

Medical Reports Repository and Disease Analyser

Ranjita Sinha, Sandip Haldar, Joy Chakraborty, Sathi Ruidas

Abstract-- The healthcare industry is generating vast amounts of medical data daily, necessitating the development of a medical report repository and disease analyzer system. This system would enhance medical data management, leading to improved patient care. By centralizing patient medical data securely, a medical report repository would enable healthcare providers to store and access information efficiently. Furthermore, a disease analyzer system, leveraging advanced techniques like machine learning and artificial intelligence, could assist healthcare professionals in identifying patterns and trends in patient data. This early detection and prevention of diseases would significantly enhance patient outcomes. Through this blog, we will explore the advantages of a medical report repository and disease analyzer system, highlighting its potential to revolutionize healthcare delivery.

Index Terms--Centralize repository, Health Data, Health Information, Health Records, Healthcare, Database, Medical Collection, Medical Database, Medical Library, Patient Database, Patient, Repository, Health Record Bank.

I. INTRODUCTION

MEDICAL report repository is a centralized database where healthcare professionals can store and access patient medical reports, including diagnostic test results, medical history, and treatment plans [1]. It provides a single location for healthcare professionals to view and manage patient information, making it easier to provide high-quality care and treatment.

A medical report repository and disease analyzer can provide a comprehensive solution for managing patient information and improving patient care outcomes. By providing easy access to patient data and leveraging data analytics, these tools can help healthcare professionals make relative decisions and provide optimal care for their patients [2-5].

After analyzing a few of the research papers similar to our topic we have come to the point that a medical report depository and disease analyzer should also keep a record of the diseases and also predict what kind of disease has similar symptoms that the patient is facing for a significant amount of time depending upon his or her medical profile.

II. TECHNOLOGY AND HARDWARE REQUIREMENTS

A Medical Reports Repository and Disease Analyzer require a range of hardware and software components, including cloud-based storage, DBMS, analytics tools, web app, secure authentication protocols, backup systems, and high-speed internet connectivity. The hardware requirements depend on the scale and complexity of the system, user numbers, and data volumes.

A. Software

A medical report repository and disease analyzer typically require specialized software for managing patient data and performing data analytics. Examples of software commonly used in this context include Electronic Medical Record (EMR) software, Health Information Exchange (HIE) software, and data analysis tools such as SAS, R, or Python.

B. Database

To store patient data securely, a medical report repository requires a robust database system. Examples of popular database systems used in healthcare include MySQL, PostgreSQL, Microsoft SQL Server or NoSQL option as MongoDB.

Ranjita Sinha: Department of BS&HU(Physics), Asansol Engineering College, Asansol- 713305, India

Sandip Haldar: Department of BS&HU(Physics), Asansol Engineering College, Asansol- 713305, India

Joy Chakraborty: Third year B. Tech student, Dept. of Information Technology, Asansol Engineering College, Asansol

Sathi Ruidas: Third year B. Tech student, Dept. of Information Technology, Asansol Engineering College, Asansol

Email: ranjita.phy@aecwb.edu.in



C. Server

Medical report repositories and disease analyzers require powerful servers for handling the large volumes of data that they must process. These servers typically require high-end processors, large amounts of memory, and fast storage devices like Solid State Drives (SSDs).

D. Infrastructure Security

Medical report repositories and disease analyzers contain sensitive patient data, and as such, require strict security measures to protect against unauthorized access. This includes firewalls, encryption, user authentication, and access controls.

E. Networking

Medical report repositories and disease analyzers require robust networking infrastructure to ensure that data can be accessed quickly and efficiently. This includes high-speed internet connections, load balancers, and other networking devices.

III. WORKING PROCEDURE

The working procedure of a Medical Reports Repository and Disease Analyzer typically involves the following steps:

A. Data collection

The medical report repository gathers patient data from various sources, such as electronic health records (EHRs), imaging systems, and laboratory systems. Following data is typically collected in real-time, ensuring that healthcare professionals have access to the most up-to-date information.

B. Data retrieval

Healthcare professionals can retrieve patient data from the medical report repository using various search criteria, such as patient name, date of birth, or medical condition.

C. Data storage

The medical report repository stores the patient data in a centralized location, such as a database. This allows healthcare professionals to get patient data quickly and efficiently.

D. Data analysis

The disease analyzer uses specialized software tools to analyze patient data stored in the medical report repository. This includes identifying patterns and trends, predicting future health outcomes, and providing decision support to healthcare professionals.

E. Reporting

The medical report repository and disease analyzer generate reports that summarize patient data and provide insights into patient health. These reports can be used by

healthcare professionals to inform treatment plans, monitor patient progress, and identify potential health risks.

IV. ADVANTAGES

There are many advantages of using a Medical Reports Repository and Disease Analyzer, such as

A. Centralized storage

A medical report repository provides a centralized location for storing medical reports, making it easy for healthcare professionals to access patient data quickly and efficiently. This can improve patient care by allowing healthcare providers to make informed decisions based on a patient's medical history.

B. Improved communication

Medical report repositories can improve communication between healthcare professionals by allowing them to share patient data easily. This can lead to better collaboration among healthcare teams, which can ultimately result in better patient outcomes.

C. Faster diagnosis and treatment

A disease analyzer can analyze patient data quickly and accurately, allowing healthcare providers to make faster diagnoses and develop treatment plans more quickly. This can improve patient outcomes by reducing the time needed to receive a diagnosis and begin treatment.

D. Data Analytics

A disease analyzer can use the data in a medical report repository to perform data analytics and identify trends and patterns in patient data. It can help healthcare providers to make more accurate diagnoses and develop more effective treatment plans.

E. Cost-effective

By reducing the need for repeated tests and procedures, a medical report repository and disease analyzer can be cost-effective to patients and healthcare providers. This can help to reduce healthcare costs and improve access to healthcare services for patients.

V. CHALLENGES

The following are the challenges Medical Reports Repository and Disease Analyzer may face

A. Data interoperability

One of the biggest challenges in developing a medical report repository is the lack of data interoperability among different healthcare systems. Data is often stored in different formats and systems, making it difficult to integrate and use in a centralized repository.

B. Data security and privacy

Medical report repositories contain sensitive patient information, so it's important to ensure that data is stored securely and that access is restricted to authorized personnel only.



C. System Integration

Integrating a medical report repository and disease analyzer with existing healthcare systems can be a complex process. This requires a thorough understanding of existing systems and workflows, as well as the ability to work with different vendors and stakeholders.

D. Data quality

Data quality is critical for the success of a medical report repository and disease analyzer. Inaccurate or incomplete data can lead to incorrect diagnoses and treatment plans, so it's important to ensure that data is accurate and up-to-date.

E. Adoption and training

Healthcare professionals must be trained on how to use the medical report repository and disease analyzer effectively. Adoption can be slow if healthcare professionals are resistant to change or if they feel that the new system is too complex to use.

VI. ER DIAGRAM

Entity Relationships diagrams (ER diagrams) are graphical representations of entity relationships used in database design to aid the understanding and modelling of complex data structures. They help identify data requirements and streamline the development process, Following is the ER Diagram for the “Medical Reports Repository and Disease Analyser”.

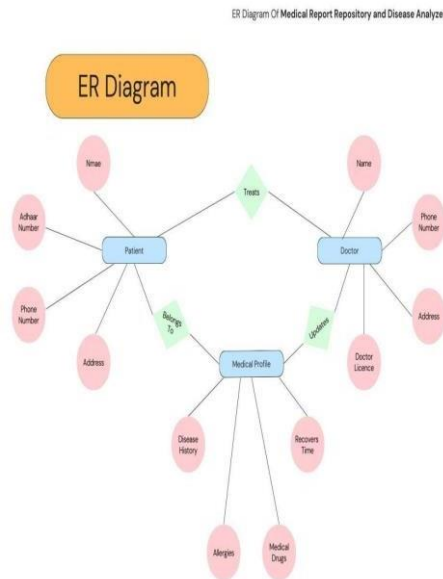


Fig. 1. ER Diagram Of The Software

VII. SOURCE CODE

```

<!DOCTYPE html>
<html>
<head>
<title>Health Website</title>
<link rel="stylesheet" type="text/css" href="style.css">
<script src="script.js"></script>
</head>
<body>
<header>
<h1>Health Repository</h1>
<nav>
<ul>
<li><a href="#">Home</a></li>
<li><a href="#">About</a></li>
<li><a href="#">Contact</a></li>
</ul>
</nav>
</header>
<main>
<section>
<h2>Welcome to our Health Repository</h2>
<p>We provide a range of health services to help you live a healthier life</p>
</section>
<section>
<h2>About Us</h2>
<p>We are a team that had build a platform from gaining knowledge from healthcare professionals and dedicated to providing the best possible care to our patients</p>
</section>
<section>
<h2>Our Services</h2>
<ul>
<li>Sign Up for Medical Profile</li>
<li>Sign In</li>
<li>Share Medical Report</li>
<li>Any Medical Concern From My MedicalProfile</li>
</ul>
</section>
<section>
<h2>We are Open For Feedbacks</h2>
<form>
<label for="name">Name:</label>
<input type="text" id="name" name="name"><br><br>
<label for="email">Email:</label>
<input type="email" id="email" name="email"><br><br>
<label for="message">Message:</label>
<textarea id="message">
    
```



```

name="message"></textarea><br><br>
  <input type="submit" value="Submit">
</form>
</section>
</main>
<footer>
  <p>&copy; 2023 Health Website. All rights reserved</p>
</footer>
</body>
</html>
    
```

VIII. VIEW

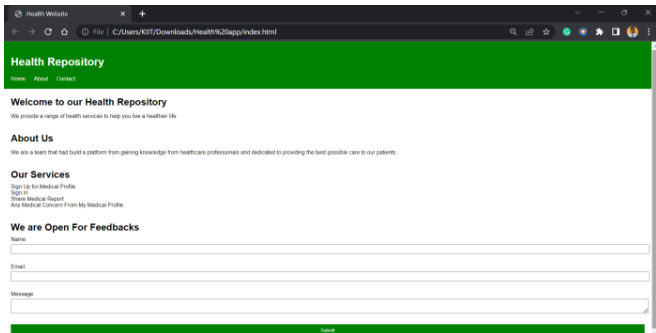


Fig. 2. Home Page View Simulation



Fig. 3. Log In Page View Simulation

IX. CONCLUSION

Medical report repository and disease analyzer, this online report portal helps the doctor to know about the patient's previous diseases, how long they took the medicines, and what type of medicine also how long it took them to recover properly those are very helpful in online treatment as well as offline also. From that repository, doctors can get a brief idea about the patient's previous disease and from that they can treat the patient in the best way.

Using this software patients would get all the medical records in one place so that they would not have to face

situations like they don't find a certain medical record and they will be able to give the doctor a broader prospect on their health record.

X. ACKNOWLEDGEMENT

The authors would like to acknowledge the Department of Basic Science and Humanities (Physics), Department of Information Technology of Asansol Engineering College for providing all the required help.

XI. REFERENCES

- [1] S. Doyle-Lindrud, "The evolution of the electronic health record," Clin J Oncol Nurs, vol. 19, no. 2, pp. 153–154, 2015.
- [2] R. F. Gillum, "From papyrus to the electronic tablet: a brief history of the clinical medical record with lessons for the digital Age," Am J Med, vol. 126, no. 10, pp. 853–857, 2013.
- [3] G. Nasi, M. Cucciniello, and C. Guerrazzi, "The role of mobile technologies in health care processes: the case of cancer supportive care," J Med Internet Res, vol. 17, no. 2, p. e26, 2015.
- [4] J. Dean and S. Ghemawat, "MapReduce: simplified data processing on large clusters," Commun ACM, vol. 51, no. 1, pp. 107–113, 2008.
- [5] N. G. Valikodath et al., "Agreement of ocular symptom reporting between patient-reported outcomes and medical records," JAMA Ophthalmol, vol. 135, no. 3, pp. 225–231, 2017.

XII. BIOGRAPHIES



Dr. Ranjita Sinha is working as assistant Professor in Asansol Engineering College in the department of BS&HU(Physics). She has 15 years of teaching and 10 years of research experience. She has 20 research publications. Her research interest is on nanocomposite materials.



Dr. Sandip Haldar is working as assistant Professor in Asansol Engineering College in the department of BS&HU(Physics). He has 20 years of teaching and 20 years of research experience. He is expert in ab initio pseudopotential theory and its application to study the properties of metallic solids.





Joy Chakraborty born on June 30, 2001, is a skilled and driven computer science student currently in his 3rd year of college. Proficient in Java, JavaScript, Node.js, MongoDB, MySQL, and more, he possesses a strong technical foundation. With a focus on problem-solving and a passion for innovation, Joy actively engages in coding competitions and hackathons. His expertise in operating systems, OOP, computer networks, and data structures equips him with the ability to tackle complex challenges.

Joy is now seeking job opportunities to apply his skills and contribute to impactful projects, offering a motivated and dedicated approach to software development.



Sathi Ruidas born on April 26, 2003, is a dynamic and talented computer science student currently pursuing her education. With a strong skill set that includes Java, JavaScript, Node.js, MongoDB, MySQL, OS, OOP, CN, SE, and DSA, she has a solid foundation in various technical domains. Sathi's passion for problem-solving and her dedication to staying updated with the latest technologies drive her to excel in coding competitions and hackathons. With expertise in

operating systems, object-oriented programming, computer networks, and datastructures, Sathi is equipped to tackle complex challenges. She is now actively seeking job opportunities to apply her skills and contribute to innovative projects with her enthusiastic and diligent approach to software development. With a focus on problem-solving and a passion for innovation,