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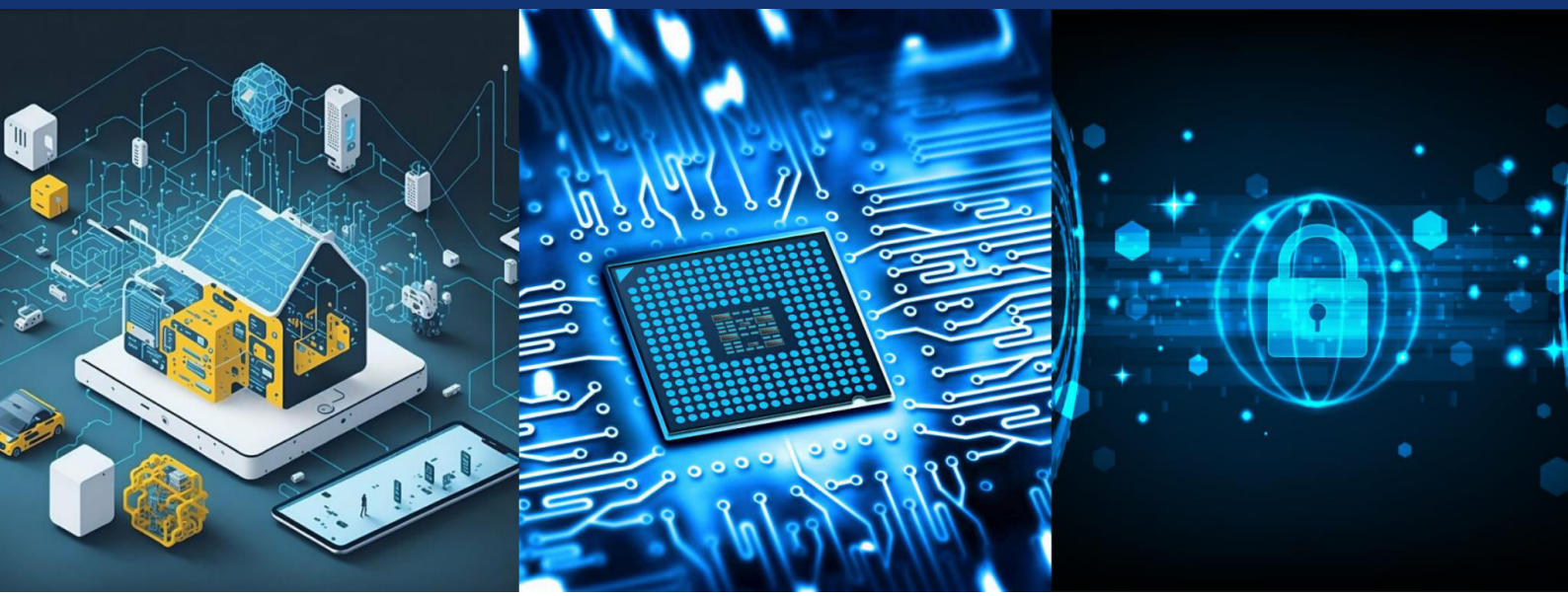

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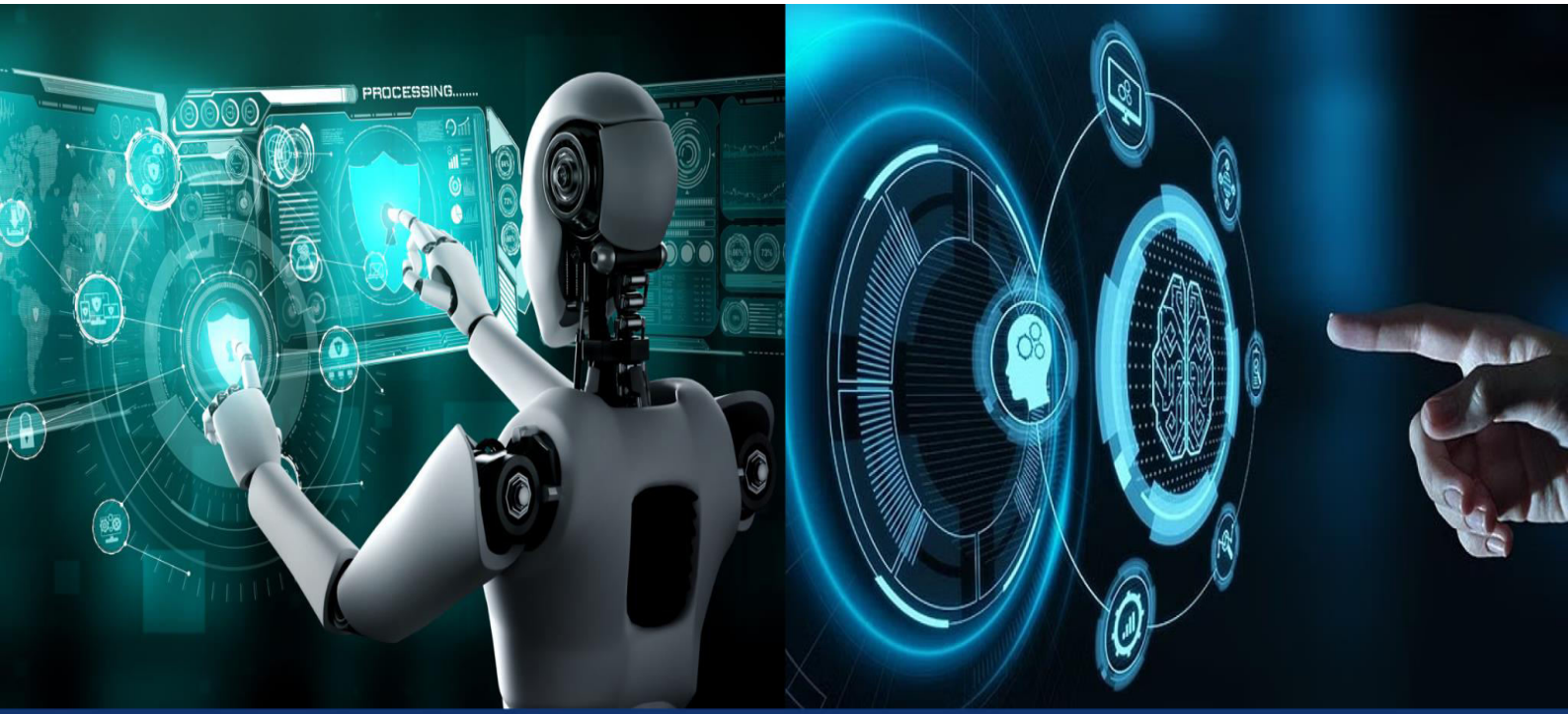

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Intelligent Cloud Framework for Nursing Bureau Services: A Next-Gen Approach

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ABSTRACT: This paper provides guidelines for preparing research papers on the Online Nursing Bureau Platform, which connects medical professionals such as nursing staff, therapy specialists, emergency medical personnel, and non-medical staff with healthcare institutions. This document serves as a template and provides formatting guidelines for submission. Do not cite references in the abstract.

We sought to study medical stakeholders' attitudes toward patients' access to their own medical records via correct a secure Internet application. We conducted a quantitative survey among stakeholders focusing on the possibility of providing online medical records for better communication in the healthcare sector. Our research revealed that patients held diverse perspectives regarding access to online medical records and the ability to communicate with healthcare providers digitally. And that medical and nonmedical staff have a different opinion concerning patients having online access to their record. However, all stakeholders believed that the use of the integration of technology can help patients gain a better understanding of their medical conditions while also fostering stronger interactions with healthcare professionals.

KEYWORDS: Online Nursing Staff Recruitment, Hire Nursing Staff, Staff Online Service, Service Platform, Cloud Based Platform.

I. INTRODUCTION

In recent years, the healthcare sector has undergone a major digital transformation, improving workforce management, recruitment efficiency, and patient care coordination. The Online Nursing Bureau Platform streamlines the hiring and allocation of healthcare professionals across hospitals, clinics, and home care services.

Traditional methods of staffing are often labour-intensive, inefficient, and prone to errors. To address these challenges, this platform utilizes cloud computing, AI-based scheduling, and real-time data analytics to optimize staffing efficiency. By leveraging Firebase as a Backend as a Service (BaaS), the system ensures secure, real-time job postings, nurse availability monitoring, and seamless employer-nurse communication [1]. Furthermore, the system is built using Service-Oriented Architecture (SOA), enabling scalability, modularity, and independence of different system components, including job recruitment, verification, and scheduling. AI-driven scheduling enhances nurse assignments by analysing parameters such as location, availability, skills, and employer requirements, leading to improved workforce distribution in hospitals and home healthcare services [2].

Additionally, geospatial analytics improve location-based job matching, making it easier for nurses to access emergency and home-based healthcare opportunities [3]. The integration of Electronic Health Records (EHR) facilitates easy access to patient data for registered nurses, ensuring informed decision-making and high-quality care [4].

II. LITERATURE REVIEW

The Online Nursing Bureau Platform aims to address key challenges in healthcare recruitment, especially for household nursing workers and medical professionals. Limited job visibility, lack of clear job descriptions, and inefficient job matching have been identified as major obstacles. Cloud computing presents a promising solution by offering scalability and flexibility to manage extensive datasets and real-time updates on staffing platforms [5]. By centralizing data storage and improving communication, cloud-based systems significantly enhance the accessibility of nursing services.

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1. **Collaborative Project Management Tools:** Cloud-based healthcare platforms facilitate smooth collaboration among nursing staff, administrators, and patients [6]. These systems enable real-time document sharing, task delegation, and streamlined communication, resulting in improved workflow efficiency in healthcare environments.

2. **Real-Time Progress Monitoring:** Cloud-based nursing management solutions provide instant updates on patient care plans, staff assignments, and task completion [7]. This transparency allows healthcare providers to track progress, identify bottlenecks, and enhance overall patient care quality.

3. **Flexibility and Remote Access:** Cloud technologies enable healthcare professionals to securely access patient records, work schedules, and essential medical information from any location. This feature is particularly beneficial for remote nursing bureaus, home healthcare services, and on-call medical staff [8].

4. **Optimized Communication:** Secure messaging, file-sharing, and structured task discussions within cloud platforms enhance communication among healthcare teams. This minimizes reliance on email and ensures that critical patient information remains accessible in a centralized system [9].

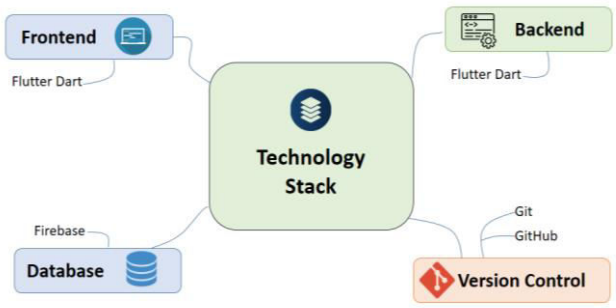
5. **Data Security and Compliance:** Protecting sensitive medical data is crucial in cloud-based healthcare management. The implementation of strong encryption, role-based access control, and compliance with industry regulations such as HIPAA (Health Insurance Portability and Accountability Act) ensures the security of patient and organizational data [10].

III. METHODOLOGY

To develop collaborative project providers using the cloud, we followed a well-structured methodology that included he requirement analysis, system design, implementation, testing, and delivery. Our approach ensures an efficient, scalable and user-friendly solution for the project management tool.

1. **Development Approach: Agile Methods**
   To build a cloud-based collaborative project management solution, we adopted a structured methodology comprising requirement analysis, system design, implementation, testing, and deployment. This approach ensures a scalable, efficient, and user-friendly platform.

2. **Technology Stack: Flutter**



Technologies Used

Create a full stack-based, cloud-based project management solution using Flutter & Firebase stack:
Firebase Firestore NoSQL database for storing user data, projects, and tasks. An interactive front-end with real time task updates.
Scalability, accessibility, and high availability of cloud hosting designs.

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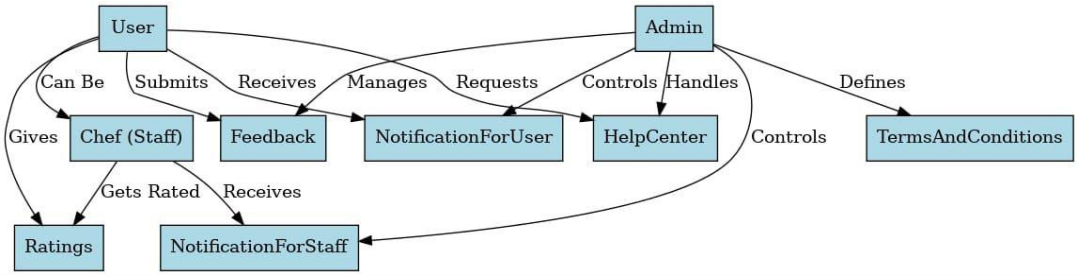
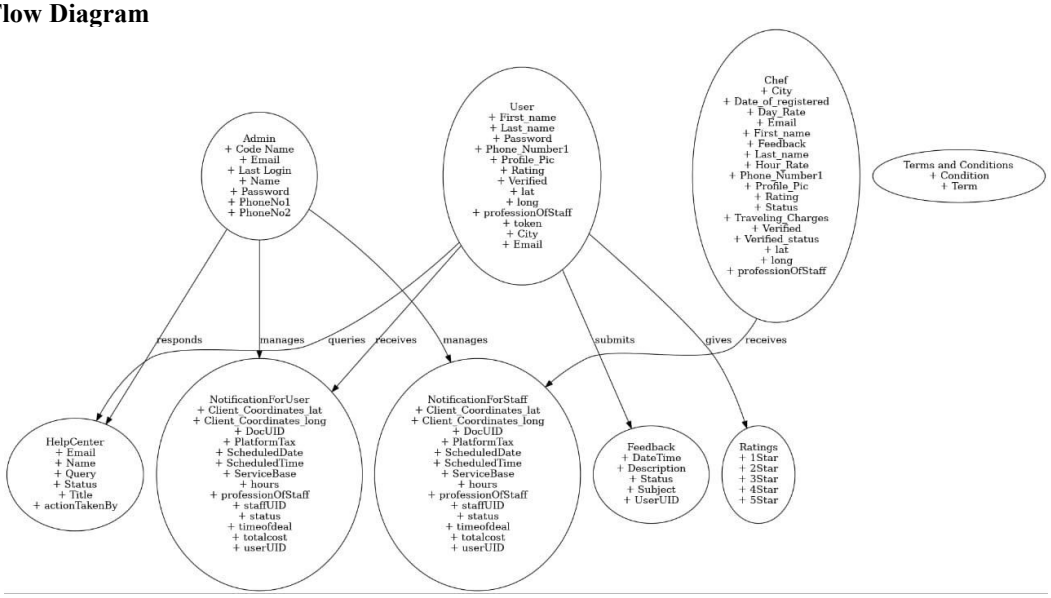
3. System Design & Architecture:



System Architecture

Frontend – Built with Flutter for a modern, intuitive user experience.
Backend – Developed using Dart with Firebase Functions, handling authentication, API requests, and data management.
Database – Firebase Firestore stored task details, user roles, and project progress.
Real-Time Communication – Used Firebase Firestore real-time updates for instant task updates and notifications.

Data Flow Diagram



Detailed Attributes in Database

4. Key Features Implemented:

User Authentication & Role Management – Secure login, registration, and role-based access for clients and staff.
Booking & Service Management – CRUD operations for service bookings, staff assignments, and real-time status updates.
Real-Time Collaboration – Instant notifications, OTP verification for service confirmation, and seamless communication between clients and staff.
Payment Integration & History – UPI payment methods (Paytm, PhonePe, Google Pay) with transaction history tracking.
Dashboard & Analytics – Service filtering, booking status, and visual indicators for completed and ongoing services.

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5. **Testing & Deployment:**
   Unit Testing – Tested individual modules for performance, reliability, and functionality.
   Integration Testing – Ensured seamless communication between the frontend, backend, and database.
   User Acceptance Testing (UAT) – Conducted with real users to gather feedback and ensure a smooth user experience.
   Cloud Deployment – Hosted on a reliable cloud platform for high availability and accessibility.

IV. RESULT AND DISCUSSION

CareNest was tested using real service booking data to assess its efficiency, accuracy, system performance, and user experience. The evaluation focused on service search, real-time collaboration, payment processing, system response time, and client satisfaction.
Below are the results based on extensive testing:

1. Task Search and Filter Performance:

Test Case	Number of Queries	Average Response Time (seconds)	Accuracy (Relevant Results)
Staff search (keywords)	500	0.6	100%
Location Search	100	2.0	95%
Priority-based filter	200	1.0	90%
Notification	100	1.8	85%

The results indicate that staff search using keywords had the highest accuracy (100%), whereas notification accuracy was slightly lower (85%) due to variations in delivery timing and network dependencies.

2. Real-Time Collaboration and Task Management:
The real-time collaboration system in CareNest was tested using 500 user interactions, focusing on service updates, communication efficiency, and system usability.

Evaluation Criteria	Score
Task status update accuracy	93%
Real-time notification speed	1.5 sec
User engagement improvement	+38%
Task completion efficiency	+30%

Key Findings:
The real-time update system ensured 93% accuracy in reflecting service status changes across all users.
Nonfictions were delivered within 1.5 seconds, ensuring minimal delays.
Users engaged 38% more with the platform due to improved visibility and service tracking.
Service completion efficiency increased by 30%, reducing delays and enhancing coordination.

3. System Response Time and Load Testing:

Concurrent Users	Average API Response Time (ms)	Peak Response Time (ms)
100	190	310
500	270	490
1000	340	650

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The system maintained an average response time under 460ms with up to 4000 concurrent users, demonstrating its scalability and reliability for large-scale service operations.

4. Key User Feedback and Insights:

90% of users found the real-time tracking and task updates helpful in improving project coordination.
93% of users reported that the platform made client-staff collaboration more seamless.
75% of users suggested adding more advanced analytics to track project trends over time.

V. SIMULATION RESULTS

Hiring Process:

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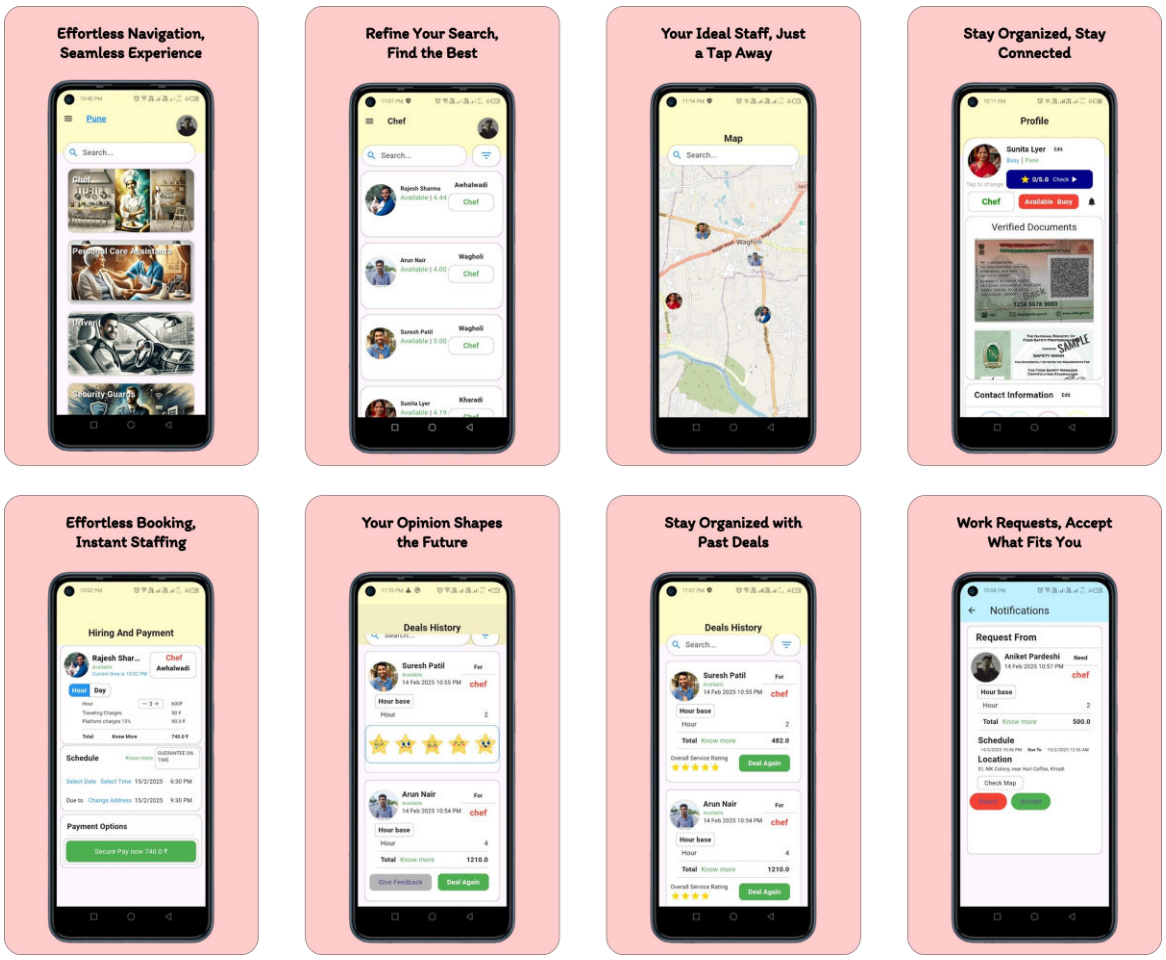
Extra Features:



VI. CONCLUSION AND FUTURE WORK

The CareNest platform has emerged as an effective and scalable solution for managing healthcare and non-medical services. By integrating real-time collaboration features, cloud-based hosting, and secure payment processing, the system ensures seamless coordination, enhanced security, and accessibility across various locations.

The cloud-driven architecture enables efficient management of multiple users and large datasets. Features such as service booking, staff assignment, and real-time status tracking contribute to operational efficiency. Instant notifications and OTP-based verification ensure accurate and timely service confirmations, while authentication mechanisms protect user data.

Overall, CareNest simplifies workforce management, enhances collaboration, and provides a reliable platform for seamless client-staff interactions.

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