Creating a Digital Health Ecosystem with a Life Wellness Portal Including Hospital and Insurance Companies with Cloud Computing and Artificial Intelligence

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ABSTRACT

The paper introduces an innovative e-health platform leveraging cloud computing to centralize and securely manage healthcare data. It facilitates collaboration between hospitals and insurance companies, promoting integrated intelligence. The platform enables Comprehensive Patient Management with a detailed Medical History Repository for informed clinical decision-making. Real-time Treatment Monitoring offers immediate insights into patient progression, aiding proactive care optimization. Streamlined Claim Processing automates medical claim submission and reimbursement by integrating with insurance providers. An AI-powered virtual assistant enhances Medical Note Analysis, identifying clinical concerns. Treatment Plans are optimized based on real-time and historical patient data. Overall, the platform revolutionizes healthcare data management, collaboration, and decision-making, enhancing patient care.

Keywords: E-Healthcare, Artificial Intelligence (AI), Cloud Computing, Patient Medical Data, Insurance Claims, Website Portal, SQL Database, and Centralized Health data.

I. INTRODUCTION

The web-based platform enables remote healthcare delivery by offering appointment scheduling and secure communication channels for patient-provider interaction. It utilizes a centralized, cloud-based repository to securely store and manage patients' medical records. Integration of life wellness digitalization and AI aims to revolutionize chronic disease management and improve healthcare accessibility. The document analyzes components, identifies potential challenges, and proposes an optimized implementation strategy. Overall, the ecosystem addresses various healthcare issues, empowering healthcare providers to access patient medical history for accurate diagnosis and personalized treatment planning.[1]

Insurance companies implement streamlined claim processing using automation and AI verification for diagnoses and treatments. Patient insurance details are securely integrated for automated claim submission upon hospital admission, reducing manual paperwork and errors. Patients receive timely updates on claim status and reimbursement dates.[1] AI-driven analytics utilize medical data for personalized medicine, analyzing patient health patterns and predicting complications. This approach tailor'streatment options based on individual medical profiles and disease progression.[2]

Chronic Disease Management analyzes data from conditions like diabetes and heart disease to predict exacerbations and recommend preventive measures. This personalized approach reduces adverse reactions, optimizes medication usage, and improves clinical outcomes.[3] Data-driven decision-making enables healthcare providers to make informed choices based on patient-specific data, enhancing the quality of care. By identifying optimal treatment options, the platform minimizes ineffective interventions, resulting in cost savings. Streamlined operations and automation increase efficiency and cost-effectiveness in the healthcare ecosystem.[4]

II. RELATED WORK

As per paper [1] The Role of Ayushman Bharat Health Account in Telehealth a New Frontier of Smart Healthcare Delivery in India authors Sushila Paliwal, Suraiya Parveen, Ompal Singh, Afshar Alam, and Jawed Ahmed's Statement to provide remote healthcare services involving fields of study or interdisciplinary approach for implementation (ABHA) its AI and telehealth.

Authors Rehab Rayna, Christos Tsagkaris, and Romash Iryan in the paper [2] The Internet of Things for Healthcare Applications Selected Cases and Challenges mentioned that explore the foundational elements of IoT in healthcare, showcasing how newly developed personalized health technologies and sophisticated IoT-derived techniques are redefining medical care.

According tothe paper [3] Big Data Analytics in Healthcare a Systematic Literature Review and Roadmap for Practical Implementation authors Sohail Imran, Tariq Morshed, and Timos Sellis statement Empowered by a comprehensive review, the roadmap equips with the knowledge and tools to navigate the complex landscape of BDA in healthcare, unlocking critical insights for improved patient care and medical research.

Authors Mohammad Khan, Rezaul– Karim in the paper [4] - Development of Smart E-Health System for Covid-19 Pandemic mentioned that facilitating real-time virtual consultations between doctors and patients through a web and app-based telecommunication system to enhance the appeal and widespread adoption of online healthcare services.

As per paper[5] Centralized and Automated Healthcare System An Essential Smart Application Post Covid-19 Authors Rama Moorthy, Sahana Udupa, Samanvitha Bhagavath, Shreesha, Varun Rao Statement Streamlined approach for establishing a cloud-based central repository system to manage and uphold electronic health records for patients. These papers showcase various digital healthcare advancements aiming to improve accessibility, personalization, and efficiency of medical care.

Author described detailed Survey On Creating Digital Health Ecosystem with Lifewellness Portal Including Hospital and Insurance Company with Cloud Computing and Artificial Intelligence.[12].

III.PROPOSED SYSTEM

A.   Problem Statement

Diagnosing and treating patients effectively remains a multifaceted challenge for clinicians. Identifying the optimal treatment based on individual disease profiles and response to therapies demands precise analysis of intricate medical data. Similarly, insurance claim verification often involves manual hospital visits by agents, causing delays and inefficiencies in reimbursement processes.[1]Embracing digital transformation in healthcare,

the Life Wellness portal bridges the gap between hospitals, physicians, and insurance agents through secure digital connections.[5]

B. Block Diagram

The block diagram is a visual representation of a system, emphasizing overall structure and functions. It features three main componentsPatient, Doctor, and Insurance Agenteach with specific operations. For instance, patients can view and download personal data/reports.[6] The components extract data from loaded sub-databases through a repository, containing updated patient healthcare datasets.[7] A main gateway facilitates storing integrated schema data in a highly structured database, showcasing relationships between components in a hierarchical manner.[8]
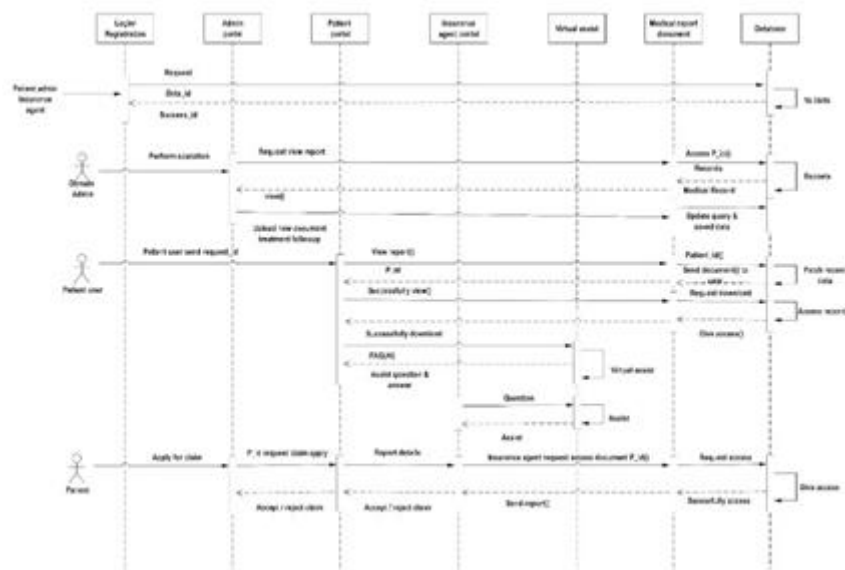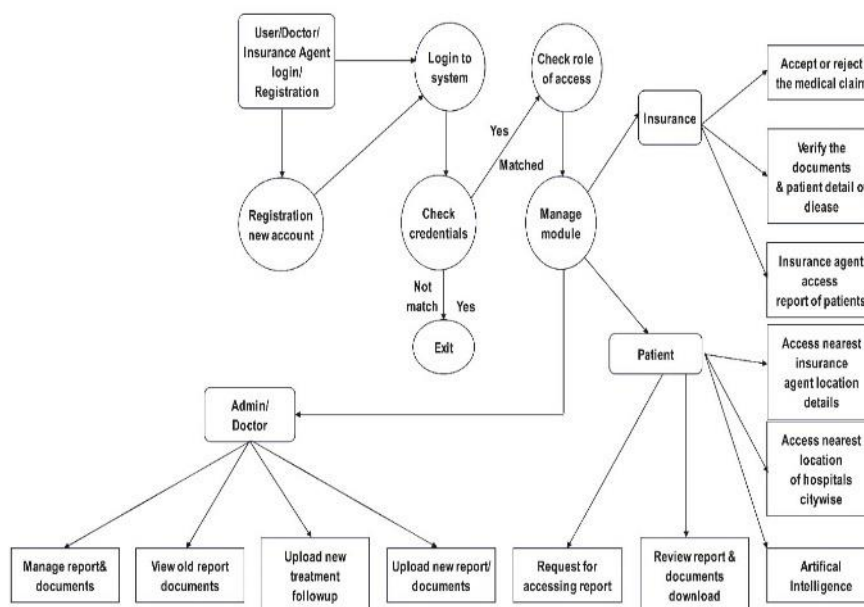

Figure1:

Figure2:

C. Mathematical Model

Step 1: Start

Step 2: Receive Form Submission

Check if the form is submitted (isset($_POST["submit"])).

Step 3: Retrieve Form Data

Retrieve user input data from the form:

$firstname, $lastname, $email, $password, $address, $date, $phonenumber, $adhar, $file.

Step 4: Validate Input Data

Check if any required field is empty.

If any field is empty, add an error to the $error array.

Step 5: Check Email Existence

Step 7: Hash Password

Hash the password using password hash().

Step 8: Insert Data into the Database

Step 9: Display Success Message

If the insertion is successful, display a success message to the user.
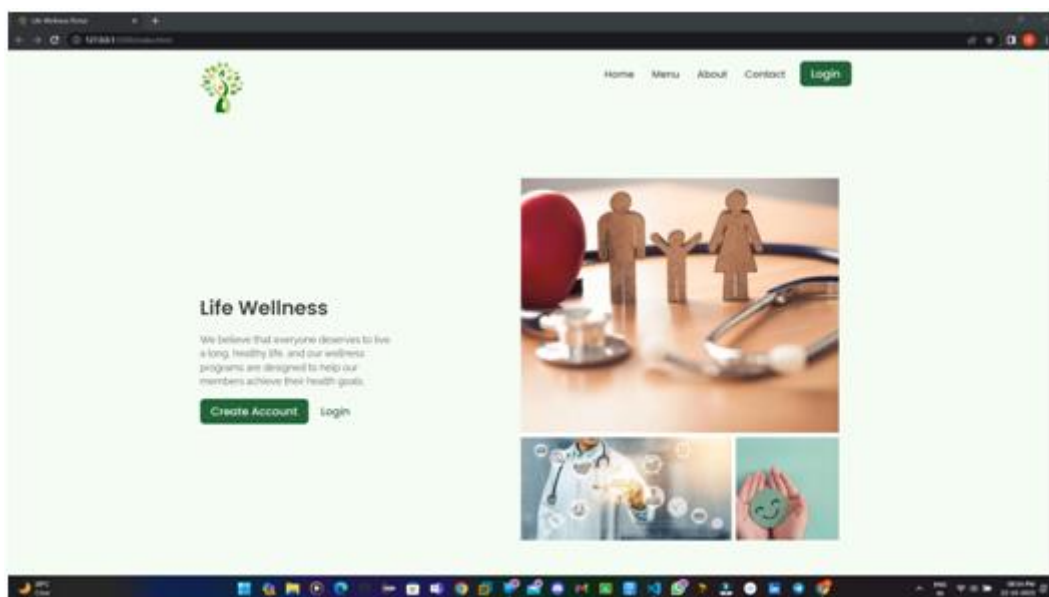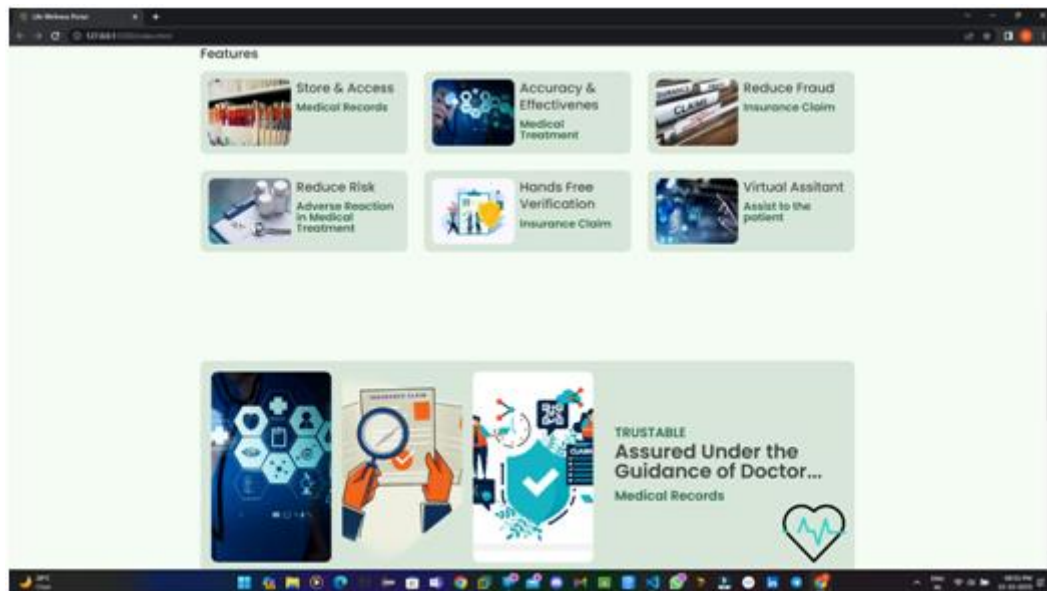
Step 10: End

IV. RESULT DISCUSSION

Figure 3: Home Page

This is the home page of the Life Wellness Portal in that there is navigation bar which contain different sections like Home, Menu, About, Contact, and Login buttons. There is also a special features section that gives actual information(needs/advantages) about the whole system.

Figure2:Features Section

Here is the feature section onthe home page it includes the different features of our project.
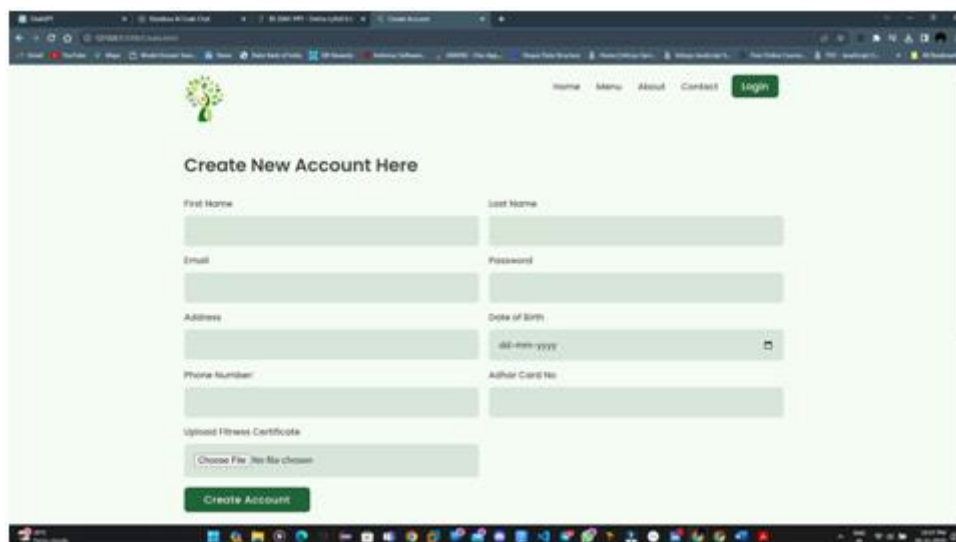
Figure3:Create Account Page

On this page, if the user does not have any login credentials then with the help of that page he can create the account and then log into the system.
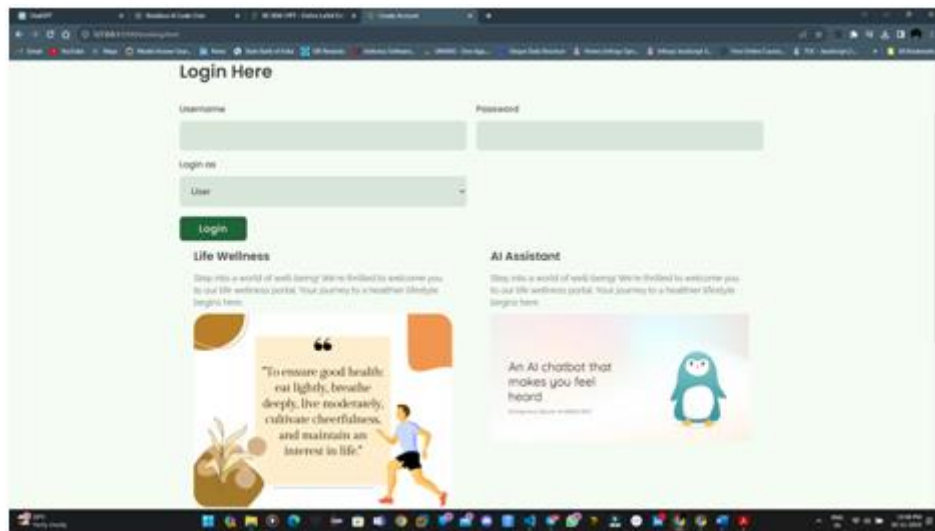
Figure4:Login Page

Here is the log in section in which the user needs to fill in the credentials to login into the system.

Figure5:View Patient details Page

After login the system with user which is normal patient and also insurance agent he can search the patient details and his document with the help of the patient wellness ID and view into the table and download the document also.
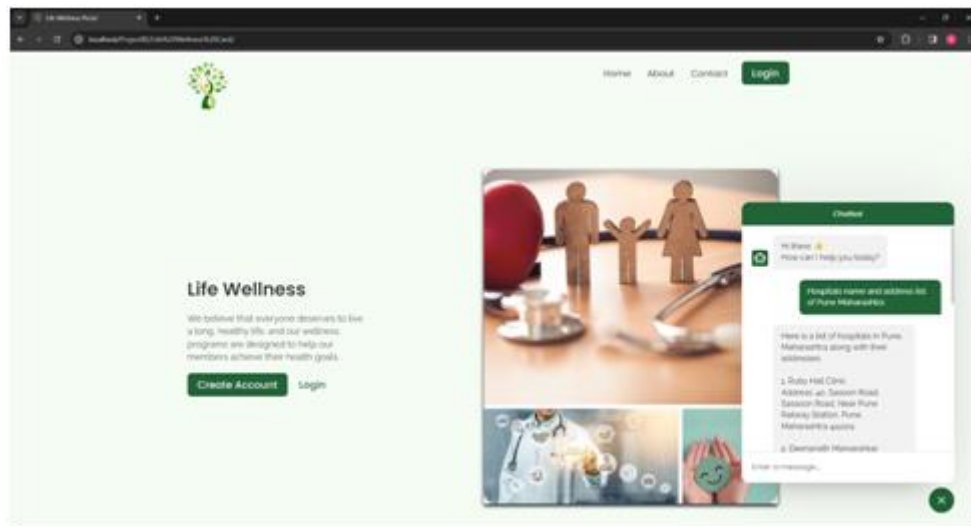
Figure6:AI ChatBot Page

This is the page for the AI chatbot which can used byusers insurance agents and doctors those users can ask any questions related to the locations of hospitals and also get the details about the addresses of the hospitals or else also ask the questions related to the health care.
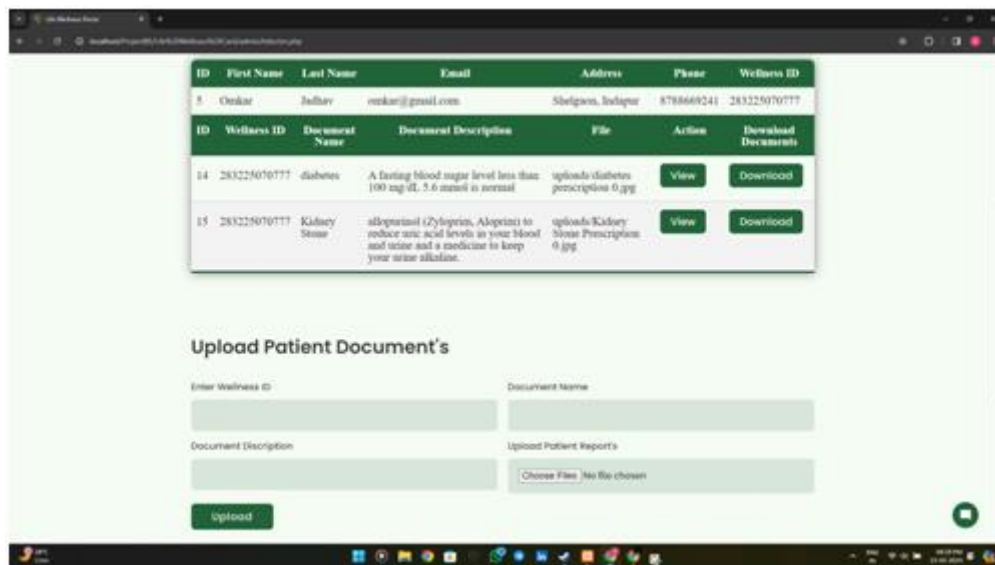

Figure7:Admin Doctor Page

Here is the main page of the admin doctor login in that he can view the patient details through the patient wellness id and also add the new treatment follow-up with new documents of the patient.

V. CONCLUSION

In this paper, the concept of life wellness presents a promising solution by enabling virtual consultations, diagnoses, and customized treatments. Additionally, it offers AI-powered virtual assistance, providing patients with personalized healthcare information and addressing common medical queries. Information retrieval with the responsiveness of a human-like mechanism. Navigating insurance claims often involves convoluted steps,

but with the integration of the Life Wellness digital health ecosystem, agents can streamline their workflow, this innovative system facilitates efficient verification of patient reports, simplifying the process of securing reimbursements for medical treatment costs.

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