CLOUD BASED HOME SERVICE

(Major Project Phase 1 report)

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Submitted By

Divya Somappa Lamani

USN: 1SU19CI011

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 SERVICE" is submitted to Srinivas University College of Engineering and Technology, Mukka, is a bonafide record of work done by DIVYA SOMAPPA LAMANI .

<div align="right">

Mr.Daniel Francis Selvaraj

Professor

</div>

Prof.Daniel Francis Selevaraj

Head of Department

Department of Cloud Technology and Data Science

Srinivas University, Mukka

Date:

Place: Mukka

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Abstract:

The main objective of cloud based home service System is to provide an online platform for the users to book a handyman just by few clicks. In this project the staff includes Carpenters, plumbers, gardeners, construction labor, electrician, fitting and pest etc. It gives you the staff that belongs to your own city where you live, so that they can provide you services 24/7 without making you wait for much time. Home services not only provide services to users, but also allow outer staff to register as a worker. and this web application also includes a chatbot. 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.

Introduction:

The majority of web applications have a browser-based interface that allows users to access all of the functionality without having to install anything on their computer or mobile device. There are billions of web application user's world wide. These applications have a major role enhancing or simplifying day to day activities and also this is a major source of income for numerous users. We will be developing a web application which will boost the employment rate of a particular area. In this web application users will find two ends one will be for workers and second will be for clients.

The major goal of this project is to "create a web application platform that connects users and workers" (service providers).Web application helps the user to make their life more convenient. We live in a century where every layman has sufficiently used technologies. Web applications are one such type of app that can be accessed from anywhere, anytime, and on any device with internet connectivity. Web applications are designed to perform the same functions as desktop applications, but with additional features. Because they can be used from anywhere with internet access, they provide convenience and flexibility.

1. THE DOMAIN

Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS).

Organizations of every type, size, and industry are using the cloud for a wide variety of use cases, such as data backup, disaster recovery, email, virtual desktops, software development and testing, big data analytics, and customer-facing web applications. For example, healthcare companies are using the cloud to develop more personalized treatments for patients. Financial services companies are using the cloud to power real-time fraud detection and prevention. And video game makers are using the cloud to deliver online games to millions of players around the world

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 startups, 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

According to paper [1],[An online system for household services] This Paper describes the provision of domestic services at the doorstep just with one press. Many services are supplied and the way the ordering and shipping of services takes place. This gadget may be utilized by any user who requires to look for family benefits through an electronic framework or a portable application. To give a confirmed and approved login module for the clients like assistance searchers, specialist organizations and the administrator, by giving fitting certifications at the hour of enrollment.

According to paper [2],[At DoorStep: An Innovative Online Application for Household Services] This Paper describes, At DoorStep: An Innovative Online Application for Household Services Application is a mobile market for local services. It helps users to hire workers for fulfilling their service needs such as Beauty and Wellness, Home Maintenance, Repairs, Home Care and Design etc. It is a portal for connecting users with young, hardworking people working hard to make a difference in the lives of people by serving their service needs at their doorsteps. And hence this name is given to the application. This would become a medium for the users.and the service providers to interact with one another and get benefit from each other through it.

According to paper [3],[Survey on Home Service Provider] This Paper portrays, Survey on Home Service Provider is a web-based framework for family benefits gives the most catalyst and bothers free method for finishing your homegrown work. We generally offer great types of assistance 1 to all your family errands with more productivity, ease and significantly, a sensitive touch. A solitary press framework depicts booking profoundly gifted in-house experts and finishes your administration on schedule.

According to Thiga (2013), context specific information may be delivered to the user by first establishing the users' location by using existing technologies and services such as Radio

Frequency identification, Bluetooth, Near Field Communication (NFC), wireless networks and location-based systems using Global Positioning Services (GPS) technologies. The information is then used to identify relevant information that is relied on by the user using short messaging service (SMS), Mobile applications and WAP (Wireless Application Protocol). All these technologies are suitable and applicable in high end devices that support WAP or are JAVA enabled, but are not readily available or accessible universally to all types of mobile devices (Azene, 2014; TechTarget, 2009). Location based services have been around since 2000 with their use mainly being in commerce with a subscription based business model. Developers are now able to introduce millions of consumers to any Location-Based Management System (LBMS) with the release of Apple's 3G iPhone and Google's LBS enabled Android operating system. Location Based Mobile services have topped the global league. According to survey conducted by TNS Global, three quarter of all Kenyans with access to mobile phones are willing to share their location details with close friends, family members and business

2.2 Existing system

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.

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.

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, counselors, etc.

2.3. PROPOSED SYSTEM

The proposed system will be creating web applications for users. An application that not only helps workers to search for jobs but also boosts employment. It also helps the user to get the work done fast and in a reliable way. Instead of going out and searching for workers, the user can access the app and can search for workers. The user can use Chatbot for any queries or issues. We are providing a sentiment-based rating system for user review for choosing the worker to a service, then the user will be selected easily. User will be able to see profiles of workers and can filter it according to his choice

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. 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 labors
- View clients
- Manage locations
- Manage report
- View feedbacks
- Change password
- Logout

Labour's module:

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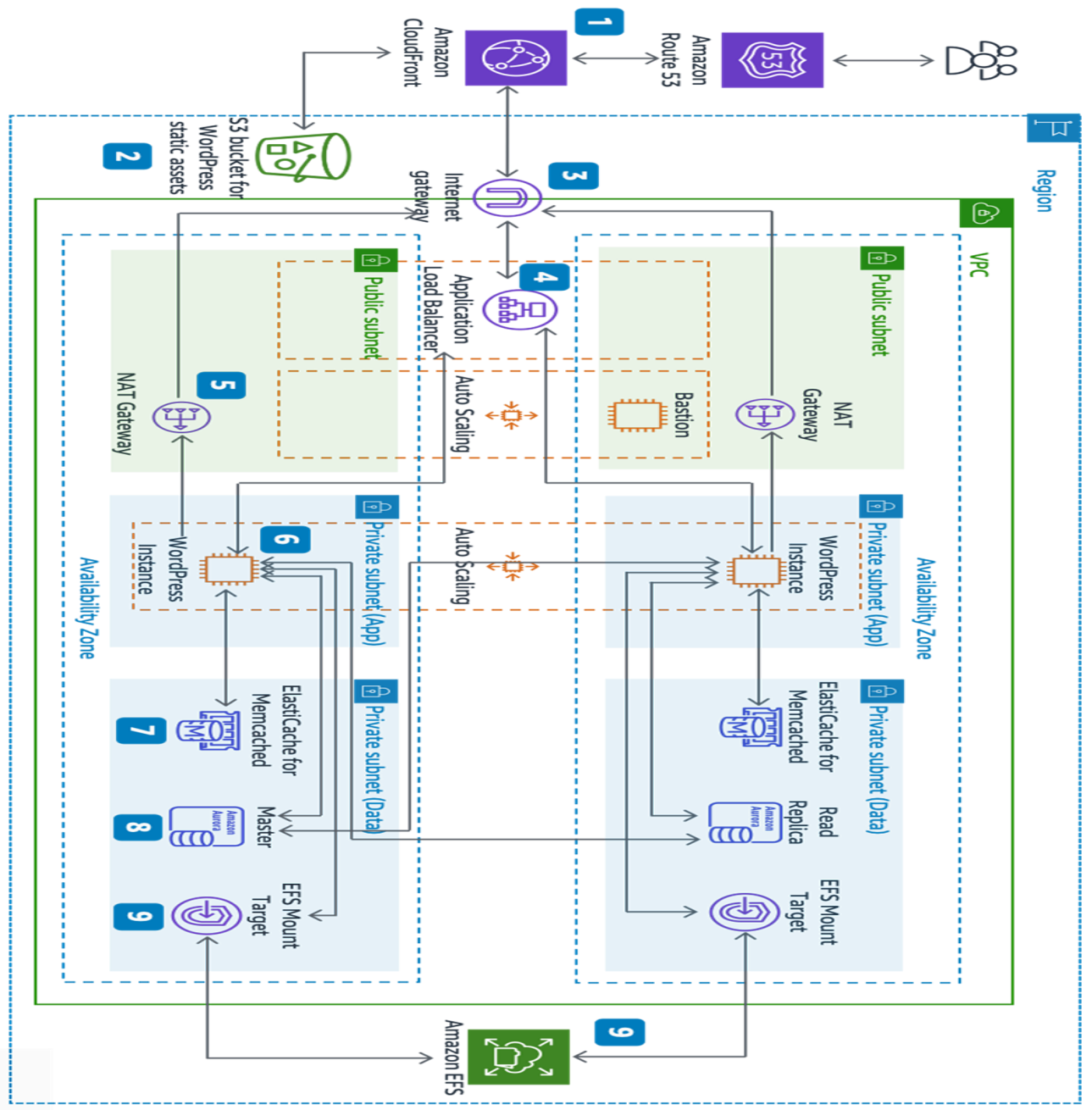- View feedbacks
- Logout

Client's module:
- Registration
- Login
- Manage profile
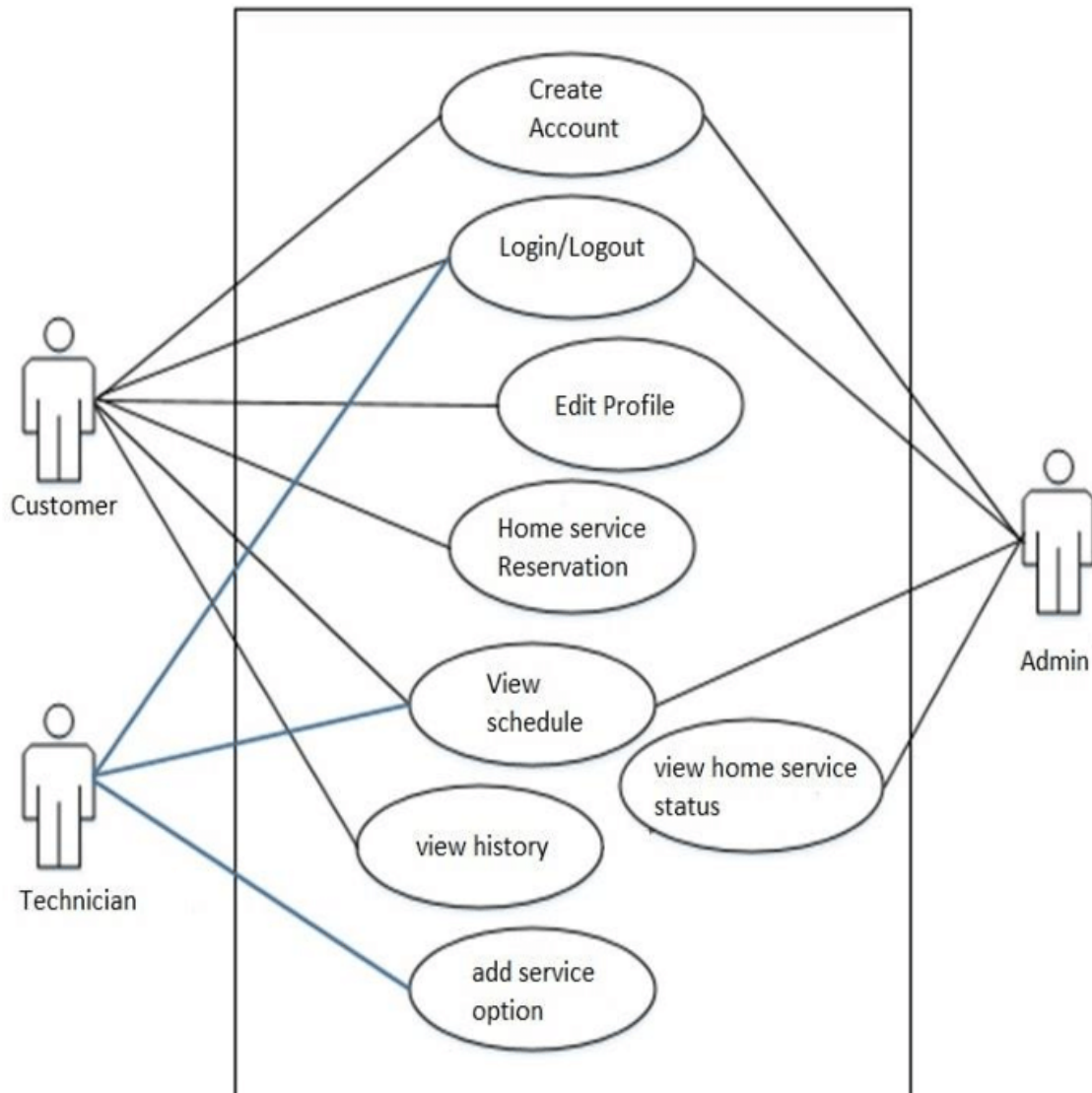- View labors
- Send request
- View quotation

- Send feedback
- logout

Architecture:

User → Registration Panel → User Authentication

Service Booking ← Services ← Login Page

Online Payment → Service Confirmation →

Amazon CloudFront

1

Amazon Route 53

Region

S3 bucket for WordPress static assets

2

Internet gateway

3

VPC

Public subnet

Application Load Balancer

4

Public subnet

NAT Gateway

Bastion

Auto Scaling

NAT Gateway

5

WordPress Instance

Private subnet (App)

Auto Scaling

WordPress Instance

Private subnet (App)

Availability Zone

6

ElastiCache for Memcached

ElastiCache for Memcached

Private subnet (Data)

Private subnet (Data)

7

Amazon Aurora

Master

Read Replica

8

EFS Mount Target

EFS Mount Target

9

Availability Zone

Amazon EFS

9

Use Case:

Class Diagram:

USER
- Email ID:int
- User name:String

Service
- +getName()
- +getMethode()
- +getProperties(

Service Provider
- +getServices
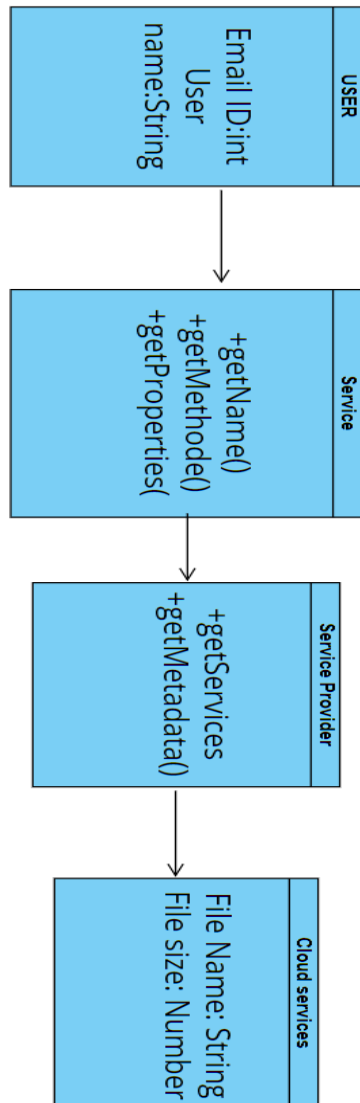- +getMetadata()

Cloud services
- File Name: String
- File size: Number

Conclusion and Future Scope:

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.

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