

LABORATORY REPORT
Application Development Lab
(CS33002)

B.Tech Program in CSE

Submitted By

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Kalinga Institute of Industrial Technology
(Deemed to be University)
Bhubaneswar, India

Spring 2024-2025

Table of Content

Exp No.	Title	Date of Experiment	Date of Submission	Remarks
1.	Build a Resume using HTML/CSS	16/01/2025	23/01/2025	
2.	Machine Learning for Cat and Dog Classification	23/01/2025	30/01/2025	
3.	Pneumonia Detection using CNN			
4.	Regression Analysis for Stock Prediction	30/01/2025	06/02/2025	
5.	Conversational Chatbot with Any Files	06/02/2025	20/02/2025	
6.	Web Scraper using LLMs	13/03/2025	20/03/2025	
7.	Database Management Using Flask	20/03/2025	27/03/2025	
8.	Natural Language Database Interaction with LLMs			
9.				
10.	Capstone Project	-	27/03/2025	

Lab Number	10
Experiment Number	Capstone Project
Experiment Title	SwiftCare.ai
Date of Experiment	NA
Date of Submission	27/03/2025

1. Objective:-

To develop a capstone project on any of the provided topics. We chose the topic of healthcare industry and named our platform as SwiftCare.ai. It is an AI-powered healthcare assistant for quick and reliable medical advice, which comes with additional functionalities to keep records of medical history simple and easy for the user.

2. Procedure:- (Steps Followed)

1. Choose a topic. [We chose healthcare industry and named our platform as SwiftCare.ai]
2. Create user authentication system.
3. Integrate MongoDB database with the project.
4. Implement Cloudinary for handling of media files.
5. Implement different features to ensure that the user will get benefit from such a project. Build responsive UI with attention to UX.

3. Code:-

```

backend > utils > ai_agent.js > ...
1 import { tool } from "@langchain/core/tools";
2 import { z } from "zod";
3 import { ChatGoogleGenerativeAI } from "@langchain/google-genai";
4 import { MessagesAnnotation, StateGraph } from "@langchain/langgraph";
5 import { SystemMessage, ToolMessage } from "@langchain/core/messages";
6 import { config } from "dotenv";
7 import { User } from "../models/user.model.js";
8
9 config();
10
11 const llm = new ChatGoogleGenerativeAI({
12   model: "gemini-2.0-flash",
13   apiKey: process.env.GEMINI_API_KEY,
14 });
15
16 // Implement tools here
17 // Tool to fetch user details
18 const getUserDetails = tool(
19   async ({ email }) => {
20     const user = await User.findOne({ email });
21     if (!user) return "User not found.";
22
23     return JSON.stringify({
24       user_name: user.name,
25       user_email: user.email,
26       user_lastLogin: user.lastlogin,
27     });
28   },
29   {
30     name: "get_user_details",
31     description:

```

```

frontend > src > store > authStore.js > ...
1 import { create } from "zustand";
2 import axios from "axios";
3
4 const API_URL =
5   import.meta.env.MODE === "development"
6     ? "http://localhost:3000/api/auth"
7     : "/api/auth";
8
9 axios.defaults.withCredentials = true;
10
11 export const useAuthStore = create((set) => ({
12   user: null,
13   isAuthenticated: false,
14   error: null,
15   isLoading: false,
16   isCheckingAuth: true,
17   message: null,
18
19   signup: async (email, password, name) => {
20     set({ isLoading: true, error: null });
21     try {
22       const response = await axios.post(`${API_URL}/signup`, {
23         email,
24         password,
25         name,
26       });
27       set({
28         user: response.data.user,
29         isAuthenticated: true,
30         isLoading: false,
31       });
32     } catch (error) {
33       set({
34         error: error.response.data.message || "Error signing up",
35         isLoading: false,
36       });
37       throw error;
38     }
39   },
40   login: async (email, password) => {

```

frontend > src > pages > EPrescriptionPage.jsx > ...

```

23 const EPrescriptionPage = () => {
85
86   const handleUpload = () => {
87     window.cloudinary.openUploadWidget(
88       {
89         cloud_name: CLOUDINARY_CLOUD_NAME,
90         upload_preset: UPLOAD_PRESET,
91         sources: ["local", "url", "camera"],
92         multiple: false,
93         folder: "swiftcareAI",
94         resource_type: "auto",
95         maxFileSize: 5000000, // 5MB max file size
96       },
97       async (error, result) => {
98         if (!error && result && result.event === "success") {
99           console.log("Uploaded Successfully: ", result.info);
100           setFileUrl(result.info.secure_url);
101         } else {
102           console.error("Upload Error:", error);
103         }
104       }
105     );
106   };
107
108   const handleSaveToDB = async () => {
109     if (!fileUrl || !fileName) return;
110
111     try {
112       await axios.post(
113         `${API_URL}/upload`,
114         { fileUrl, fileName, email: user.email },
115         { withCredentials: true }
116       );
117
118       setShowUploadModal(false);
119       setFileUrl(null);

```

4. Results/Output:-

SwiftCare.ai


DashboardSymptom AnalyzerSmart Test GuideHealth VaultE-Prescription

User

Welcome to SwiftCare.ai

Your AI-powered healthcare platform for symptom analysis, medical test recommendations, and health record management.

[Dashboard](#)



Comprehensive Healthcare Solutions

All in one platform

Explore our features designed to enhance your health management.

Symptom Analyzer

Smart Test Guide

HealthVault

Hello, User!

Hope your health is good... 😊

What This Application Can Do

Symptom Analyzer

Input your symptoms through a questionnaire or free text. The AI analyzes your symptoms and provides possible conditions or recommendations.

Example Scenario: If you have a headache and nausea, the analyzer may suggest possible conditions and recommend seeing a doctor.

[Explore Symptom Analyzer](#)

Health Vault

Manage your personal health vault by creating sections to store text entries and files.

Example Scenario: You can create a section for "Eye Health" to store medical records and notes about your eye condition.

[Explore Health Vault](#)

Smart Test Guide

Explore various tests and their details. Search for specific tests and view their descriptions.

Example Scenario: If you're unsure about a blood test, you can search for it to find out what it entails and when to take it.

[Explore Smart Test Guide](#)

E-Prescription

Manage your electronic prescriptions by uploading new prescriptions, viewing existing ones, and deleting them if necessary.

Example Scenario: After a doctor's visit, you can upload your prescription and receive insights based on OCR + AI analysis.

[Explore E-Prescription](#)

SwiftCare.ai

DashboardSymptom AnalyzerSmart Test GuideHealth VaultE-Prescription

User

Log out

AI-Powered Symptom Analyzer

Describe your symptoms, and I'll analyze them for you.

Hello user! Tell me your symptoms, and I'll help analyze them.

SwiftCare.ai

Dashboard

Symptom Analyzer

Smart Test Guide

Health Vault

E-Prescription

User

Log out

Smart Test Guide

Search for a test...

Liver Function Test

Glucose Test

Lipid Profile

Thyroid Function Test

Complete Blood Count (CBC)

Vitamin D Test

Prostate-Specific Antigen (PSA) Test

Hemoglobin A1c Test

C-Reactive Protein (CRP) Test

Urinalysis

Hepatitis Panel

Electrolyte Panel

Skin Allergy Test

Bone Density Test

Allergy Blood Test

Folate Test

Lactate Test

D-dimer Test

HIV Test

Genetic Testing

Health Vault

Search sections...

Add Section

Biodata

Add Text

Upload

Name: User Loves: Cat

Eye Checkups

Add Text

Upload

color_print

New Section 3

Add Text

Upload

No files or text added yet.

Add Section

E-Prescription

Upload Prescription

Medicine Name	Dosage	Duration
(1) TABL DEMO MEDICINE 1	1 Morning, 1 Night, Before Food	(10 Days, Start on Day)
(2) CAPL DEMO MEDICINE 2	1 Morning, 1 Night, Before Food	(10 Days, Start on Day)
(3) TABL DEMO MEDICINE 3	1 Morning, 1 Bk, 1 Evn, 1 Night, After Food	(10 Days, Start on Day)
(4) TABL DEMO MEDICINE 4	1/2 Morning, 1/2 Night, After Food	(10 Days, Start on Day)

Advice Given: AVOID TEA AND GREY WOOD Follow Up: 12-05-2020 Charts

Demo Prescription 1

Dashboard

Symptom Analyzer

Smart Test Guide

Health Vault

E-Prescription

User

Log out

Dr. Oskar Bhavs

M.B.B.S., M.D., M.S. (Reg. No: 270988)

Mob. No: 9983390126

Care Clinic

Near Axis Bank, Kothrud, Pune - 411038

Ph: 094223 80390, Timing: 09:00 AM - 02:00 PM (Closed: Thursday)

ID: 266 - DEMO PATIENT (M)

Date: 27-Apr-2020, 04:37 PM

Address: PUNE

Temp (36.5): 98, BP: 120/80 mmHg

#	Medicine Name	Dosage	Duration
1	TAB. DEMO MEDICINE 1	1 Morning, 1 Night (Before Food)	10 Days (Total: 20 Tablets)
2	CAP. DEMO MEDICINE 2	1 Morning, 1 Night (Before Food)	10 Days (Total: 20 Capsules)
3	TAB. DEMO MEDICINE 3	1 Morning, 1 Afternoon, 1 Evening, 1 Night (After Food)	10 Days (Total: 40 Tablets)
4	TAB. DEMO MEDICINE 4	1/2 Morning, 1/2 Night (After Food)	10 Days (Total: 10 Tablets)

Advice Given

Avoid oily and spicy food

Follow Up: 12-05-2020

Charts

Signature

Dr. Oskar Bhavs

M.B.B.S., M.D., M.S.

Prescription Details

Doctor & Clinic Information

Doctor: Dr. Oskar Bhavs

Qualifications: M.B.B.S., M.D., M.S.

Registration No.: 270988

Contact: 9983390126

Clinic Name: Care Clinic

Address: Near Axis Bank, Kothrud, Pune - 411038

Phone: 094223 80390

Clinic Timing: 09:00 AM - 02:00 PM

Closed on: Thursday

Patient Information

Patient ID: 266

Name: DEMO PATIENT (M)

Address: Pune

Temperature: 36°C

Blood Pressure: 120/80 mmHg

Consultation Date & Time: April 27, 2020, 04:37 PM

Prescribed Medications

#	Medicine Name	Dosage	Duration
1	TAB. DEMO MEDICINE 1	1 Morning, 1 Night (Before Food)	10 Days (Total: 20 Tablets)
2	CAP. DEMO MEDICINE 2	1 Morning, 1 Night (Before Food)	10 Days (Total: 20 Capsules)
3	TAB. DEMO MEDICINE 3	1 Morning, 1 Afternoon, 1 Evening, 1 Night (After Food)	10 Days (Total: 40 Tablets)
4	TAB. DEMO MEDICINE 4	1/2 Morning, 1/2 Night (After Food)	10 Days (Total: 10 Tablets)

Advice Given

Avoid oily and spicy food.

Follow-up Appointment

Date: May 12, 2020

Health Charts

View Fullscreen

5. Remarks:-

Signature of the Student

(Name of the Student)

Signature of the Lab Coordinator

(Name of the Coordinator)