CLOUD BASED HOME SERVICES

(Major Project Phase-1 Report)

A project report submitted to the Srinivas University as partial fulfilment for the award of the degree of

Bachelor of Technology in Cloud Technology and Information Security

Submitted By

HRITHWIK. K

USN: 1SU19CI012

Under the Guidance of

Mr. Daniel Francis Selvaraj

Professor

Department of Cloud Technology & Data Science

College of Engineering and Technology

SRINIVAS UNIVERSITY

Mukka, Mangalore – 574146

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BONAFIDE CERTIFICATE

This is to certify that this project report entitled "**CLOUD BASED HOME SERVICES**" is submitted to Srinivas University College of Engineering and Technology, Mukka, is a bonafide record of work done by **HRITHWIK. K** under my supervision from 1ST November of 2022 to 30th of November 2022

Mr. Daniel Francis Selvaraj
Professor

Prof. Daniel Selvaraj
Head of Department
Department of Cloud Technology and Data Science
Srinivas University, Mukka

Date:
Place: Mukka

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ABSTRACT

The main aim of this project is to introduce a cloud-based home services system on online platform. In recent days, there is a rapid increase in the need for handyman services around the world. If any issue is unfortunately encountered in the home, some issues may be hectic and people can't be repaired on their own, people are busy with their schedule, hence they need workers to maintain and repair their homes. It is tough to find workers offline at the correct time and cost. Therefore, this online website makes it easier to book your own workers at the correct time and cost, it makes the workers available in just one click at your doorstep. Handyman workers have a separate login to showcase themselves by adding the works and skills they have. It also helps the professionals to gain opportunities and money based on their work. There are several categories of workers like carpenters, plumbers, gardeners, construction labour, electrician, fitting and pest etc. on the time of users' login for the need for the services, the workers are listed based on location and cost with their name and contact so that they can provide 24/7 services without making you wait, And also this web application provides chatbot services for better and easier to find a handyman. We are deploying a web application in AWS Lambda which is applicable to build a serverless environment. Serverless environment AWS Lambda automatically runs code in response to multiple events, And Amazon API Gateway, modifications to objects in Amazon Simple Storage Service (Amazon S3) buckets, table updates in Amazon DynamoDB, and state transitions in AWS Step Functions, Route53, Amazon cloud front, AWS I am.

1. INTRODUCTION

Handyman services are odd jobs that fall under the category of informal sector in various countries. there are elevated levels of the informal sector because of increased rural to urban migration and the inability of the formal sector to be able to absorb the vast numbers of job seekers in the country which leads to creation of new job opportunities in the informal sector such as handyman service jobs The demand for handyman services has been because of several influencing factors. demand for handyman service jobs is attributed to the increasingly busy and hectic lives that people lead. The growing need for handyman services as having second homes, income/rental units and commercial property maintenance.

Secondly, most countries around the world have experienced a decline in service costs which has seen rise in handyman services. Locating handyman services is difficult when one relocates or travels to new areas since these service providers are situated across different areas and differ in costs, quality and type of service that they provide. In case of emergencies like tap leakages, electrical problem among others, it becomes difficult for one to access these services immediately. In cases where the emergency is serious such as an electric fault from electronic equipment's, this can lead to calamities like fire which have profound consequences Another great challenge faced by clients is determining the quality of services to be provided by these handymen.

The goal of this project is to create a web application platform that uses location-based services to locate handyman services within the user's location and has a rating feature for rating handyman services to ensure quality delivery of services by the handymen. Web application helps the user to make their life more convenient and they can use the web application from anywhere with internet access they provide convenience and flexibility

1.1 THE DOMAIN

In order to support the maximum number of user and elastic service with the minimum resource, the Internet service provider invented the cloud computing. within a few years, emerging cloud computing has become the hottest technology. The service offering of AT&T Synaptic Hosting, the cloud computing has been evolved from internal IT system to public service, from cost-saving tools to revenue generator.

cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale

benefits of cloud computing

- Cost
- Speed
- Global scale
- Productivity
- Performance
- Reliability
- Security

1.2 THE TECHNOLOGY

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud platform, offering over 200 fully featured services from data centers globally. Millions of customers—including the fastest-growing start-ups, largest enterprises, and leading government agencies—are using AWS to lower costs, become more agile, and innovate faster.
Serverless computing is a method of providing backend services on an "as used" basis. Serverless architecture allows users to write and implement code without having to worry about the underlying infrastructure. However, despite the name, serverless does not mean that the code runs without servers, but it means that the concerns about the server management disappear for developers. For this reason, in this architectural paradigm, there is no need to purchase, rent, or provision servers in advance in order to host and execute the server-side code.

Build custom backend services
We can use AWS Lambda to create new backend application services triggered on demand using the Lambda application programming interface (API) or custom API endpoints built using Amazon API Gateway. Lambda processes custom events instead of servicing these on the client, helping you avoid client platform variations, reduce battery drain, and enable easier updates.

Bring your own code
With AWS Lambda, there are no new languages, tools, or frameworks to learn. You can use any third- party library, even native ones. You can also package any code (frameworks, SDKs, libraries, and more) as a Lambda Layer, and manage and share them easily across multiple functions. Lambda natively supports Java, Go, PowerShell, Node.js, C#, Python, and Ruby code, and provides a Runtime API allowing you to use any additional programming languages to author your functions.

Automatic scaling
AWS Lambda invokes your code only when needed, and automatically scales to support the rate of incoming requests without any manual configuration. There is no limit to the number of requests your code can handle. AWS Lambda typically starts running your code within milliseconds of an event. Since Lambda scales automatically, the performance remains consistently high as the event frequency increases. Since your code is stateless, Lambda can start as many instances as needed without lengthy deployment and configuration delays.

Amazon Route 53 Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service. It is designed to give developers and businesses an extremely reliable and cost-effective way to route end users to Internet applications by translating human readable names, such as www.example.com, into the numeric IP addresses, such as 192.0.2.1, that computers use to connect to each other. Amazon Route 53 effectively connects user requests to infrastructure running in AWS— such as Amazon EC2 instances, Elastic Load Balancing load balancers, or Amazon S3 buckets—and can also be used to route users to infrastructure outside of AWS. You can use Amazon Route 53 to configure DNS health checks to route traffic to healthy endpoints or to independently monitor the health of your application and its endpoints. Amazon Route 53 makes it possible for you to manage traffic globally through a variety of routing types, including Latency Based Routing, Geo DNS, and Weighted Round Robin—all of which can be combined with DNS Failover in order to enable a variety of low-latency, fault-tolerant architectures. Amazon Route 53 also offers Domain Name Registration—you can purchase and manage domain names such as example.com and Amazon Route 53 will automatically configure DNS settings for your domains.

Amazon S3

Amazon Simple Storage Service (Amazon S3) provides developers and IT teams with safe, secure, highly-scalable object storage. Amazon S3 provides a simple web-services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web. Amazon S3 can be used alone or together with Amazon EC2/EBS, Amazon Glacier, and third-party storage repositories and gateways to provide cost-effective object storage for a wide variety of use cases including cloud applications, content distribution, backup and archiving, disaster recovery, and big data analytics. Amazon S3 stores data as objects within resources called buckets. You can store as many objects as you want within a bucket, and write, read, and delete objects in your bucket. Objects can be up to 5 terabytes in size.

Connect to relational databases

Use Amazon RDS Proxy to take advantage of fully managed connection pools for relational databases. RDS Proxy efficiently manages thousands of concurrent connections to relational databases, making it easy to build highly scalable, secure Lambda-based serverless applications interacting with relational databases. Currently, RDS Proxy offers support for MySQL and Aurora. You can use RDS Proxy for your serverless applications through the Amazon RDS console or AWS Lambda console.

Connect to shared file systems

With Amazon Elastic File System (EFS) for AWS Lambda, you can securely read, write, and persist large volumes of data at low latency, at any scale. You

don't need to write code and download data to temporary storage in order to process it. This saves time and simplifies the code, so you can focus on your business logic. EFS for Lambda is ideal for a range of use cases including processing or backing up large data amounts, and loading large reference files or models. You can also share files between serverless instances or container-based applications, and even run machine learning (ML) inference by using EFS for AWS Lambda.

Run code in response to Amazon CloudFront requests
With Lambda@Edge, AWS Lambda can run your code across AWS locations globally in response to Amazon CloudFront events, such as content requests to or from origin servers and viewers. This makes it easier to deliver richer, more personalized content to your end users with lower latency.

Only pay for what you use
With AWS Lambda, you pay for execution duration rather than server unit. When using Lambda functions, you only pay for requests served and the compute time required to run your code. Billing is metered in increments of one millisecond, enabling easy and cost-effective automatic scaling from a few requests per day to thousands per second. With Provisioned Concurrency, you pay for the amount of concurrency you configure and the duration that you configure it. When Provisioned Concurrency is enabled and your function is executed, you also pay for requests and execution duration. To learn more about pricing, please visit AWS Lambda Pricing.

1. The Client, via the specific URL, retrieves the static content of the Web Page located in an Amazon S3 Bucket.
2. The authentication of users is through Amazon Cognito which manages both the sign-up and the login.
3. In order to get dynamic content, the request passes through the Amazon API Gateway.
4. The request is authenticated with Amazon Cognito.
5. After request authentication, Amazon API Gateway invokes the AWS Lambda related to the specific endpoint.
6. The AWS Lambda implements Business Logic. When it is invoked, it processes the request and according to its purpose, it can create, retrieve, update, delete objects on a database, and make some computations over the data. In our example, the AWS Lambda interacts with Amazon DynamoDB. Finally, it is also in charge of preparing the response.
7. The response computed by the AWS Lambda is returned through the Amazon API Gateway to the Client that made the request.

2. SYSTEM ANALYSIS

2.1 LITERATURE REVIEW

In the year 2018, the paper, “An Online System for Household Services” was published in the International Journal of Engineering Research & Technology (IJERT) by N. M. Indravasan, Adarsh G, Shruthi C, Shanthi K, Dadapeer Prof., Copyrights @Kalahari Journals Vol. 7 No. 1 (January, 2022) International Journal of Mechanical Engineering 5757 Department of Information Science and Engineering, BITM, Ballari. This paper proposes the idea of finding the skilled person or worker for any major or minor household problems and booking the worker for specific work. It also includes the payment gateway. The paper specifies separate login credentials for admin, user and the worker. Our application differs from this idea by including the geolocation facility, which enables the user to track the location of the worker.

Another paper named “Web based System for Domestic Services“ is published in the year 2019 in International Journal of Research in Electronics and Computer Engineering by S Rachitha, Sanjana Sathish, Shruthi S, Vismitha, Ambika V UG Scholar Computer Science and Engineering, Vidyavardhaka College of Engineering, Mysore. This paper offers a one stop solution to various domestic needs. The system provides well organized structure for locating service professionals within a locality. Handyman services encompass just about any work the customers may need done around a residential or commercial building. The advantage of the system is the user location tracking and geo location services are accurate because of usage of minimum three satellites to determine user’s location.The disadvantages of the system is the initialization and setup cost are high and worker needs separate login credentials to seek help. The system also works only based on hardware support.
Whereas our project is completely software- oriented.

NFC According to NFC (2016), Near Field Communication, or NFC, refers to an offshoot of radiofrequency identification (RFID) with the exception that it is designed for use by devices within proximity to each other. This technology enables you to interact securely with the world around you just with by a simple touch. NFC is likely to transform location -based services with their flexibility to embed on wristbands or payment cards, which makes it so easy to use for mobile device owners if the device is within range, it works without any manual intervention unlike other technologies. One of the application of NFC is checking mobile users into a room as they walk in and being able to offer location-sensitive information. It is also used as supplement to GPS to be able to offer more accurate information about the location or position of a device or object (Griffiths, 2012).

According to Wood (2014), **Wi-Fi** is a local area wireless computer networking technology that aids networking of electronic devices. It is a product based on the institute of Electronic Engineers (IEEE) 802.11 standards. Wi-Fi enabled devices

emit regular ‘probes’ when trying to connect to Wi-Fi. Wi-Fi access points can be placed in a certain way inside a venue, so that the position of a given device in the space can then be calculated, using the strength of the phone’s probes and timing to estimate the distance from each APC for customers, it can be used to provide people with relevant information to approximately where they are standing Common use of Wi-Fi LBS is restaurant, stadia and even healthcare (Thiga, 2013).

According to (SIG, 2015; Thiga, 2013), **Bluetooth** is the global wireless standard that enables convenient, secure connectivity for an expanding range of devices and services. Exchanges data over short distances using radio transmissions. Enables devices to form networks and exchange information based on master-slave connection model. It has been used to obtain information in a number of location based mobile marketing applications such as beacons, Bluetooth Mobile Advertising and Bluetooth mobile context aware system. A LOCATION-BASED SERVICE FOR HANDYMAN ORDER PLACEMENT JOURNAL OF SYSTEMS INTEGRATION 2017/4 31

Global Positioning System (GPS) is a satellite based navigation system that is made up of 24 Satellite that are placed into orbit by the U.S. Department of Defence. It circles the earth twice a day in a very precise orbit while transmitting signal information to earth. This information is taken up by the GPS receivers which make us of triangulation to calculate and determine the user's exact location. The GPS receiver also compares the time a signal was transmitted by a satellite with the time it was received to be able to determine the location distance. The time difference can tell the GPS receiver the distance of the satellite from its current location. With distance measurements from a few more satellites, the receiver can now determine the user's position and display it on the unit's electronic map (Garmin, n.d).

2.2 EXISTING SYSTEMS

1. Thumbtack

A business model brought up by Thumbtack. Just say what you want and it will be done. With over 1000 service professionals registered in the app, Thumbtack allows users to find the right people for all their projects and get a great service done.

2. TaskRabbit

Crush your to-do list - the mantra of TaskRabbit. Allowing you to hire a trusted professional when you want at the price you can afford. This value proposition of flexibility, reliability and affordability makes TaskRabbit a winner in the gig economy. This American online and mobile marketplace app is now 12 years old and serves around 47 US cities, 4 UK cities and 1 Canadian city.

3. Urban Company (UrbanClap)

The leading online marketplace app in India, UAE, Sydney and Singapore, UrbanClap is the largest home service provider that connects customers to service professionals to meet their daily needs. An inspiration for many there stood a decent reason why this app attracted a galaxy of investors to bet their money on it.

4. HouseJoy

HouseJoy a home maintenance service provider focuses on simplifying everyday living by its home-centric services. Be it home construction or renovation, interior designing, painting or home cleaning. The app has got you covered. Apart from this, HouseJoy also delivers other home-services its peer offers.

5. Zimmber

Zimmber a home service booking app, acquired by Quikr has changed the way people do their daily household chores. The app hires expert professionals to provide services in areas like Home cleaning Electrical, Plumbing, AC repairing and maintaining, Carpentry, Driver on Demand, Laundry, Pest Control, Salon at Home, Car Spa, electrical repair, PC & Laptop Repair, and House Painting services, as well as complete home refresh packages.

6. Family Handyman

DIY- Yet another USP introduced by Family Handyman. The app provides professional secrets, ideas and tips to do the household chores like pest control, woodworking, cleaning, painting, washing, repairing and much more smartly.
Handyman
The way Handyman has evolved over the years reflects the evolution of the on-demand market. The company standardizes its marketing strategy by providing state-of-the-art home-oriented services like moving homes, on-demand interiors, construction, counsellors, etc.

2.3 PROPOSED SYSTEM

The system is proposed with the focus of providing better and easy user interface for the user. So, login credentials include phone number. By providing the phone number, One Time Password (OTP) will be sent to that number. After authentication, if he is a new user, the profile page will be displayed, where the basic details will be collected, and if user wish to be a service provider, he can give his occupation details which will be stored in the database.

Now, service seeker can select the module in which he seeks service. The list of workers will be displayed based upon the ratings. The user can opt any of the worker from the list and book a slot immediately or to specific date and time. If a client chooses a worker, then the worker would get a popup notification and if that is accepted a connection would be made between them and they will share each other's details. If the worker is not available for that time slot unavailable alert message will be shown to the user. Once the worker is booked, the user can chat him through the built-in chat application and the user can use Chatbot for any queries or issues and can track the worker’s location using embedded map feature.

Amazon S3 and Amazon Cloud watch are proposed to be used as front-end services. Security service as IAm, Backend service as AWS Lambda and Amazon API Gateway, Database service as DynamoDB.

2.4 HARDWARE AND SOFTWARE SPECIFICATIONS

MySQL is currently the most popular database management system software used for managing the relational database. It is open-source database software, which is supported by Oracle Company. It is fast, scalable, and an easy to use database management system in comparison with Microsoft SQL Server and Oracle Database. It is commonly used in conjunction with PHP scripts for creating powerful and dynamic server-side or web-based enterprise applications.

Hardware Requirement

- Processor: Intel dual core or any higher version.
- Processor speed: minimum 1.83 GHz.
- RAM: 256 MB of RAM.
- Hard disk: 40 GB or above.

Software Requirements:

- Front end: WordPress
- Back end: MY SQL

SQL stands for: Structured Query Language.

MY SQL is a database server, MY SQL is the one of the best RDBMS being used for developing web-based software applications. It is ideal for both small and large applications. MY SQL supports standard SQL. It complies on a number of platforms.

3. SYSTEM DESIGN

3.1 MODULES DESCRIPTION

Registration Module

Customers who want to avail our services are invited to register for a free account in our portal with few simple steps, by providing valid credentials a customer is requested to confirm account creation

Service Module When customers want to schedule a service, they can do it by logging in to their account.

Payment Module

Further process is preceded to the next module where the customer needs to pay for the services opted.

Manage Servicemen's:

By Using this software admin can easily manage servicemen, i.e., Admin can verify the servicemen is good or fake by seeing its profile information, admin can also be able to delete the servicemen account.

• **Manage Category:** By Using this software admin can easily add new categories to the odd list or he can delete the existing list.

• **Manage Bookings:** Admin all rights of managing the bookings in this software.

Servicemen Modules

• **Create Profile:** In this serviceman can easily create his/her profile by filling some mandatory fields like Name, Mobile Number, Email, id proof etc.…

• **Edit Profile:** In this serviceman can easily edit his/her profile and after completion of editing he/she can update the profile.

• **View Bookings:** In this serviceman can view the bookings. If everything is set (Time, Date) for him, then he will conform the bookings.

User Modules

• **Search Servicemen**: In this user can easily search for the home services employees according to their need.

• **View Servicemen Profile**: In this user can view the employee details like Name, Mobile Number, Address, Experience etc.…

• **Book Servicemen:** In this user can fill some mandatory fields to book servicemen. Fields like Name, Mobile Number, Address, Date, Working Hours etc.

Admin module:

- Login
- Manage labours
- View clients
- Manage locations
- Manage report
- View feedbacks
- Change password
- Logout

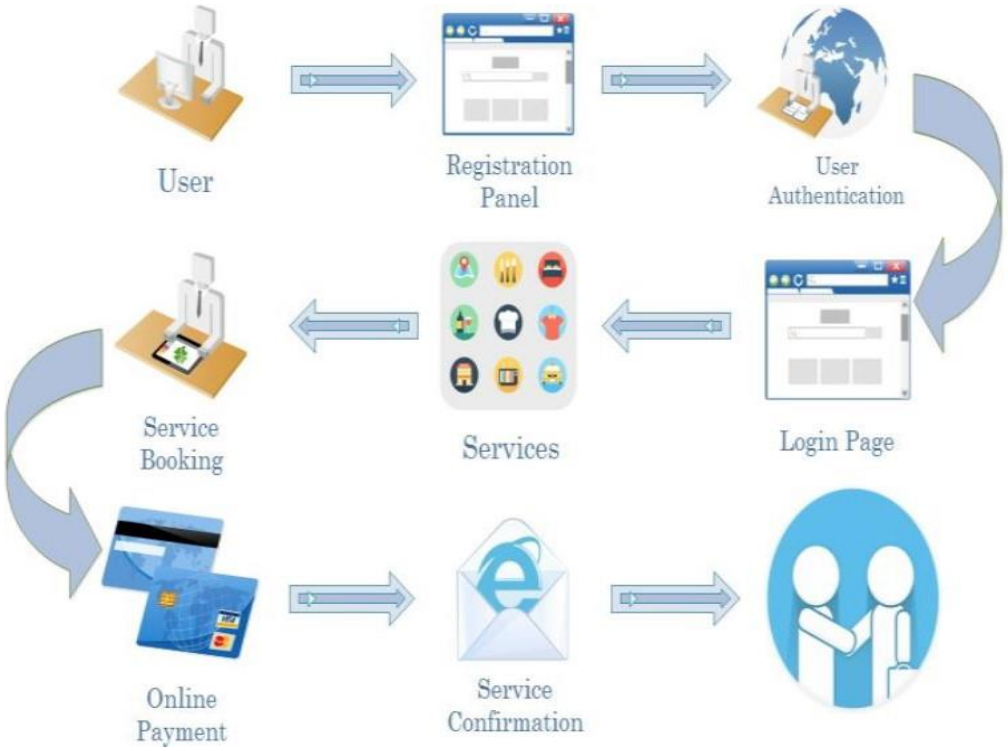
Labour's module:

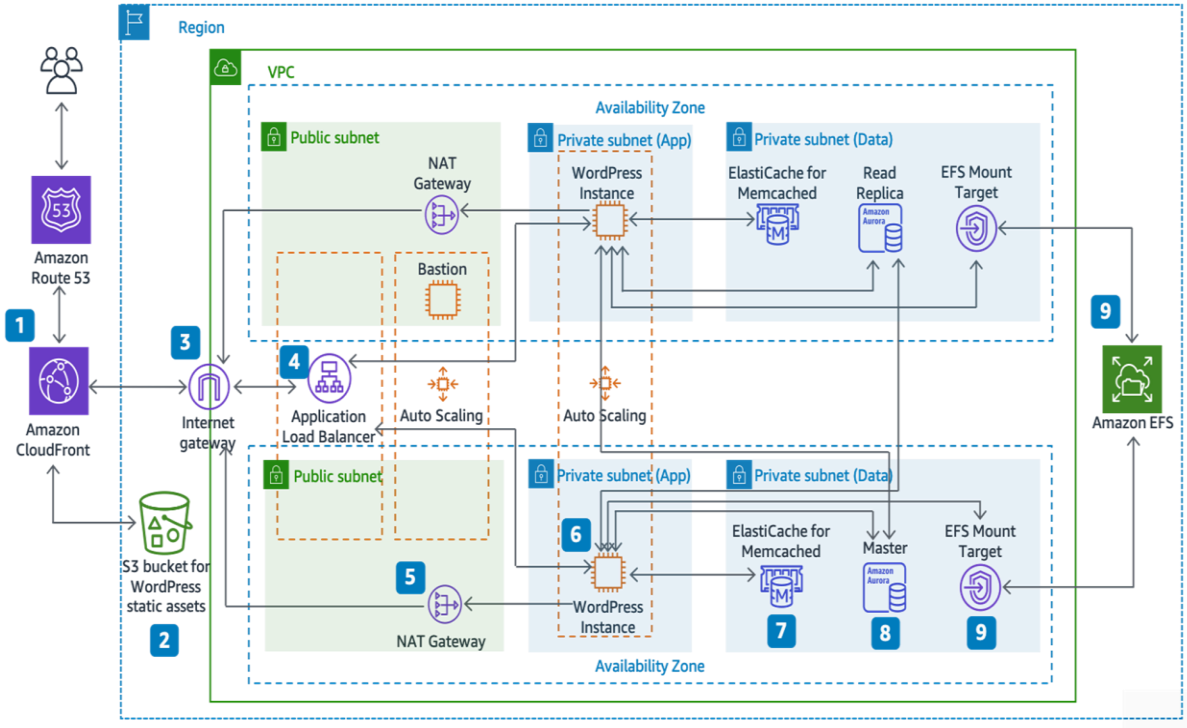
- Registration
- Login
- Manage profile
- View request
- Send quotation
- Report
- View feedbacks
- Logout

Client's module:

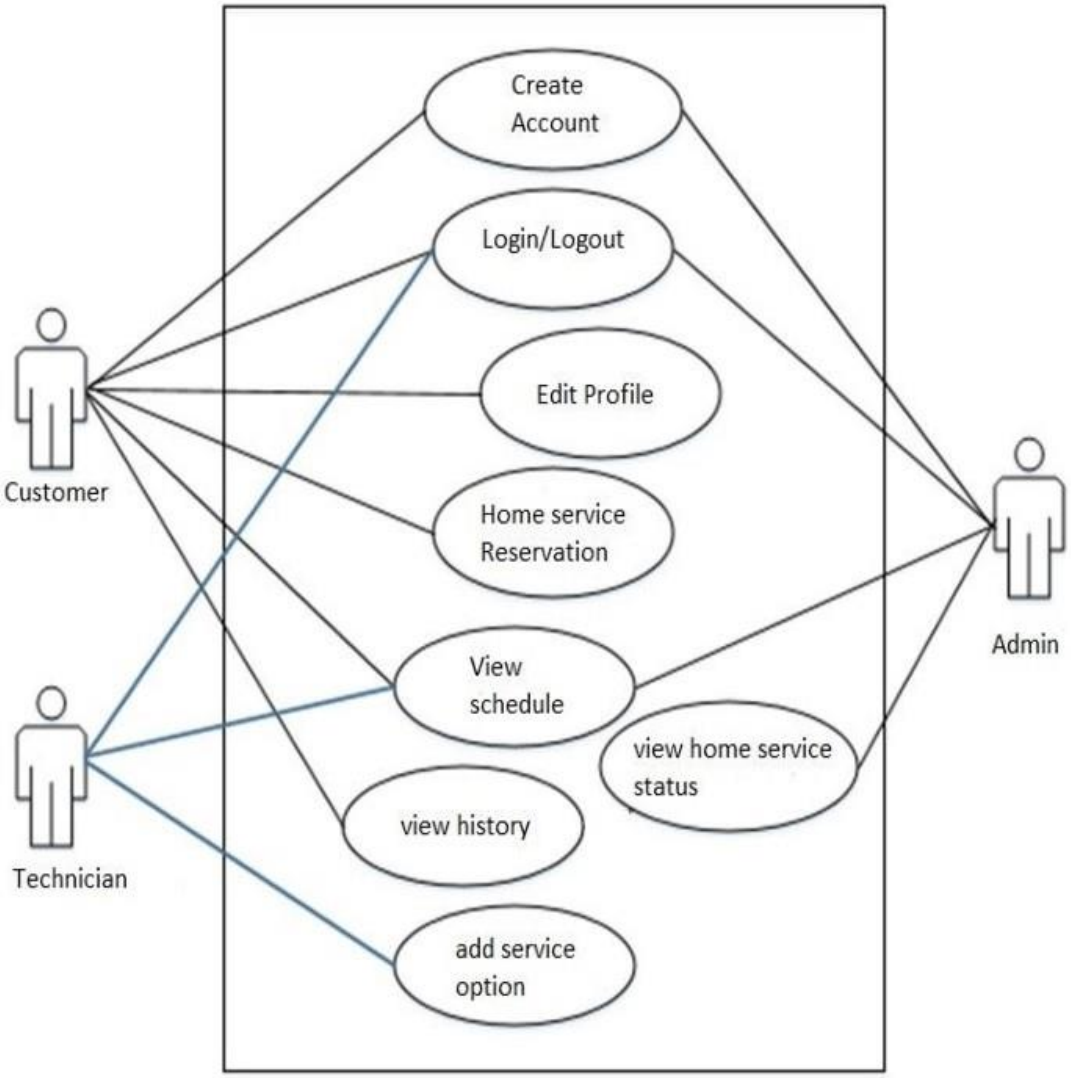
- Registration
- Login
- Manage profile
- View labours
- Send request
- View quotation
- Send feedback
- logout

3.2 ARCHITECTURE DIAGRAM

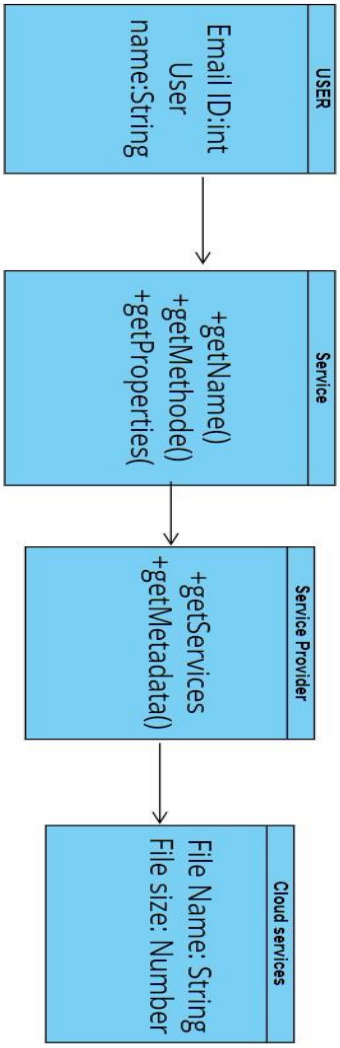




3.3 **USE CASES**


Create Account
Login/Logout
Edit Profile
Home service Reservation
View schedule
view home service status
view history
add service option
Customer
Technician
Admin

3.4 CLASS DIAGRAM



4. CONCLUSION AND FUTURE ENHANCEMENTS

The online household services application provides some of the home services which are most frequently used. This system accommodates the changing needs of the end user. The overall system can be designed so that its capacity can be increased in response to the further requirements for which the application provides an appropriate service overseas. Further this application can be prolonged by merely adding up the required services and additional payment systems. For example, the current system provides the following services such as home painting, home cleaning, packers and movers, plumber repair and service further the system can be extended as per the requirements of the user. The system can be prolonged by adding the services such as mobile and computer repair, laundry services, catering services and many more. The discussion payment methods our system has, for example currently the system has online payment by only MasterCard users further it can be extended by adding the payment services for visa users also.

5. REFERENCES

● An Online System for Household Services N. M. Indravadan 1 , Adarsh G2 , Shruthi C 3 , Shanthi K 4 . Dadapeer 5 .Department of Information Science and Engineering, BITM, Ballari.5 Asst. Prof., Department of Computer Science and Engineering, BITM, Ballari. NCESC - 2018 Conference Proceedings

● Nikam Poonam R, Gunjal Trupti T, Jadhav Priti V, Parakhe Sonali K, Ms. Prachi S. Tambe , "Survey on Home Service Provider", 2019 International Research Journal of Engineering and Technology (IRJET), ISSN: 2395-0056 , Volume: 06, Issue:12, Dec 2019.

● Dr. Krishna Kant Agrawal, Tanya Goel, Tarun Gariya, Vibhu Saxena ,"AtDoorStep: An Innovative Online Application for Household Services", Journal of Xi'an University of Architecture & Technology , ISSN No : 1006-7930, Volume XII, Issue IV, 2020.

● Ms. Prachi S. Tambe, Nikam Poonam, Gunjal Trupti, Jadhav Priti, Parakhe Sonali ,"An Online System for Home Services", International Journal of ScientificDevelopment and Research (IJSDR), ISSN: 2455-2631, Volume 5, Issue 9, September 2020.

● Hegde Sharaj Bhaskar Shyamala, Krishnamoorthy Rao, Padmanabha Bhandarkar, Prateek Prakash Vetekar, Geetha Laxmi5,"An Android Application for Home Services", International Research Journal

● International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 09 Issue: 05 | May 2022 www.irjet.net p-ISSN: 2395-0072

● International Research Journal of Modernization in Engineering Technology and Science (Peer-Reviewed, Open Access, Fully Refereed International Journal) Volume:04/Issue:01/ January-2022

● P.Barna,J Houben "Building Web Information System using Web Services". Available: https://ieeexplore.ieee.org/document/1678495

● Dadong wan "Virtual handyman: Supporting Micro Services on Tap through situated sensing and web services."Available: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196. 8113&rep=rep1&type=pdf

● GPS Services. Available: https://gssc.esa.int/navipedia/index.php/GPS_Services