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

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1. Introduction and Executive Summary

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Mission:

The objective of this document is to define the functional requirements for the ServeMe System (SMS). The goal of the project is to create a web and corresponding mobile application that could enable users to achieve a smooth "service request" for their home or small business. We aim to deliver an easy-to-use application, according to specifications on time and within budgets. We want to give customer the choice to choose services based on the bids given by the service providers.

Intended audiences of this application are:

- customers that require service(s)

- vendors that provide services.

Scope of improvement:

Initially, our app would only support the listed services in 2.1 Business Objectives. We have envisioned that our system would support the easy addition of more areas of services as we grow. Also, we are open to recommendation related to our functional requirements, look and feel of the website, as well as the android application, to add in to our repertoire.

Financial Consideration:

- Our profit projection is 50% of our development cost

- We will take 20% of the fee from the service provider for every invoice

- We will allow ads to feature on our app

Timeline:

Date of operation of both website & mobile app - May 1, 2021

2. Objectives

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2.1 BUSINESS Objectives

The following is the list of business objectives:

Objective 1: Registration & Login– project will be secure; users must register and login before use. Users are two type: Service providers and Service receivers. Users can order a Service Request (SR) without registration and login.

If they choose to register and login, they could get points, can review Service Providers quality of Service, could get discounts, and receive helpful tips and updates. To register, they must provide full name, email, and phone number.

Objective 2: 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 (e.g. 20%) will be deducted from the service provider. For example, if the customer is charged $100 for a delivered service, $80 will go to the service prover and 20% go to your client (i.e. the web and app owner)

Objective 3: 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 4: Register - To become an approved vendor for one or more of the above service categories (i.e. Service Provider), user must provide contact info including phone, address and e-mail. User can optionally provide sample rates (e.g. how much to fix something, or per hour of labor). User must also agree to pay a small portion of money received (e.g. 20%) as fee to the app holder.

Objective 5: Place a Service Request (by Customers) - Select a Service category and place an order soliciting for bid by the service providers. Finalize your selection after reviewing all bids.

Objective 6: Cancellation and Change: Allow customers to cancel or change service dates. You can specify in setup that you lose points if you cancel within the last x (e.g. 24) hours

Objective 7: Accept a Service Request (by service provider)): Provide bids for Requested services to customers

Objective 8: Payments: Handle money paid by the customers, received by the service provider. You, the owner of app, will receive a commission (e.g. 20%) of the service fee.

Objective 9: Review and Rating (by customers): Use Stars (one to five stars) to rate the service received, and allow to enter for a short comment to help future users

Objective 10: Order History: Display the history of service requested for a given customer.

Objective 11: Search: Ability to search by for a service provider by address, name, star rating, etc.

2.2 SYSTEM Objectives

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The following is the list of system objectives:

Objective 1: Both web-based and Mobile (Android and IOS) application will be supported

Objective 2: Google Search will be integrated into the system for search

Objective 3: For web-based interaction, end user shall not have computer hardware or software dependencies, other than browser dependencies.

Objective 4: For Mobile app-based interaction, the end user needs to download the app from the Playstore.

Objective 5: If the users exit at any point, they should be automatically logged out.

Objective 6: Cross-browser compatibility - Supporting browsers are Chrome, Firefox, Edge, Safari.

Objective 7: Responsive web-design for Mobile, Tablet, Laptop and Monitor.

Objective 8: Maximum Page load speed - within 5 seconds

Objective 9: Internationalization support - only English for the pilot release.

Objective 10: Payment from customers through Credit cards. Payment to service provider to their bank account.

Objective 11: The system would need to be highly concurrent. There will be multiple

requests for the same service at any particular point in time. The system should handle this gracefully and fairly.

Objective 12: The core thing is service booking, which means financial transactions. This means that the system should be secure and the database ACID compliant

Objective 13: If service is reserved successfully, the user has five minutes to pay for it.

3   Project Feasibility, Risks and Metrics

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Project feasibility and metrics are summarized below:

3.1 Project Feasibility Concerns

Technical Feasibility: Each of the technologies used are freely available and technical skills required are manageable. Time limitation of developing the project and ease of implementation of using the technologies are synchronized. Hence, the ServeMe System App is technically feasible.

Resource feasibility: We will use use monitors (programming device), freely available hosting space/programming tools, and skilled individuals. So, the ServeMe System App has resource feasibility.

Competitive Advantage: While there are many service providing apps, there are none that offer quotation-based choice service to the customers. According to our research, the pandemic has led to a lot of shop closure and their owners are ready to allow bargain in their services which used to be fixed. Additionally, our frequent discount offers will also keep the customers engaged while attracting more customers. Furthermore, we acknowledge the power of social media, hence, we will make timely and continuous posts on Instagram and Facebook to increase our app engagement

3.2 Project Risks

Risk	Risk Mitigation
1.Personnel Shortfall -	Staffing with top talent matching the job description
2.Developing wrong user interface -	Prototyping
3.Straining comp. sc. abilities -	Reference checking, prototyping, cost-benefit analysis
4.Unrealistic budget/schedule -	Detailed multi-source cost & schedule estimation
5.Developing wrong functions -	Mission analysis, prototyping, user survey
6.Requirement changes -	High change threshold
7.Lack of technical expertise -	Paid training sessions before project begins

3.3 Project Metrics

Traffic estimates: Assume that our service has 200k page views per month and sells 10k services month.

Average Revenue Per User = Total Revenue Generated During Period / Number of Users During Same Period

Cost of quality= (review + testing + verification review + verification testing + QA + configuration management + measurement + training + rework review + rework testing)/ total effort x 100

Schedule variance = ((Actual calendar days – Planned calendar days) + Start variance)/ Planned calendar days x 100

Schedule slippage = (Actual end date – Estimated end date) / (Planned End Date – Planned Start Date) X 100

Rework Effort Ratio = (Actual rework efforts spent in that phase/ total actual efforts spent in that phase) X 100

Defect density for a project = Total number of defects/ project size in KLOC or FP

4   Project Scope and Process Model

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Project scope includes the following:

1. Website search engine
2. Payment types - Credit cards
3. Review and rating
4. Service request by guest user
5. Password protection
6. Order Status
7. Points earned/deduced as per user action
8. Invoice
9. Helpful tips
10. Discounts
11. Order history display
12. Biddings for services
13. Agreement to pay commission fee of 20% by service provider
14. Functional testing
15. UML diagram
16. Graphical User Interface

The following is a list of items out of scope:

1. Post project maintenance
2. Use of outside contractors for development
3. Language translation tool to convert from English to other languages
4. User help page
5. Online user Documentation
6. Insurance costs
7. Tax related concerns
8. Legal documentation
9. Contract negotiation
10. In-house database

4.1 Project Process Model

Waterfall project management will be used since it is linear. Since, it is our first release, the waterfall model will make planning and designing more straightforward.

Using a waterfall model, the software can be designed completely and more carefully, based upon a more complete understanding of **all** software deliverables. We can freeze the requirements and take design sign-off from the clients before development starts. This will ensure less ambiguities and better execution. Additionally, a detailed documentation and a clear concept involved in waterfall model will force all our stakeholders (including clients) to understand deliverables and timelines. For example - Testers can prepare test scripts from requirements documentation while coding is underway.

4.2 Project Context
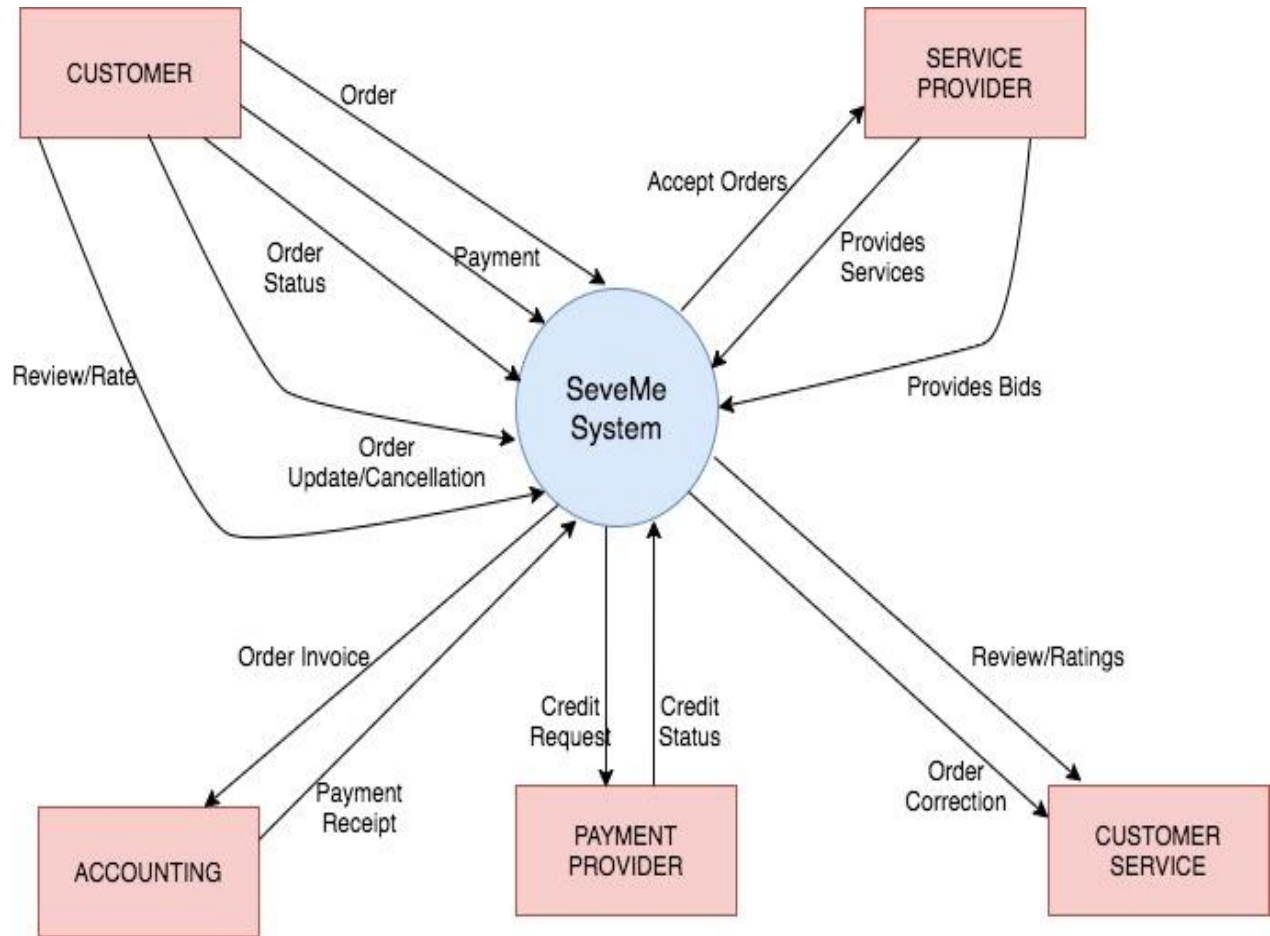
Tool used: draw.io

5. Assumptions and Constraints

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5.1 ASSUMPTIONS

The following is a list of assumptions:

- Assume all users over the age of 18
- Assume developers are ready to
- Ignore any TAX issues
- Ignore any vacation and social and health insurance costs
- Ignore Post project maintenance issues
- Ignore any contract negotiation and legal concerns.

5.2 CONSTRAINTS

The following is a list of constraints:

- Our developers are not trained in Android programming
- Time no longer than 3 months
- Incremental development cannot be done in Waterfall Model
- Must run on both Web and Mobile
- A team of 6 developers
- Project might require some specialized hardware and/or software that need to be installed before the project begins
- Must use MySQL database
- Budget $500 Million (rounded up)

6. Project Tasks, Schedule and Cost

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Cost-Benefit Analysis (3 months cost only)

Category	Item	Quantity	Price	Total
Hardware	User Workstation	7	$2,000	$14,000
	Server System	2	$4,000	$8,000
	Printer	3	$1,500	$4,500
	Network Cable	1	$4,000	$4,000
	Production Support Beeper	7	$100	$7000
	Telephone	2	$1,000	$2,000
Software	Software Licenses	2	$22,000	$44,000
System Training	System Overview	10	$700	$7,000
	Software	10	$700	$7,000
	Tools	15	$900	$13,500
Resource (40 hours per week)	Developers	6	$50	$156,000
	Project Manager	1	$100	$52,000
Building & Utility	Building Rent	2,000 sq. ft.		$120,000
	Utility			$12,000
Total				$451,000

Benefit	
Profit	$225,500
Promotional Campaign	$40,000
Total	$265,500

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Task Scheduling

Task Name	Start Date	Finish Date
Research + Discovery		
Define Project Scope	2/1/2021	2/1/2021
Stakeholder Interviews	2/2/2021	2/4/2021
Research Review/User Research	2/5/2021	2/9/2021
Requirements Gathering	2/19/2021	2/21/2021
Kickoff Meeting	2/13/2021	2/13/2021
Design Phase		
High Level Design/Flow Charts	2/14/2021	2/19/2021
Design Review	2/20/2021	2/20/2021
Design Revision (if needed)	2/21/2021	2/27/2021
Stakeholder Approval	2/28/2021	2/28/2021
Development Phase		
Development Phase 1	3/1/2021	3/18/2021
Review	3/19/2021	3/19/2021
Development Phase 2	3/20/2021	4/13/2021
Review	4/14/2021	4/14/2021
Testing + Revision Phase		
Testing	4/15/2021	4/22/2021
Revision	4/23/2021	4/30/2021
Deployment Phase		
Deployment/Feature Complete	5/1/2021	5/1/2021

7. Conclusion and Recommendations

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Benefits:

- Easy-to-use
- Keep track of orders
- Secure payment
- Loyalty program
- Improves user experience by review and ratings
- Discounts will increase app engagement

Recommendations:

- All the developers will also work as testers, which could lead to burnout. In the next phase, we could invest in onboarding two test engineers.
- How-To guides have not been given importance in the application development cycle. It could later lead to customer dissatisfaction.
- To stop system abuse, we should put a threshold on number of requests per user.

Appendices

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Hardware:

HP - ENVY 31.5" All-In-One - Intel Core i7 - 16GB Memory - 512GB SSD - Nightfall Black

HP Color LaserJet Enterprise M577dn Color Laser MFP

XBlue X16 XB2022-28-CH Corded Phone

Apollo Programmable Alpha Pager AL–924 / AF–924

Web References:

NFR reference: https://lifelinefrperformanceengineer.blogspot.com/2019/04/nfr-non-functional-requirements.html?showComment=1554179881309

http://eyefodder.com/2011/06/quality-software-non-functional-requirements.html

GUI Inspiration: https://serveme.io