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**A MAJOR PROJECT PROPOSAL**

**On**

**“Home Solution”**

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## **ABSTRACTS**

Our proposed home service app aims to revolutionize the way individuals manage their household tasks and maintenance needs in today's fast-paced and demanding lifestyle. With the increasing demands on our time and the complexities of modern living, there's a growing necessity for a comprehensive solution that streamlines the process of accessing reliable home services. In response to this need, our app will serve as a centralized platform where users can effortlessly connect with skilled professionals to address a wide range of home-related tasks. From plumbing and electrical work to cleaning and repairs, our app will offer a diverse array of services tailored to meet the unique needs of each user. Moreover, in today's digital age, convenience and efficiency are paramount. Our app will not only offer a wide range of services but also prioritize user experience through intuitive design and seamless functionality. Users will enjoy the convenience of accessing services with just a few taps on their smartphones, eliminating the hassle of traditional service booking methods.

Key features of our app include an engaging splash screen and intuitive walkthrough to welcome users, robust authentication measures for data security, personalized user profiles for a tailored experience, real-time notifications to keep users informed, and seamless payment integration for hassle-free transactions. In essence, our home service app is poised to simplify and enhance the way individuals manage their household tasks, offering convenience, reliability, and peace of mind in an increasingly hectic world.

# CONTENTS

<b>ABSTRACTS .....</b>	<b>1</b>
<b>BACKGROUND .....</b>	<b>3</b>
<b>Introduction.....</b>	<b>3</b>
<b>Problem Statement: .....</b>	<b>4</b>
<b>Solution of the Problem Statement: .....</b>	<b>5</b>
<b>OBJECTIVES .....</b>	<b>6</b>
<b>METHODOLOGY .....</b>	<b>7</b>
<b>Phase 1: Planning .....</b>	<b>7</b>
<b>Phase 2: Analysis .....</b>	<b>7</b>
<b>Phase 3: Design.....</b>	<b>8</b>
<b>Phase 4: Development.....</b>	<b>8</b>
<b>Phase 5: Testing .....</b>	<b>9</b>
<b>Phase 6: Deployment .....</b>	<b>10</b>
<b>Phase 7: Maintenance .....</b>	<b>11</b>
<b>Tools and Technologies .....</b>	<b>11</b>
<b>LITERATURE REVIEW .....</b>	<b>13</b>
<b>FESIBILITY STUDY .....</b>	<b>16</b>
<b>REQUIREMENTS .....</b>	<b>18</b>
<b>GANTT CHART.....</b>	<b>21</b>
<b>REFERENCES .....</b>	<b>23</b>

# BACKGROUND

## Introduction

The home service industry encompasses a wide range of services aimed at maintaining, and enhancing residential properties. It plays a crucial role in ensuring the comfort, safety, and functionality of homes, making it an essential part of modern living. From routine maintenance tasks to specialized repairs and renovations, home services cater to the diverse needs of homeowners, tenants, and property managers.

## Various Sectors within the Industry:

**Home Maintenance:** Includes services such as AC maintenance, plumbing inspections, electrical repairs, and appliance servicing, aimed at preserving the structural integrity and functionality of homes.

**Repairs:** Encompasses a broad spectrum of repair services for different components of the home, including roofing repairs, window replacements, flooring fixes, and structural repairs.

**Cleaning:** Covers a range of cleaning services, including residential cleaning, deep cleaning, carpet cleaning, and specialized cleaning for specific areas such as kitchens and bathrooms.

**Gardening and Landscaping:** Involves services related to lawn care, landscaping design and installation, garden maintenance, tree pruning, and outdoor pest control.

**Personal Care Services:** Extends beyond physical property maintenance to include services such as home health care, elder care, pet sitting, and childcare, addressing the personal needs of residents within their homes.

## **Need for Home Services:**

**Busy Lifestyles:** With increasingly hectic schedules and demanding work commitments, homeowners often lack the time and energy to perform household tasks themselves, leading to a greater reliance on professional home service providers.

**Urbanization:** The rapid urbanization trend has resulted in smaller living spaces and higher population densities in urban areas, driving the need for efficient home maintenance and repair services tailored to urban lifestyles.

**Aging Population:** As the population ages, there is a growing demand for home services catering to seniors' unique needs, such as home modifications for accessibility, healthcare assistance, and specialized caregiving services.

## **Problem Statement:**

In the current landscape of home service solutions, significant inefficiencies persist, hindering seamless user experiences and impeding the growth of service providers. Specifically, there is a lack of transparency in pricing, unreliable service providers, and cumbersome booking processes, all of which contribute to customer dissatisfaction and inhibit the industry's potential for scalability and innovation.

## **Key Inefficiencies and Gaps:**

### **Lack of Transparency in Pricing:**

Existing home service platforms often lack transparent pricing structures, leading to confusion and mistrust among users. Users struggle to understand the breakdown of costs, resulting in unexpected charges and disputes with service providers. This opacity in pricing undermines user confidence and inhibits informed decision-making, ultimately affecting customer satisfaction and retention.

### **Unreliable Service Providers:**

Many home service platforms fail to adequately vet service providers, leading to inconsistencies in service quality and reliability. Users encounter instances of late arrivals, subpar workmanship, and even no-shows, resulting in frustration and dissatisfaction. The lack of accountability for service providers undermines trust in the platform and diminishes its reputation among users, impacting long-term viability and growth.

### **Cumbersome Booking Processes:**

Existing booking processes are often complex and time-consuming, requiring users to navigate multiple steps and interfaces to schedule services. Users face challenges in finding available service slots, coordinating with providers, and managing bookings across different service categories. This inefficiency in the booking process leads to user frustration, decreased engagement, and potential abandonment of the platform in favor of more user-friendly alternatives.

### **Solution of the Problem Statement:**

The identified inefficiencies in existing home service solutions significantly impact user experiences and hinder the industry's potential for growth and innovation. By addressing the lack of transparency in pricing, unreliable service providers, and cumbersome booking processes, our proposed home service app aims to revolutionize the industry, offering a transparent, reliable, and user-friendly platform that meets the evolving needs of modern homeowners and service providers alike.

## **OBJECTIVE**

- To develop a user-friendly mobile app to provide general home services.

# METHODOLOGY

The methodology for developing the "Home Services" app involves a structured approach to ensure that all aspects of the project are meticulously planned, executed, and evaluated. This methodology is divided into several key phases: Planning, Analysis, Design, Development, Testing, Deployment, and Maintenance. Each phase encompasses specific tasks and deliverables, ensuring a comprehensive and systematic development process.

## Phase 1: Planning

### 1. Project Initiation:

- Define the project scope, objectives, and deliverables.
- Identify key stakeholders and their roles.
- Develop a project charter outlining the project overview, objectives, and high-level requirements.

### 2. Resource Allocation:

- Assemble the project team, including developers, designers, testers, and project managers.
- Allocate resources and define the responsibilities of each team member.

### 3. Timeline and Milestones:

- Create a detailed project timeline with specific milestones and deadlines.
- Develop a Gantt chart to visually represent the project schedule.

## Phase 2: Analysis

### 1. Requirement Gathering:

- Conduct interviews and surveys with potential users to gather detailed requirements.



- Analyze the existing home service platforms to identify gaps and opportunities.

## **2. Market Analysis:**

- Perform a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) of the home service industry.
- Identify target audience demographics and user personas.

## **3. Feasibility Study:**

- Conduct a technical, operational, and financial feasibility study.
- Assess the risks and develop mitigation strategies.

# **Phase 3: Design**

## **1. System Architecture Design:**

- Define the overall system architecture, including the frontend, backend, database, and integration components.
- Choose the appropriate technology stack (React Native, Node.js, MySQL, Firebase, etc.).

## **2. UI/UX Design:**

- Develop wireframes and mockups for the app's user interface.
- Create user flow diagrams to map out the user journey and interactions.

## **3. Database Design:**

- Design the database schema, including tables, relationships, and constraints.
- Ensure data normalization and integrity.

# **Phase 4: Development**

## **1. Frontend Development:**

- Develop the user interface using React Native.

- Implement responsive design principles to ensure compatibility across various devices and screen sizes.

## **2. Backend Development:**

- Set up the server using Node.js and Express.js.
- Develop RESTful APIs for communication between the frontend and backend.
- Integrate Firebase for authentication and real-time database management.

## **3. Database Implementation:**

- Set up the MySQL database.
- Implement data access layers and ORM (Object-Relational Mapping) for seamless database interactions.

## **4. Machine Learning Implementation:**

- K-Nearest Neighbors (KNN) algorithm implementation.
- Geospatial Library implementation.

## **5. Integration:**

- Integrate third-party services such as the Khalti payment gateway and Google Maps API.
- Ensure secure and efficient data transmission between all components.

## **Phase 5: Testing**

### **1. Unit Testing:**

- Perform unit tests on individual components and modules to ensure functionality and reliability.
- Use automated testing tools to streamline the process.

## **2. Integration Testing:**

- Test the interaction between different components (frontend, backend, database) to ensure seamless integration.
- Identify and resolve any integration issues.

## **3. User Acceptance Testing (UAT):**

- Conduct testing sessions with a group of end-users to gather feedback.
- Make necessary adjustments based on user feedback to enhance the user experience.

## **4. Performance Testing:**

- Test the app for performance metrics such as load time, response time, and scalability.
- Optimize the code and database queries to improve performance.

# **Phase 6: Deployment**

## **1. Deployment Planning:**

- Develop a deployment plan outlining the steps and timeline for deploying the app to production.
- Set up the production environment, including servers and databases.

## **2. Release Management:**

- Prepare release notes and documentation for the initial launch.
- Deploy the app to app stores (Google Play Store and Apple App Store) and make it available for download.

## **3. Post-Deployment Monitoring:**

- Monitor the app for any issues or bugs reported by users.
- Set up analytics and monitoring tools to track app performance and user engagement.

## Phase 7: Maintenance

### 1. Bug Fixes and Updates:

- Address any bugs or issues reported by users promptly.
- Release regular updates to improve functionality, add new features, and enhance security.

### 2. User Support:

- Provide ongoing support to users through help desks, FAQs, and customer service.
- Gather user feedback to continuously improve the app.

### 3. Scalability and Optimization:

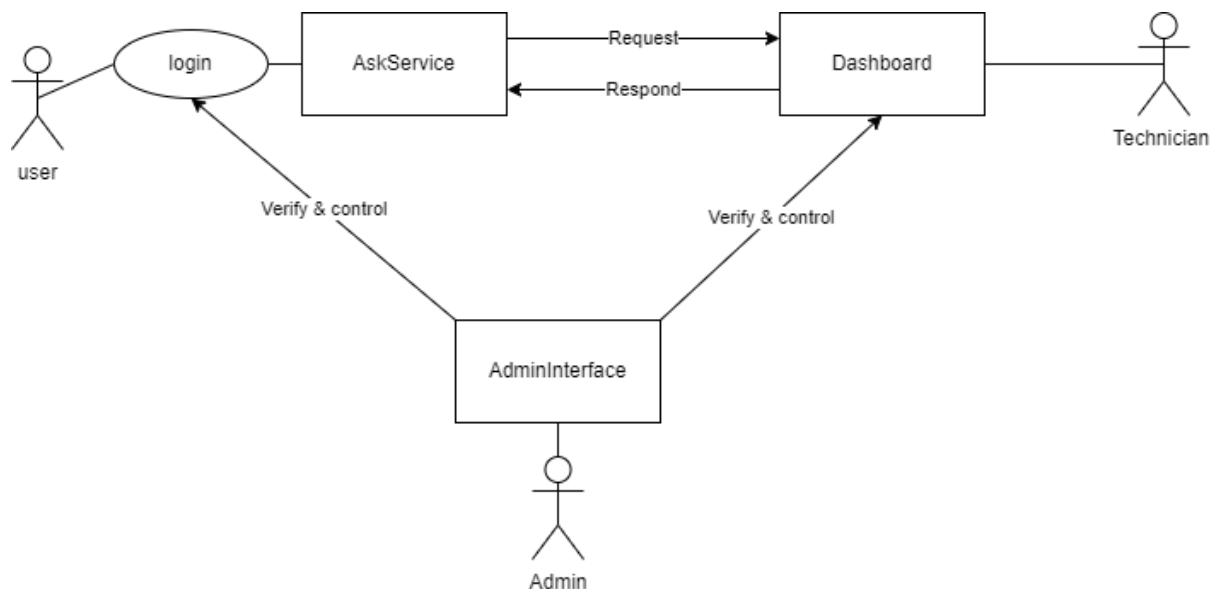
- Monitor the app's performance and scalability as the user base grows.
- Optimize the app's code, database, and infrastructure to handle increased traffic and data loads.

## Tools and Technologies

- **Version Control:** Git and GitHub for version control and collaboration.
- **Development Environment:** Visual Studio Code for coding and debugging.
- **Programming Languages:** JavaScript (React Native for frontend, Node.js for backend).
- **Backend Framework:** Express.js for server-side logic.
- **Database:** MySQL for data storage.
- **Authentication and Notifications:** Firebase for user authentication and push notifications.
- **Payment Gateway:** Khalti for secure transactions.

- **Mapping Services:** OpenStreetMap (OSM): A free and open-source mapping service that can be used for various purposes, including analysis and visualization.

By following this comprehensive methodology, the project team aims to develop a robust, user-friendly, and efficient home service app that meets the needs of modern homeowners and service providers, ensuring a seamless and satisfying user experience.



**Fig: Basic Architecture**

manage their household tasks, ultimately contributing to a more efficient and stress-free lifestyle for our users. Through innovation and dedication, we aim to make "Home Services" the go-to platform for all home maintenance and personal care needs.

# **LITERATURE REVIEW**

The development of a "Home Services" app addresses a significant gap in the current market, where inefficiencies and lack of transparency often lead to customer dissatisfaction. This literature review explores the existing research and studies related to home service platforms, their technological frameworks, and the evolving market dynamics.

## **1. The Home Services Industry**

The home services industry is broad, encompassing various sectors such as maintenance, repairs, cleaning, gardening, and personal care services. According to Markets and Markets (2023), the global home services market is projected to grow significantly due to increasing urbanization, busy lifestyles, and the rising preference for on-demand services. The demand for home services is driven by factors such as the aging population, who require specialized home modifications and healthcare services, and busy professionals, who seek convenient solutions for household tasks.

## **2. Technological Advancements in Home Services**

With the advent of technology, the home services sector has undergone a transformative shift. Digital platforms like Handy, TaskRabbit, and UrbanClap have leveraged technology to connect users with service providers efficiently. Handy (2024) and TaskRabbit (2024) illustrate how mobile applications can streamline service booking, enhance transparency, and improve overall user experience through features like real-time tracking, secure payments, and customer reviews.

## **3. User Experience and Design**

User experience (UX) is a critical factor in the success of home service apps. According to Fitzgerald (2020), a well-designed user interface (UI) that prioritizes ease of use and accessibility can significantly enhance user engagement and

satisfaction. The design should include intuitive navigation, clear service descriptions, transparent pricing, and seamless payment integration. The use of real-time notifications and personalized user profiles further improves the user experience by keeping users informed and engaged.

#### **4. Security and Data Privacy**

Security and data privacy are paramount in mobile application development. ISO/IEC 27001:2013 standards emphasize the importance of robust information security management systems to protect user data. Firebase's comprehensive suite of services, including authentication and real-time databases, provides secure and scalable backend support (Firebase Documentation, 2024). Ensuring compliance with data protection regulations is essential to build user trust and safeguard sensitive information.

#### **5. Market Analysis and Competitive Landscape**

The competitive landscape of the home services market is characterized by several key players offering diverse services. According to IBISWorld (2022), the industry is highly fragmented, with both large platforms and numerous smaller, specialized service providers. A thorough competitive analysis reveals that while established platforms like Thumbtack and UrbanClap offer extensive service categories, there remains a need for improved transparency, reliability, and user-centric features.

#### **6. Technical Frameworks and Development**

Developing a robust home service app requires a comprehensive technical framework. React Native, an open-source framework by Facebook, enables the development of cross-platform mobile applications with a single codebase, enhancing development efficiency (React Native Documentation, 2024). For backend development, Node.js with Express.js offers a scalable and efficient environment for server-side logic. MySQL provides reliable data storage solutions,

ensuring data integrity and performance (MySQL Documentation, 2024). Integrating payment gateways like Khalti and utilizing Google Maps API for location services further enrich the app's functionality and user convenience.

## **7. Challenges and Risk Management**

The development and deployment of a home service app come with several challenges, including technical difficulties, market competition, user adoption, and regulatory compliance. Wang and Pei (2018) highlight the importance of addressing technical challenges such as app stability, scalability, and performance optimization. Effective marketing strategies and a unique value proposition are crucial for attracting and retaining users in a competitive market (Zhu & Liu, 2019). Additionally, ensuring compliance with legal and regulatory standards is essential to mitigate risks and build user trust.



# FEASIBILITY STUDY

## Executive Summary

This feasibility study evaluates the viability of developing a comprehensive home service app designed to provide users with an intuitive, secure, and efficient platform for booking various on-demand services. The study covers key aspects such as market analysis, technical requirements, financial projections, and risk management.

## Market Analysis

### Market Demand

- **Target Audience:** Urban and suburban residents, busy professionals, elderly individuals, and households requiring regular maintenance services.
- **Market Size:** Growing demand for on-demand home services driven by increasing urbanization, busy lifestyles, and a rising preference for convenience.
- **Growth Trends:** The global home services market is projected to grow significantly over the next few years, fueled by technological advancements and increasing smartphone penetration.

## Competitive Analysis

**Key Competitors:** Handy, TaskRabbit, UrbanClap, Thumbtack.

**Competitive Edge:** Our app will differentiate through superior user experience, robust security features, comprehensive service categories, and cross-platform support.

## Risk Analysis

**Potential Risks**

**Technical Challenges:** Ensuring app stability and scalability.

**Market Competition:** Competing with established players.

User Adoption: Attracting and retaining a user base.

Regulatory Compliance: Adhering to data protection and payment regulations.

## **Mitigation Strategies**

Robust Development: Invest in skilled developers and rigorous testing.

Unique Value Proposition: Highlight app's unique features and superior user experience.

Marketing Strategy: Effective marketing campaigns targeting the right audience.

# REQUIREMENTS

The various tools might require for the implementation of this project are listed below:

## **Development environment**

### **Git and GitHub (for version controlling):**

Git is a distributed version control system that tracks changes in source code during software development, allowing multiple developers to work on a project simultaneously without overwriting each other's changes. GitHub is a web-based platform built on Git that facilitates code hosting, collaboration, and version control with features like pull requests, issue tracking, and integration with other tools.

### **Visual Studio Code (for application development):**

Visual Studio Code is a lightweight, open-source code editor developed by Microsoft, designed for application development with support for various programming languages and frameworks. It offers features like debugging, syntax highlighting, intelligent code completion, snippets, and integrated Git control, making it a versatile tool for developers.

### **Programming Language:**

#### Frontend (React Native):

React Native is a popular open-source framework developed by Facebook for building mobile applications using JavaScript and React. It allows developers to create natively-rendered apps for iOS and Android using a single codebase, enabling faster development and easier maintenance.

#### Backend (Firebase, Django, Node JS):

Firebase is a comprehensive development platform by Google that provides a suite of cloud-based services including real-time databases, authentication, analytics, and

hosting, facilitating the rapid development of web and mobile applications with minimal backend management.

Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. It includes a robust ORM, built-in authentication, and an admin interface, making it a powerful choice for developing secure and scalable web applications.

#### Database (MySQL):

MySQL is an open-source relational database management system known for its reliability, scalability, and ease of use. It is widely used for web applications and supports structured query language (SQL) for database access and management, making it a staple in both small and large-scale applications.

## **Financial Projections**

### **Initial Investment**

- Development Costs: Rs.10,000 for a team of developers, designers, and testers.
- Operational Costs: 5,000 for server infrastructure and maintenance.
- Revenue Streams
- Service Fees: Commission on each service booked through the app.
- Subscription Plans: Premium membership for enhanced features and benefits.
- Advertisements: In-app advertisements from service providers.

### **Technology Stack**

- Frontend: React Native for cross-platform development.
- Backend: Node.js with Express.js for server-side logic.
- Database: MySQL for scalable data storage.
- Authentication: Firebase Authentication for secure user management.
- Payment Gateway: Khalti for secure transactions.
- Push Notifications: Firebase Cloud Messaging for real-time updates.
- Mapping: Google Maps API for location services.

# GANTT CHART

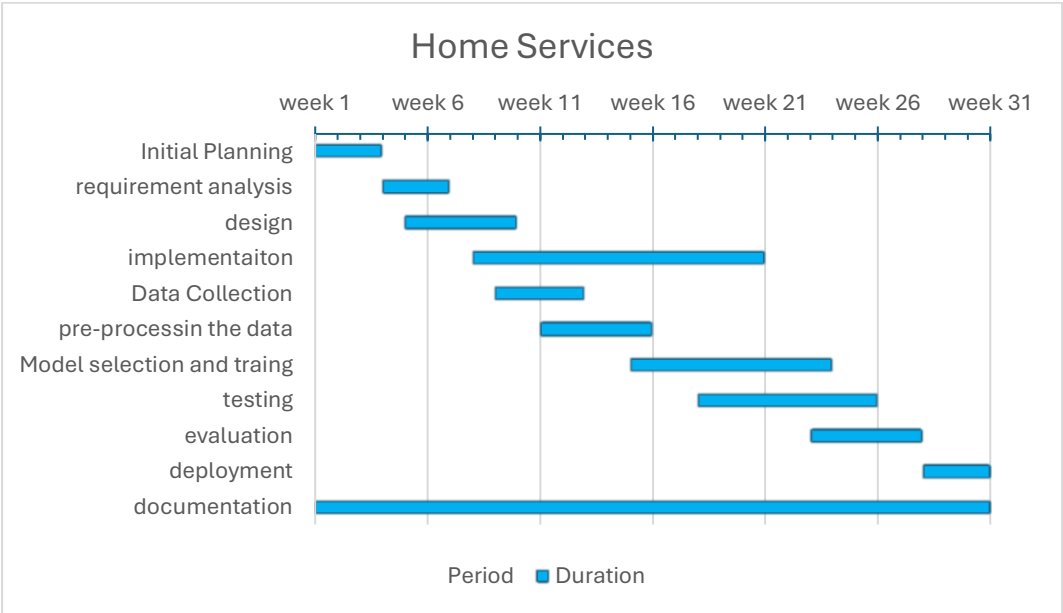


Fig: Gantt chart of home solution app development

## CONCLUSION

The proposed "Home Services" app is designed to address significant inefficiencies in the current home service market by providing a centralized, user-friendly platform that connects individuals with reliable home service professionals. Through a detailed analysis of market needs and existing gaps, our app aims to revolutionize household task management by ensuring convenience, efficiency, and seamless user experiences.

By leveraging modern technologies such as React Native for cross-platform development, Firebase for real-time data management and authentication, and MySQL for scalable data storage, the app promises to deliver robust performance and high reliability. The integration of a secure payment gateway, real-time notifications, and intuitive user interface further enhances the overall user experience, ensuring that users can effortlessly manage their home service needs.

The comprehensive planning, systematic methodology, and detailed feasibility study outlined in this proposal underscore the viability and potential of our project. Our approach includes rigorous testing, ongoing maintenance, and continuous user feedback to ensure that the app remains responsive to the evolving needs of its users.

In essence, the "Home Services" app is poised to set a new standard in the home service industry, offering unparalleled convenience, transparency, and reliability. We are confident that this app will significantly improve the way individuals

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