Project:	ServeMe System (SMS) CSE 5325 – Spring 2021 Project Management
Module:	Project Scope & Feasibility
Deliverable:	Scope & Feasibility Document

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TABLE OF CONTENTS

1. Introduction and Executive Summary

Serve**M**e **S**ystems (SMS) will be available in web application and app (android and iOS) versions, this application serves as a platform to help the customers in connecting with various service providers in different service categories. This platform enables the customer to avail various services like Appliances, Electrical, Plumbing, Home Cleaning, Tutoring, Packaging and Moving, Computer Repair, Home Repair, Painting, and, Pest Control etc. The primary objective is to empower the service providers and by leveraging the latest technologies to deliver best service to their customers at their home in a smooth and efficient manner.

Customers can place a service request with or without our registration by providing their Name, Mobile Number, and email id but upon completing the registration the customer will be given extra points which can be utilized while making payments to the services availed by them. The service provider should mandatorily register by providing their details Name, Mobile Number, email Id, and category of service should be provided, a service provider can be available of more than one service categories and on approval from SMS they will become an approved service provider.

The SMS platform is planned to be made available to the people of Texas state by May 1, 2021. As we have very little time, following an agile methodology can help us complete the tasks faster, going into the development steps we have project requirements, system architecture, designing phase, Coding, testing (Unit, Integration, System, NRT), and deployment. In every step, both the client and developer will be collaborated to work with each other.

SMS will first serve the people of Texas State, with initial footsteps in business and learning, SMS will be extending its services to people of other states across the country and in later stage, it will be expanding to other countries. More details regarding the project requirements, objectives, scope, project model, and other information can be found below sections.

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is the list of business objectives:

Objective 1: Profit – Acquire a minimum profit of 30% in a year.

Objective 2: Increasing Sales Figures – Everyone will be keen on discounts available. So, we will provide a discount offer to users. Refer 3 of your friends and get a 10% discount after their first successful service request (Limited period offer). This helps our Business in spreading faster.

Objective 3: Login – project will be secure; users must register or login before use. Users are two types: Service providers and Service receivers. Authentication must be done by OTP or authenticator for security purposes.

Objective 4: Payments – All payments (paid by the service receiver and delivered by the service provider) will be handle via registered credit cards. A designated commission amount will be deducted from the service provider. For example, if the commission is 20% if the customer is charged $100 for a delivered service, $80 will go to the service provider and $20 go to the client.

Objective 5: Service Categories – The following areas of service are initially supported on the website and the Mobile App. Initially, supported service categories are:

- Appliances
- Electrical
- Plumbing
- Home Cleaning
- Tutoring
- Packaging and Moving
- Computer Repair
- Home Repair and Painting
- Pest Control

Objective 6: Customer Service feedback– After receiving service, users are requested to give feedback on the service received.

Objective 7: Service Providers Attraction: Service providers with the highest rating will be given an surprise gift, this will attract many service providers. So new service providers will be willing to join our SMS.

Objective 8: User account settings – User can make updates to their profile (mobile number, age) and app setting like receive notifications, business updates to their mail, and can delete their account.

Objective 9: Customers can also request for service without creating an account by providing their name and mobile number but on registering the users have extra benefits like discounts, checking ratings, and reviews of the service provider.

2.2 SYSTEM OBJECTIVES

The following is the list of system objectives:

Objective 1: Both web-based and Mobile (Android and IOS) applications will be supported. The web-based application will be compatible with browsers of different devices (Laptop, MAC, iPhone, Android Mobile, Tablet, iPad)

Objective 2: Google Search API will be integrated into the system for search. Complete end to testing will be done, as we are integrating the external API, such that there should not be any possibility for defects.

Objective 3: The database and website servers will be operated in the client's location. It Preferable to have internet with a minimum speed of 1,000Mbps which helps to handle 300 requests at the same time.

Objective 4: The customers can place a service request and after reviewing all bids, the customer can accept any bid from the list of bids provided by the Service Providers.

Objective 5: The Service Providers can accept the service request and provide a bid to the request.

Objective 6: The customers can cancel/modify the service 24hrs priors to the service appointment without any charges if the customer cancels the request within 24hrs to the appointment the customer may lose 10 points or charged extra.

Objective 7: The customer (service requester) can provide ratings on a scale of 1 to 5 and write a review of the service received.

Objective 8: Order History - The customer can check their previous service requests of the selected period (Service requests of the last 90days will be displayed by default). If the period is not selected the previous first 10 orders will be displayed.

Objective 9: Search option: If the customer is interested in specific service providers, the customer can search with the name or location, or ratings.

Objective 10: About us: Details of the company like:

- Who are we?
- How and why did we start?
- Our Guiding Principles
- Our People – Directors, Core Team, Business team, etc.
- News – Give the latest information about the business.

3 Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

3.1 Project Feasibility Concerns

Market readiness:

The SMS web application and the app will provide many different functionalities to the users and service providers, there are few applications same as SMS, so people are aware of this in the market. In the existing application user interfaces and easy to use application is not up to the mark, so we will focus on user interfaces and our application can be understood easily, this helps to attract the customers to our application.

Considering the above points by developing an attractive user interface and conduct few surveys to get inputs from the customer, it will help our business. This makes our project qualitative and quantitatively ready for the market.

Technical Issues:

2 major issues might occur:

1)As the database is hosted by the client, 2 major problems might occur, security and power instability, hence we must make sure there is enough security to the servers, this prevents data breach and by maintaining enough power backup we can achieve power stability.

2)The website and app efficiency might reduce if the browser is incompatible or if the android version or iPhone software versions are old and if the internet speed frequency is very low. In such cases, the user can have to update to the latest version of browser/software versions.

Resources:

As we have limited knowledge in android programming, we will hire a new employee and train existing employees on android. As we have used data center one place if some uncertain accident or a natural disaster occurs there will a discontinuity in our business, it is recommended to have a backup data center or operate at least with 2 data centers.

Costs:

The cost depends on various factors like server type, security layer, firewalls, and resources working on building the application. It would take around357,000. But the actual cost may vary based on the market rates. (we can see the costs clearly in section 6)

Time to market:

We have only 90days of time from the start to gathering the requirement specifications to release the product into the market which is very high-intensity work. To make it easy we can use an agile methodology which will be helpful for early release. (details on agile is mentioned in 4.1)

3.2 PROJECT RISKS

Below are the risks that might occur:

1. We should build a web application, an android application, and an iOS application. There might risk of code reusability cannot be practically achieved.

   This can be overcome by using ReactJS to develop website and app versions on android and iPhone. The code can be easily reusable using the same React. (There are other pros of using React like user experience is better than others and developers can work faster).

2. Datacenter security breach:

   There might some breach in the data center. We must make sure that servers hosting the database and application should have very tight security, there should be face recognition and fingerprint security to have entry permission into the datacenter.

3. Another Risk at the data center can be power violations and physical damage of servers. Power backup should be maintained, and the server should be protected 24hrs 365days.

4. There might be unpredictable activities like an employee leaving the organization or going on sick, damage to software. These can be achieved by hiring a backup resource and taking backups at every table stable version.

5. Some risks are minor and can be not handled by us like the application might not function properly due to browser incompatibility.

6. Less experience in android programming: This can be avoidable by hiring a new well-experienced person.

3.3 PROJECT METRICS

Revenue =Target(ed) Customers/Users × Cost per service

Target(ed) Customers/Users = 80,000 Customers per year

Cost per service = $30 (Average Cost per service)

Revenue = 80,000 * 30

= 2,400,000

Commission generated = Revenue % 20

$$= \frac{2{,}400{,}000 * 20}{100}$$

= 480,000

Profit = $\frac{\text{Commission generated} - \text{Investment}}{investment} * 100$ (Investment from section 6)

$= \frac{480{,}000 - 357{,}000}{357{,}000} * 100$

$= \frac{123{,}000}{357{,}000} * 100$

= 0.34 * 100

Profit = 34 (4% Greater than expected)

Reference of targeted customers Urban Company/Clap a similar platform in India has 5 million customers over 7 years which comes to 714,285 per year. We would take the worst case as just 12% customers from the reference. Which gives us 34% of the profit.

Let us take another case for considering increase in the targeted customers i.e 15% and will reduce average cost per service to 20$

15% of 714,285 = 107,142

Revenue = 107,142 * 20

= 2,142,840

Commission generated = Revenue % 20

$$= \frac{2,142,840 * 20}{100}$$

= 428,568

Profit = $\frac{\text{Commission generated} - \text{Investment}}{investment} * 100$ (Investment from section 6)

$= \frac{428,568 - 357,000}{357,000} * 100$

$= \frac{71,568}{357,000} * 100$

= 0.2 * 100

~ 20% (in this also we are getting 20 percent)

4 Project Scope and Process Model

The project scope includes the following:

1. Functionalities available for the user (Service Requesters):
    - Login / Register
    - Account Setting
    - Service request/ modify/ cancel.
    - Order History
2. Functionalities available for the Service Provider:
    - Register to become an approved vendor.
    - Accepting service requests and providing bids.
3. Payment types – There Different types of payment plans will be available for the customer. Below are payment options:
    - SMS Rewards
    - Debit/Credit Cards
    - Cash (can be given to the service provider at the time of service)
    - Online transfer: Google pay, Zelle Etc.
4. Review and rating: The user can give a rating to the service provider after receiving a service, on the scale of 1 to 5 i.e., 1 is worst and 5 is best and a user can also write a review on the service received.
5. To have a very attractive and responsive both website and app are be designed using ReactJS and Native.
6. The database servers will be hosted on an SQL server which helps to have enhanced performance at a low cost.
7. For data security below are techniques are used:
    - In the application layer HTTPS
    - In login authentication with OTP via mobile or mail.
    - End to end data encrypting using “Advanced Encryption Standard”.

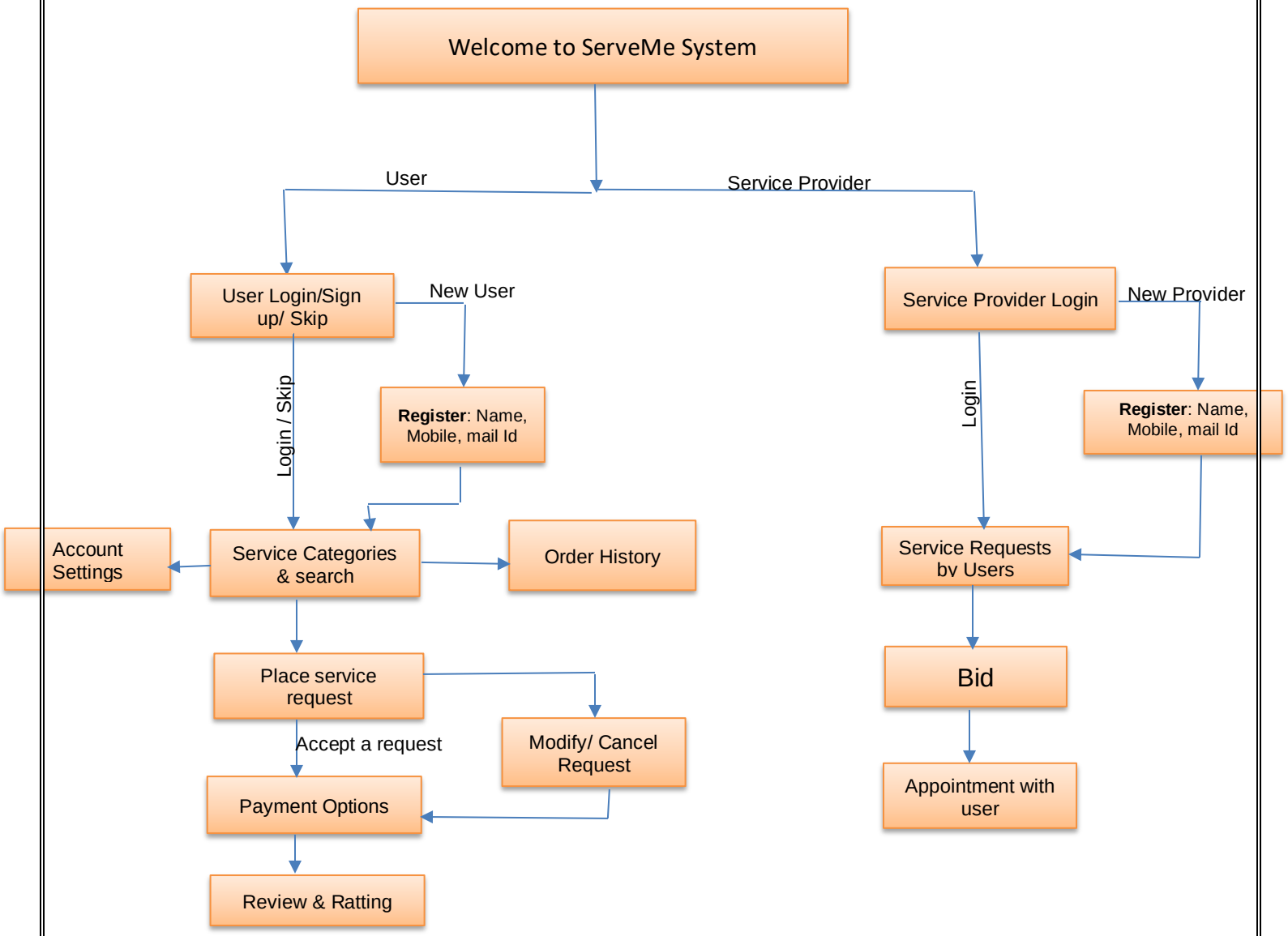
The following is a list of items out of scope:

1. Post-project maintenance.
2. Any issues regarding the TAX calculation are not handled.
3. Any contract negotiation and legal concerns
4. Any vacation and social and health insurance costs
5. Cost of maintaining for data repositories.

4.1 PROJECT PROCESS MODEL

As we have only 3 months for building both the app version and the website of SMS, Agile methodology will be the best-suited process model that helps us to complete the tasks quickly. The main principle of agile methodology is customer satisfaction by early delivery of valuable software. In the process of agile a business stakeholder is always collaborated with the developer throughout the project, so this helps easy interaction between developer and client and the client will be aware of what is happing in the development process at every point. During developing software, we face many challenges, in agile challenges faced by the individual are resolved immediately with the highest priority, this helps to save a lot of time. All the people in the teams must agree on the overall goals before starting the work and must make sure all the accepted goals are implemented. An additional advantage of using Agile is frequent working versions of the website and app are delivered to the client and the client can give early feedback which helps to make large-scale changes at end of the project. Hence, the Agile process model looks more suitable for our development.

4.2 PROJECT CONTEXT



5. Assumptions and Constraints

5.1 ASSUMPTIONS

The following is a list of assumptions:

- All users are over the age of 18(service requester and providers).
- Servers are handled by the client.
- Web sites will work efficiently on the latest versions of browsers.
- The data protection of the business is taken care of by the client.
- The given requirements are agreed and if any modification it will not differ completely.
- The client will be reached if any information is needed during development.

5.2 CONSTRAINTS

The following is a list of constraints:

- Our developers are not trained in Android programming.
- The project has to the done in the given time (Feb. 1, 2021; Delivery: May 1, 2021).
- The limited number of resources.
- The project must be completed within the given budget.

6. Project Tasks, Schedule, and Cost

Below is the outline of the tasks, schedule, and Cost:

- The project start date is Feb. 1, 2021.
- The project will be delivered before May 1, 2021.
- Total 6 developers will along with a manager, so in total 7 members will be working on this project.

Cost:

RESOURCE / ITEM	**COST (**in dollars - $**)**
Servers	17,500
Databases	6,000
Developer Salary (6 developers, Salary $50/hour)	156,000+78,000(extra surge) = 234,000
Manager (Salary 100$/hour)	52,000+2600(extra surge) = 78,000
Application Network Security Deice	8,000
SSL certificate for data encryption	4,500
Advertising and Marketing	9,000
Total Cost Estimation	**$ 357,000**

Tasks and Schedule:

From February 1st to May 1st there are 65 working days, below are the tasks for projects and their respective schedule.

1. **Project Requirements:** (6 days)

   The most important step is to gather the requirements properly.

   i. Data and functionality gathering.

   ii. Documentation

iii. Client verification/ check

2. Project Setup: (5 days)
    i. Detailed analysis on Architecture.
    ii. Setting up the Environment for the team.
    iii. Code Repository setup
    iv. Optimization
3. Design and Implementation: (38 days)
    i. Login Page + Registration Page + Search Category + Order History + Account Settings (Customer).
    ii. Service Provider Landing page (all the list of services are available on this page).
    iii. Payment Options (Very secure layer)
4. Testing and Debugging: (11 days)

    Another testing will be done while Implementing. In this stage, we have to test the complete application and find bugs and fix it.

    i. Creating test cases.
    ii. Prioritize test cases.
    iii. Fixing the bugs.

5. Final testing (priority test cases + payment options + data security checks) before the launch date to check everything is working properly and fix bugs if any. (2 days)

Project Task	**Schedule**
Task 1	February 1st
Task 2	February 9th
Task 3	February 16th
Task 4	April 12th
Task 5	April 28th
The final launch day	May 1st

We have assigned 3 extra days during tasks 3&4 because sometimes there might some unpredictable issues.

7. Conclusion and Recommendations

The services by SMS will be available for the customers and the service providers in web and app versions by May 1st, 2021. The customers can request for various services categories and services providers can accept the service requests posted by the customers with their bids. The customer can make payments through different payment modes after service request completion. The application will be build using React Native and React JS for the frontend and MySQL is used for database operations. Website hosting and Database servers are hosted by the client.

Recommendations:

- A new login module for the employees of SMS organization.
- New functionalities for SMS Employees like commissions generated by specific service provider/ providers, for a specific period and download data to Excel/ CSV file functionality for SMS employees.
- New service categories in the field of technologies like Freelancing can also be integrated into the service categories.
- Monthly report generation for all the service providers and automatic email the report to service providers.
- A new page “Offers of month or day” which has information on offers available.
- An inbuilt chatbot, which will help customers with the queries and customer service.

Appendices

Web-references:

1) https://www.teamgantt.com/blog/project-scope-document
2) https://www.projectmanager.com/blog/project-scope-statement#:~:text=Typically%20written%20by%20the%20project,goals%20to%20help%20measure%20success.
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7) https://www.workfront.com/project-management/metrics