServletRequestServletResponse,RequestDispatcher,ServletConfig, ServletContext,SingleThreadModel, Filter,FilterConfig,FilterChain,ServletRequestListener,ServletRequestAttributeListener,ServletContextListener and ServletContextAttributeListener
- There are many classes in javax.servlet package. They are as follows:
    - GenericServlet,ServletInputStream,ServletOutputStream,ServletRequestWrapper,ServletResponseWrapper,ServletRequestEvent,ServletContextEvent
    - ServletRequestAttributeEvent,ServletContextAttributeEvent,
    - ServletException,UnavailableException
- There are many interfaces in javax.servlet.http package. They are as follows:
    - HttpServletRequest,HttpServletResponse,HttpSession,HttpSessionListener
    - HttpSessionAttributeListener,HttpSessionBindingListener,HttpSessionActivationListener
- There are many classes in javax.servlet.http package. They are as follows:
    - HttpServlet,Cookie,HttpServletRequestWrapper,HttpServletResponseWrapper,HttpSessionEvent,HttpSessionBindingEvent

D. Life cycle of a servlet

- Servlet class is loaded: The classloader is responsible to load the servlet class. The servlet class is loaded when the first request for the servlet is received by the web container.
- Servlet instance is created:The web container creates the instance of a servlet after loading the servlet class. The servlet instance is created only once in the servlet life cycle.
- init method is invoked
  public void init(ServletConfig config)throws ServletException
- service method is invoked
  public void service(ServletRequest request, ServletResponse response)throws ServletException, IOException
- destroy method is invoked: public void destroy()

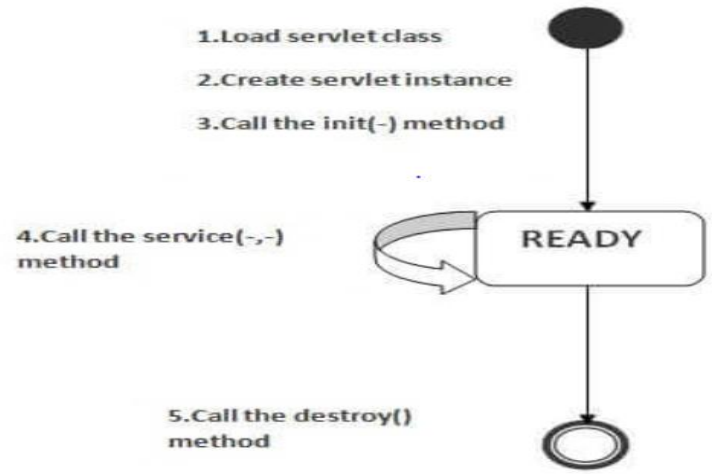


fig2.c

2.1.2 Java Server Pages(backend coding)

A. What is JSP?

- JSP technology is used to create web application just like Servlet technology. It can be thought of as an extension to Servlet because it provides more functionality than servlet such as expression language, JSTL, etc.
- A JSP page consists of HTML tags and JSP tags. The JSP pages are easier to maintain than Servlet because we can separate designing and development. It provides some additional features such as Expression Language, Custom Tags, etc.

B. Advantages of JSP

- Extension to Servlet
    - JSP technology is the extension to Servlet technology. We can use all the features of the Servlet in JSP. In addition to, we can use implicit objects, predefined tags, expression language and Custom tags in JSP, that makes JSP development easy.
- Easy to maintain
- Fast Development: No need to recompile and redeploy
- Less code than Servlet

C. Life cycle of JSP

- The JSP pages follow these phases:
    - Translation of JSP Page
    - Compilation of JSP Page
    - Classloading (the classloader loads class file)
    - Instantiation (Object of the Generated Servlet is created).
    - Initialization (the container invokes jspInit() method).
    - Request processing (the container invokes _jspService() method).
    - Destroy (the container invokes jspDestroy() method).

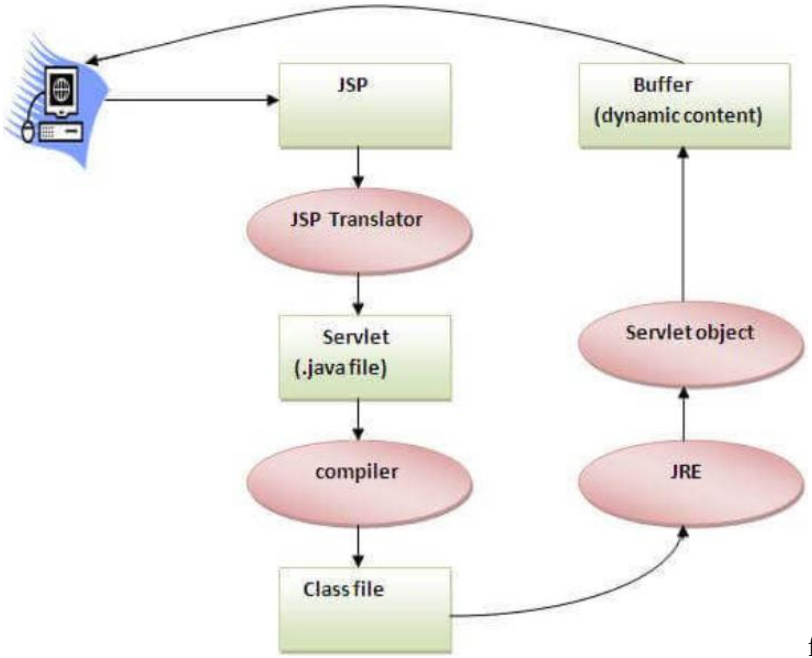


fig2.d

2.1.3 CSS & HTML(designing web pages)

A. What is CSS?

- CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation.

B. What is HTML?

- Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.
- Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.
- HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

2.1.4 Java Script(designing web pages)

A. JavaScript is used to create client-side dynamic pages.
B. JavaScript is an object-based scripting language which is lightweight and cross-platform.
C. JavaScript is not a compiled language, but it is a translated language. The JavaScript Translator (embedded in the browser) is responsible for translating the JavaScript code for the web browser.

2.2 SOFTWARE USED

2.2.1 WINDOWS 10(running and implementing the project)

A. Windows 10 is a series of personal computer operating systems produced by Microsoft as part of its Windows NT family of operating systems. It is the successor to Windows 8.1, and was released to manufacturing on July 15, 2015.

2.2.2 ECLIPSE IDE(J2EE)(development purpose)

A. Eclipse is an integrated development environment (IDE) used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. Eclipse is written mostly in Java and its primary use is for developing Java applications, but it may also be used to develop applications in other programming languages via plug-ins

2.2.3 APACHE TOMCAT SERVER 8.0(virtual server)

A. Apache Tomcat (also referred to as Tomcat Server) implements several Java EE specifications including Java Servlet, JavaServer Pages (JSP), Java EL, and WebSocket, and provides a "pure Java" HTTP web server environment in which Java code can run. Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software.

2.2.4 MY SQL DATABASE(database storage)

A. MySQL (/ˌmaɪˌɛsˌkjuːˈɛl/ "My S-Q-L") is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language.

2.2.5 CHROME WEB BROWSER(running the project)

A. Google Chrome is a cross-platform web browser developed by Google. It was first released in 2008 for Microsoft Windows, and was later ported to Linux, macOS, iOS, and Android.

CHAPTER 3: MODULES & DATA FLOW

3.1 USERS

3.1.1 ADMIN

A. The admin is the administrator of the complete project and hence practices all the rights an admin does.
B. The admin enjoys the following rights :
   - S\he can add/delete doctor info i.e for registration the doctor has to contact admin
   - S\he can view feedback given by patients.
   - S\he can delete patients
   - Login/logout

3.1.2 DOCTOR

A. The doctor is the user who can ,when registerd with the administrator enjoys the right of getting appointment from the patients according to his specialization.
B. The doctor enjoys the following privileges:
   - S\he can update his records
   - S\he can view his appointments
   - Login/logout

3.1.3 PATIENT

A. The patient is the most important user, for whom this application is being made apart from the main functionof booking an appointment he enjoys many more previleges
B. The patients enjoys the following rights :
   - S\he can give feedback to the doctors
   - S\he can give check her\is appointment
   - Login/logout

3.2 DATA FLOW

A. The flow of information takes place between server and the users with the help of the designed web pages from which data is retrieved or stored from the data base

WEB PAGES------->SERVER--------->DATABASE------->SEVER--------->WEB PAGES

CHAPTER 4: IMPLEMENTATION

4.1 EARLY DAYS

4.1.1 PHASE ONE :SQL DATABASE

A. The project was started with making the required data bases in MYSQL workbench
B. The following tables were made in the database:

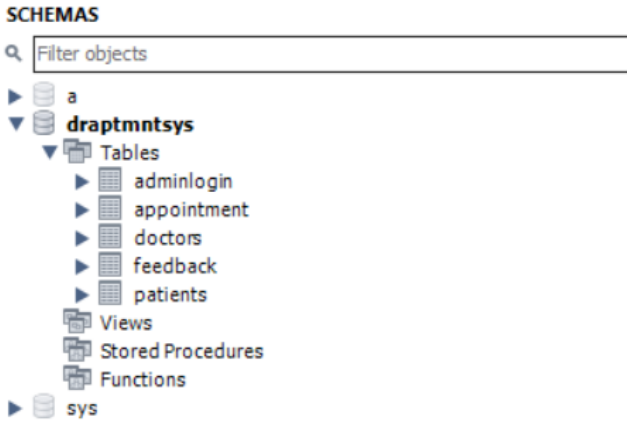


fig 4.a

4.1.2 PHASE TWO: JAVA RESOURCES

A. A part of the project was done using servlet and then proceeded to JSP thus various packages under the java resources were made
B. The various packages were:
Beans: Contains classes for users and their getters and setters
Control: The input from browser comes here then goes to DAO
Dao: Data access object transferred the data from control to DB
Dba:Database administator builds connection betwenn DB and servlet.

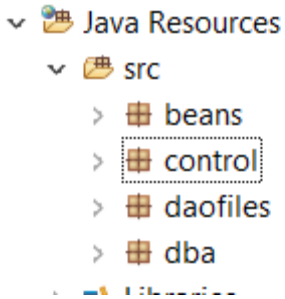


fig 4.b

4.2 INTERMEDIATE

4.2.1 PHASE THREE: FORMS

A. The forms to take input from the user and then validate it were created using html and css
B. These included registration for doctor, home page, feedback etc

4.2.2 PHASE FOUR : TRYING JSP

A. Implemented the same functions ,added more and enhanced the the funcatonality of the code as jsp has many advantages over servlet.

B. JSP included forms in built with the servlet for eg adminhome.jsp, adminlogin.jsp etc

4.3 LAST DAYS

4.1.4 PHASE FIVE: DEPLOYING THE PROJECT

A. The project was run multiple times to detect any bugs or loopholes ,found many and corrected them
B. Created an error page named error.jsp to handle errors.

WEEK	PROGRESS
WEEK 1	DATA BASE AND SERVLET
WEEK 2	DATA BASE AND SERVLET
WEEK 3	FORMS (FRONT END)
WEEK 4	FORMS (FRONT END)
WEEK 5	JSP
WEEK 6	JSP
WEEK 7	JSP
WEEK 8	DEPLOYING AND ERROR MGMNT

Table 4.1

CHAPTER 5: FUNCTIONING

5.1 HOME PAGE

The project when deployed is loaded to the home page whose view can been seen from the chapter 6. The home page gives option for the various logins such as doctor ,patients and admin. There is header and footer on every page consisting of specialization home and contact us.

5.2 ADMIN LOGIN

This redirects to the administrator login where the admin can login to his account and do other various tasks such as register doctors ,delete them etc.

5.3 DOCTOR LOGIN

This redirects to the doctor login where the doctor can login to his account and do other various tasks such as update his details , view appointment etc.

5.4 PATIENT LOGIN

This redirects to the patient login where the patient can login to his account and do other various tasks such as register himself ,update his info, make appointment , view appointment, provide feedback etc.

5.5 FEEDBACK AND FEEDBACK VIEW

This redirects to the page where one can give his suggestions and feedback, these can be viewed by feedbackview

5.6 SPECIALIZATION

This redirects to the specialization page which as images with Wikipedia hyperlinks added to each of them

5.7 ERROR PAGE , ABOUT US AND CONTACT US

Error page comes into action when the project is unbale to find any data. About us contains information of the hospital and contact us has information about the developer

CHAPTER 6: SNAPSHOTS

6.1 PROJECT HIERARCHY

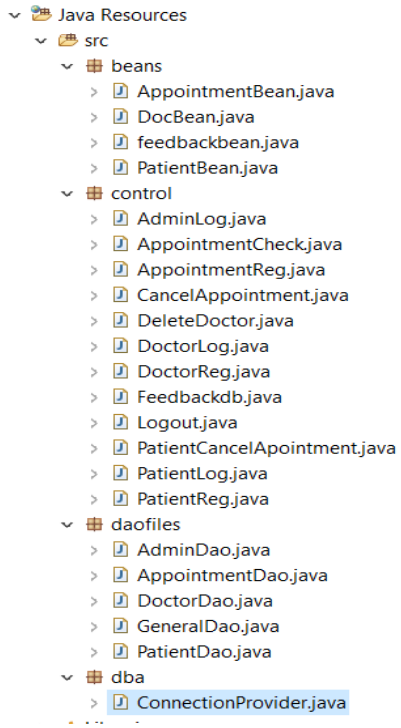


fig 6.a

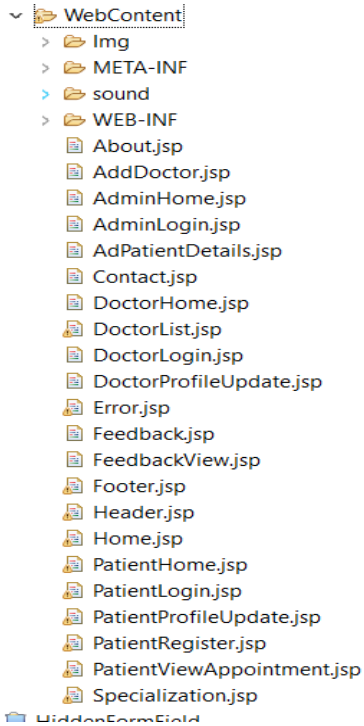


fig 6.b

Fig 6.c

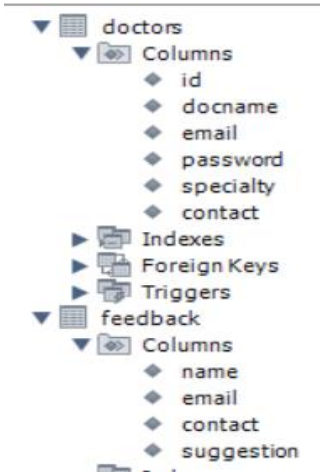
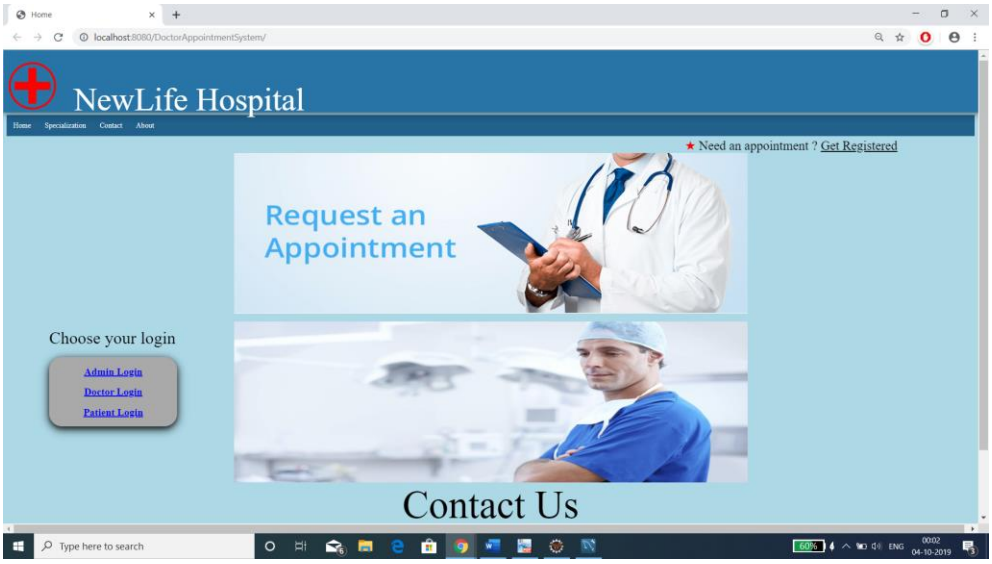


fig 6.d

fig6.e

6.1 RUNNING INSTANCES



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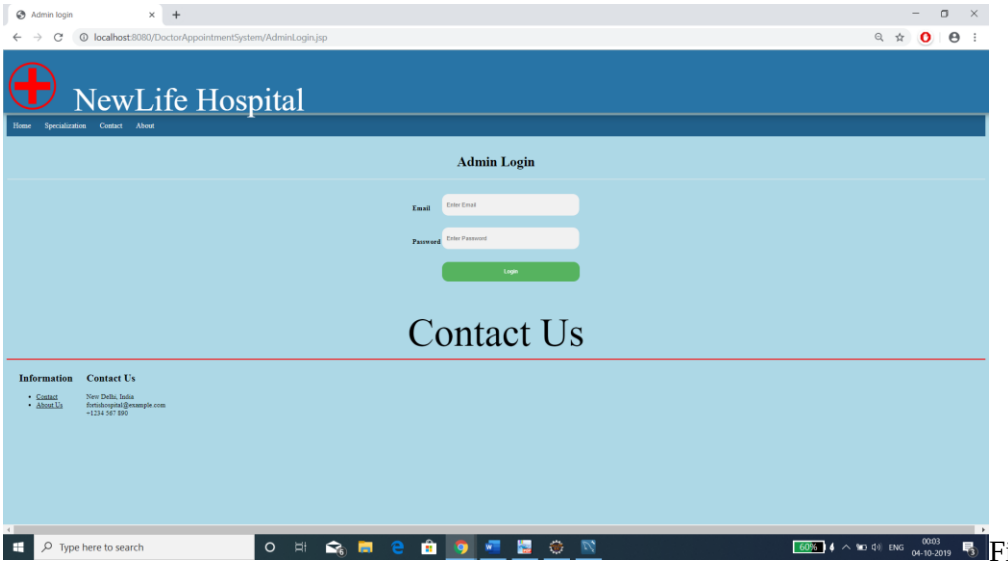

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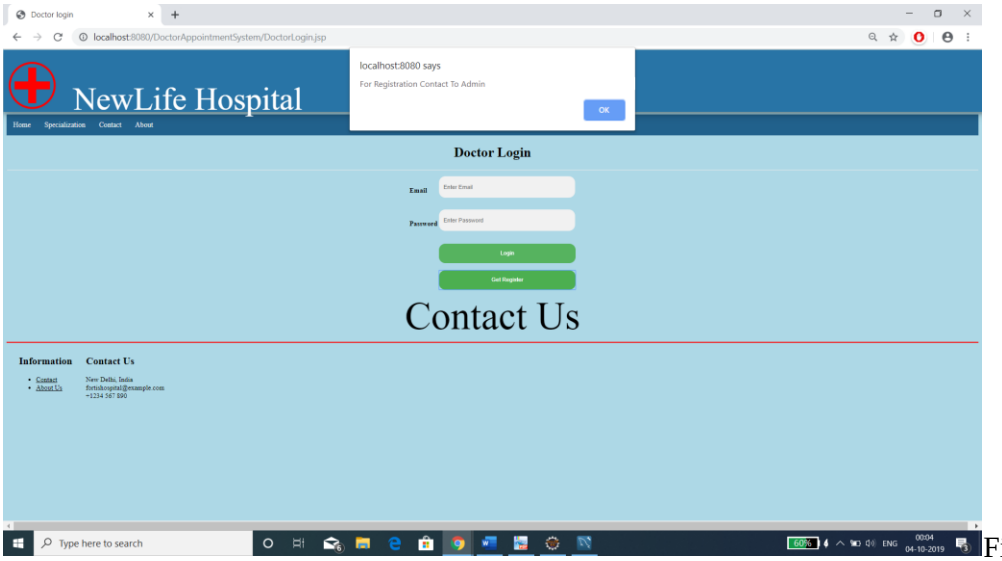


Fig 6.h

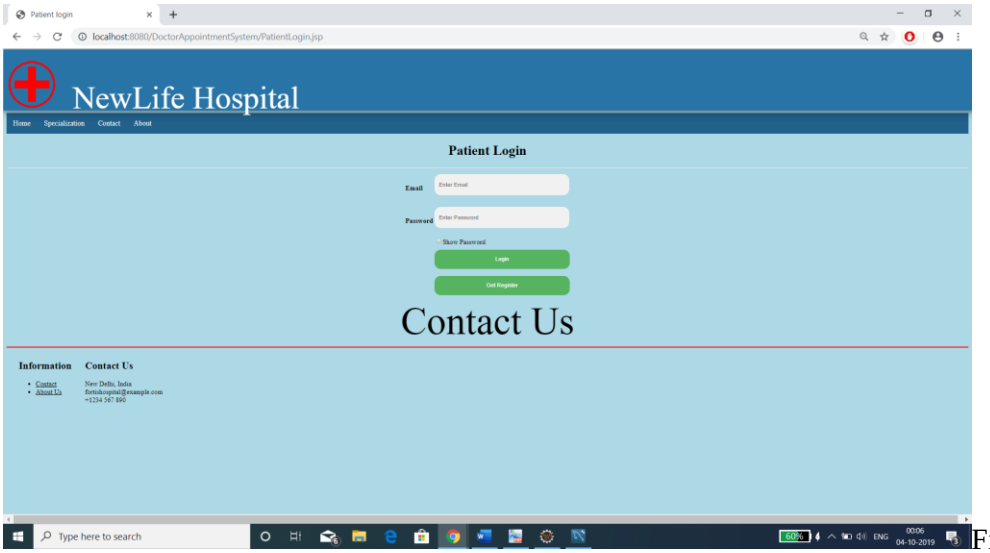
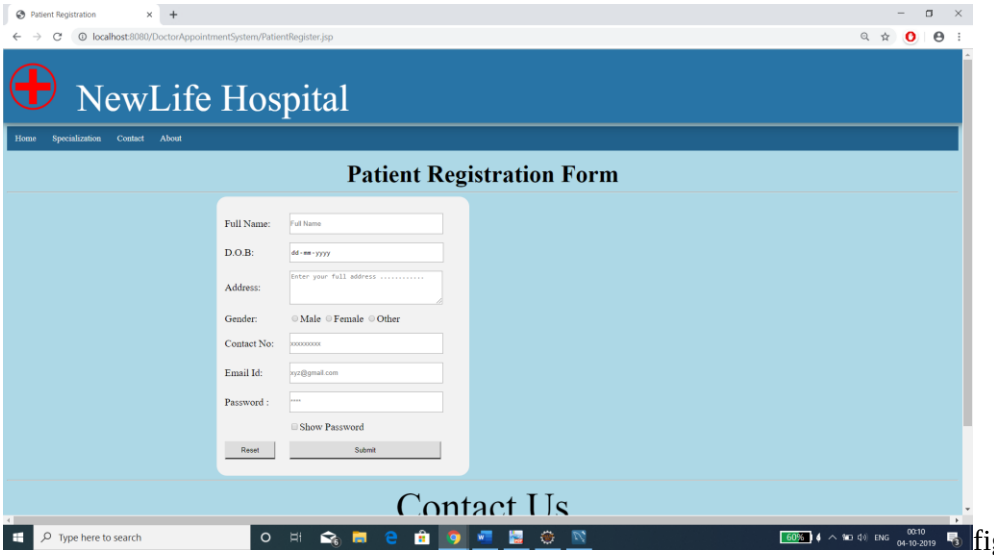


Fig 6.i



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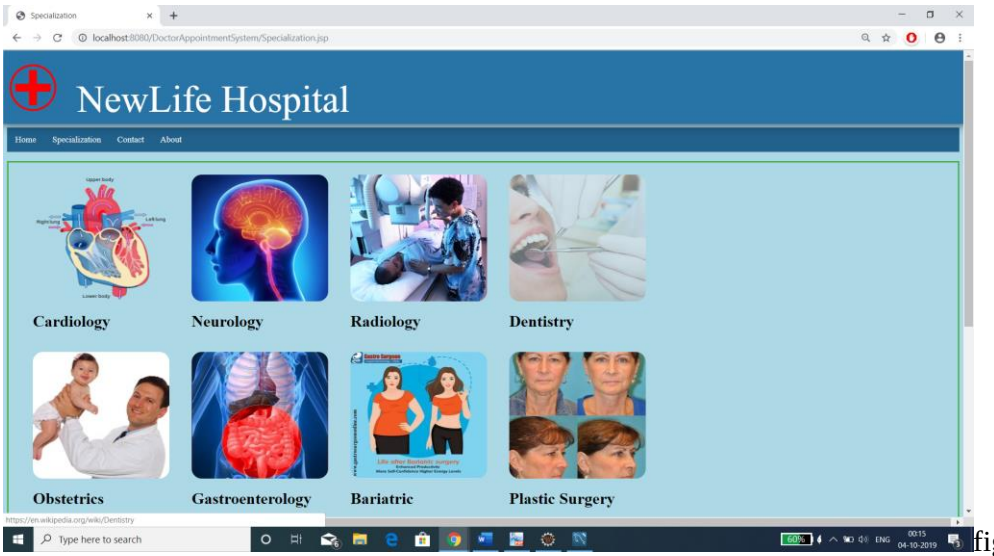

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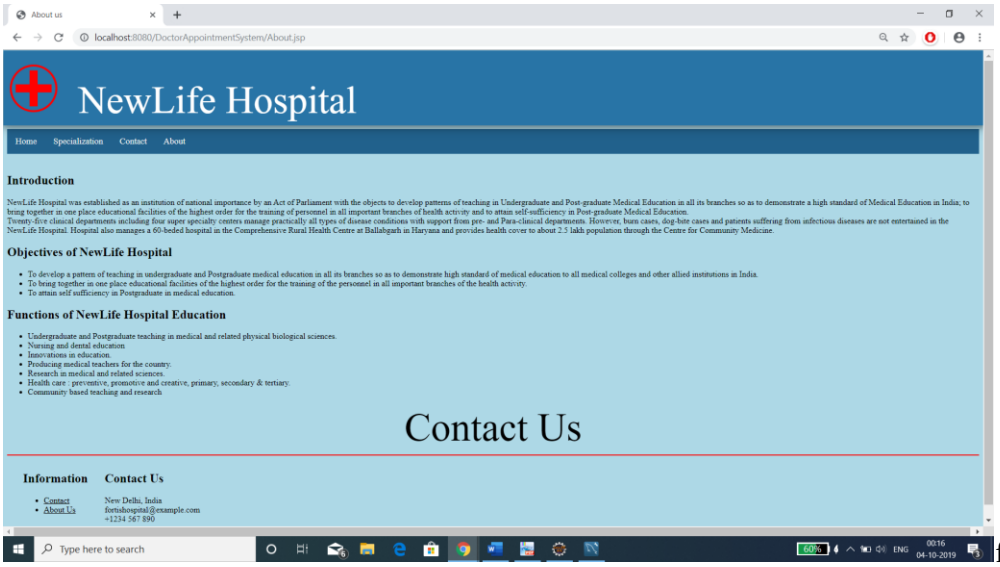

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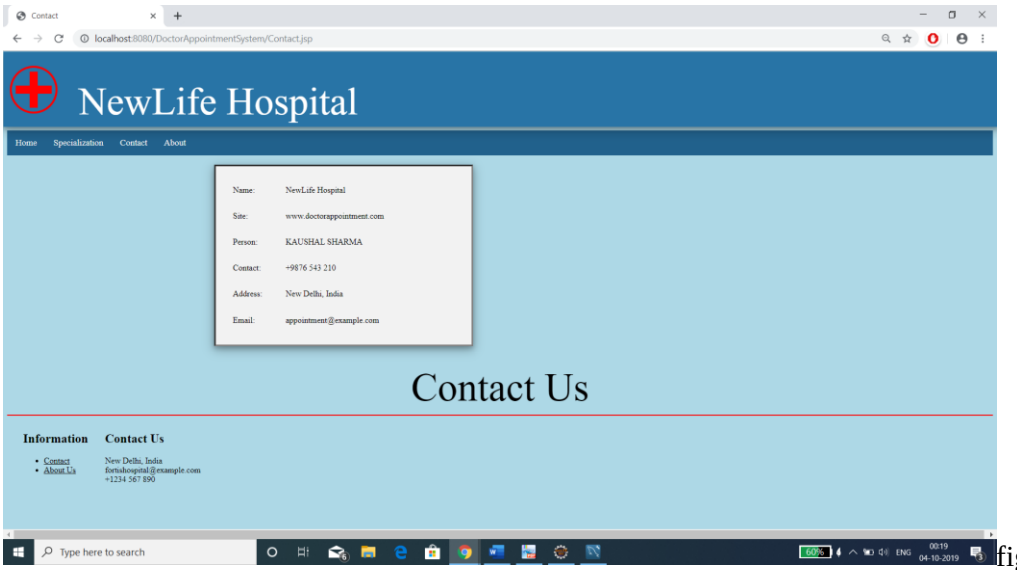

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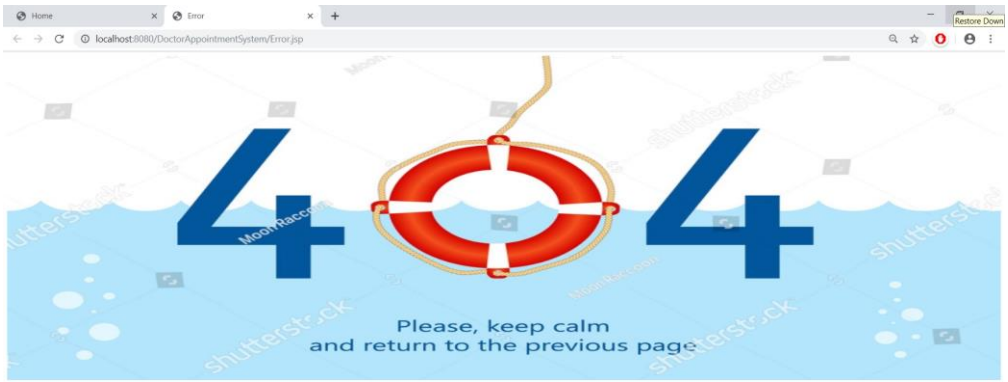

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CONCLUSION

Successfully deployed the project on the web browser with minimum errors and bugs.

This project can be used by a small nursing home to take appointments as it has very low system requirements and cant handle much of load

I Truly appreciate the efforts put in by SANDEEP SIR to teach me from zero to hero.

I owe a special thanks to my college for encourage me to develop a real time project and enhance my skills

Future development

A. Once an appointment is booked, the system notifies the users by email one day prior to the appointment.
B. Patient will be able to make Online Payment for their appointment.
C. To implement online live appointment

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WINDOWS: https://en.wikipedia.org › wiki › Windows_10

CHROME: https://en.wikipedia.org/wiki/Apacat

APACHE TOMCAT: https://en.wikipedia.org/wiki/Apache_Tomcat

BOOK: SERVLET AND JSP NIIT TECHNOLOGIES