Project:	ServeMe System (SMS)
	CSE 5325 – Spring 2022
	Project Management
Module:	Project Scope & Feasibility
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1. Introduction and Executive Summary

ServeMe System (SMS):

To design and implement a website and a corresponding Mobile (android/IOS) application which will help customers to initiate "service request" for their home or small business. Also, it will assist service receivers to be put in contact with service providers. The objective of this project is to create a user friendly ServeMe system for both customers and vendors (i.e., Service Provider).

Initially the listed services in 2.1 Business Objective will be supported by our app. The categories of services will be expanded to cover more service areas in the future. In addition to the minimum set of requirements, we are open to any recommendation in functionality as well as look & feel of both the website and the android application.

Advantages of the ServeMe System:

- The services can be used anywhere as per the customers convenience.
- There will be ads promoted on our app which will be profitable for service providers.
- The mobile application as well as our website will not have any in-purchase options as it will be free of cost.

Project Duration: (3 months)

Start date: Feb. 1, 2022

Delivery date: May 1, 2022

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is the list of business objectives:

Objective 1: Registration & Login – The ServeMe System provides options to customers to place a service request (SR) with or without registration and Login. If customers want to register and login, they will need to inform the system about their full names, username, password, email, and phone numbers for them to log in. Furthermore, registered users will need to provide a one-time verification code which they will receive via email or phone number before they can log in. This is beneficial as the system will be encrypted and provide double security. Once they log in to the system, they will be able to earn points, rate the quality of service provided by Service Providers, receive discounts, and receive useful tips and updates.

Objective 2: **Registering (For Vendors)** : On the registration page, you will be able to register as a customer or a vendor. To become an authorized vendor, they should provide their knowledge and skills for the any of the services listed below. All service providers must agree to pay 20% fee received from the customers to their clients.

Objective 3: **Service Categories** – The following areas of service are initially supported on the website and the Mobile App. Initially supported service categories are:

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

Objective 4: Setup - Setup control fields such as: Sounds on/off, receive communication yes/no, use points toward a service yes/no. feel free to include other parameters. Bold charters will be the default.

Objective 5: **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 provider and 20% go to us (i.e., the web and app owner). After a user submits a payment, the system will send a confirmation email to notify the user that their payment has been securely submitted. The confirmation email will contain a code that will verify the order.

Objective 6: **Installment Plan** - Customers can choose to pay the fees by 3-easy installment plans (i.e., 3 months, 6 months, or 12 months).

Objective 7: **Options for Requesting a Service** – While requesting for a service, customers will see a list of service providers from which they can choose the best deals for their service request.

Objective 8 : Order History - Display the history of service requested for a given customer.

Objective 9 : **Scheduling, Modifying, or Cancelling a SR** - Customers can re-schedule, modify or even cancel a Service Request within 24 hours of raising a SR. If the users will decide to cancel after the given set amount of time, then a small cancellation fee will be deducted from their account. These instructions will be given to them after they request a SR on their Email ID and mobile numbers.

Objective 10 : Search and/or Bookmark service providers – If the customers like the service given by a specific vendor, they can search them for future service requests. Ability to search by "Service type", "Service Provider availability date", "Search by Rating", "Search by Price", and other search types. Also, we will have a bookmark page for them to easily view their favorite vendors.

Objective 11 : Map - Ability to show the location of the vendor and distance/directions to customer's location.

Objective 12 : **Customers Rating & Review** – Customers can rate the services on a scale of 1 to 5 and give a comment of the service that was delivered to them. This will help future users to get services from us and it will also assist us for improving the services provided by our app or website.

2.2 SYSTEM OBJECTIVES

The following is the list of system objectives:

Objective 1: Using the React Native framework, we will create a platform-independent web application that will be supported on Android, iOS, and web browsers.

Objective 2: Create an admin panel to manage the apps registered users and grant them access control. For the front-end implementation, React.js will be used.

Objective 3: The backend REST APIs will be built in Node.js framework Express.js which will act as a middleware between the Front-end and the Database server.

Objective 4: The database used will be MongoDB where all the data related to the users and services will be stored. As it is a NoSQL database, it can handle large volume of data at high speed with a scale-out architecture.

Objective 5: The server will be deployed and configured in the AWS server migration system, which simplifies and expedites your cloud migration. And the operating system used will be Ubuntu, which is based on Linux.

Objective 6: JSON web token will be used for user authentication and authorization, as well as overall app security.

Objective 7: Both web-based and Mobile (Android and IOS) application will be supported.

Objective 8: Google Search will be integrated into the system for search.

3   Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

3.1 PROJECT FEASIBILITY CONCERNS

1. **Technical issues**: If the services are going well for the customers and they are requesting them frequently, the server will be under a lot of stress. This will be managed by our powerful servers, ensuring that customers have a smooth experience.

2. **Resources**: ServeMe systems data will be processing in a large amount. If the servers become overburdened, we can have dedicated servers and backup servers to use if anyone crashes which will be handled by skilled individuals. Data must be safeguarded and adequately backed up in the event of a state of emergency or natural disaster. As a result, the product's price will rise.

3. **Cost**: The project development cost will be determined by the business objectives, which will rise in response to the needs of the customers. To determine the cost of software development, we can first test the application internally to see if anything extra is required based on the business requirements, and then make a revised estimate of the cost.

4. **Time to market**: After determining the cost and allocating resources to manage the system, it will be ready to enter the market.

5. **Market readiness**: To ensure that our system is market-ready, we must compare it to other competitive applications that provide similar services. We will provide discounts, coupons, and points for successful services provided to customers, which will entice them to use our services.

3.2 PROJECT RISKS

1. **Performance Risk** :

When a project does not function as well as predicted, there is a risk of failure.

Solution: Anticipating possible performance risks early in the planning phase might assist you in being better prepared.

2. **Vendors Issue** :

There might be high chances of not getting approved vendors due to high cost, availability, or limited areas where they can provide services.

Solution: To resolve this issue, we will promote vendors on our website and application using the ads for their profit.

3. **High cost** :

When project's budget exceeds initial estimate, we're taking a risk. Cost risk can arise because of unrealistic or insufficient budgeting during the project planning stage. E.g., Building the mobile app and website.

Solution: Estimate each project piece correctly and stick to your budget to reduce expense risk. Consider arranging monthly check-ins to assess your budget and how your project is progressing once it has started development.

4. **Delayed Timelines**:

The chance that the work in your project may take longer than intended is known as time risk or project schedule risk. Delayed timeframes may have an influence on other aspects of your project, such as your budget, delivery date, or overall performance.

Solution: We will create a project schedule using Gantt chart. Using a Gantt chart may assist a project dynamically respond to time risk as it arises by bringing clarity to work, relationships between tasks, and any delays.

5. **Data Theft**:

Hackers can plagiarize the data by transferring or gaining access to personal, private, or financial data in an unauthorized manner. Passwords, software code or algorithms, and proprietary procedures or technologies are examples of this type of information.

Solution: Before saving data in a database, data encryption should be performed.

6. **Operational Changes**:

Changes in company or team procedures, such as an unanticipated shift in team duties, changes in management, or new processes that your team must adjust to, are examples of operational risk. These factors can cause distractions, need changes to procedures, and have an influence on project deadlines.

Solution: If you know a team shift or process change is on the way, you can prepare for it. Make sure your team is ready for the change and has enough time to adjust by holding team meetings, using scheduling tools, or providing additional training.

3.3 PROJECT METRICS

1. **Productivity** : This statistic examines a company's total capabilities, how well it employs its resources. The link between inputs and outcomes is shown by productivity. Making more with less is the optimal productivity outcome.

2. **Gross Profit Margin** : The bigger the profit margin, the more profitable the company is. Any program or job done should help a company make money. After all expenditures are deducted, the margin is the proportion of each dollar made.

3. **Return on Investment** : The cash amount earned for the amount invested in a project is referred to as return on investment. This is a financial calculation, just like gross margin. Instead of looking at total profit, it considers the project's unique benefit split by its expenses.

   (Net Benefits/Costs) x 100 Equals ROI

4. **Earned Values** : Earned value gives you strategic direction by demonstrating how much value you've gotten out of the money you've spent on a project thus far. It evaluates the value of work accomplished by a certain date in proportion to the project's approved budget.

5. **Customers Satisfaction** : Your service or product's customer satisfaction score is a measure of its quality. This measure is based on the results of a customer survey. The product or service should fulfill the purpose for which it was created and meet actual client demands.

6. **Employee Satisfaction** : Employee satisfaction is calculated using survey data in the same way that customer satisfaction is calculated. A happy employee does better work more quickly. Employee turnover costs can range from 50% to 200 percent of an employee's compensation, thus it's important to pay attention to the individuals closest to the project.

   (Total Survey Point Score / Total Questions) * 100 = Employee Satisfaction Score.

7. **Actual Cost** : The Actual Cost is a straightforward figure that indicates how much money was spent on a project rather than an estimate. This cost is calculated by summing all the expenditures for a certain project throughout the course of the project's duration.

   Total Costs per Time Period * Time Period (AC) = Actual Cost (AC)

8. **Cost Variance** : Within a certain timeframe, cost variance displays the difference between the anticipated budget and actual expenditures. Is the cost estimate higher or lower than the actual cost? If the cost variance is negative, the project is above budget. A project that has a positive cost variance is under budget.

   Budgeted Cost of Work - Actual Cost of Work = Cost Variance (CV).

9. **Schedule Variance** : Schedule variance examines work that has been budgeted and scheduled. The schedule variance is calculated by subtracting the budgeted cost of work done from the budgeted cost of work scheduled—the difference between scheduled and completed work. A negative schedule variance indicates that the project is running late.

   Budgeted Cost of Work Performed - Budgeted Cost of Work Scheduled = Schedule Variance (SV)

10. **Cost Performance** : Cost efficiency is measured by cost performance. Subtract the value of the labor that was really done (earned value) from the actual expenses of completing the earned value. Forecasting cost performance enables precise budget estimates.

    Earned Value / Actual Costs = Cost Performance Index (CPI)

4   Project Scope and Process Model

Project scope includes the following:

1. Registration

2. Login

3. Search

4. Customer Service Requests (With or without registering)

5. Data Encryption

6. Coupons, discounts, Points usage after a successful service provided.

7. Payment types – Credit Card

8. Useful Tips

9. Notifications on new updates

10. Approving legal Vendors

11. Order history

12. Review and rating

13. User Experience

The following is a list of items out of scope:

1. Post project maintenance

2. Tax related concerns

3. All kinds of Insurance (Vacation, social, health, etc.)

4. Contract negotiation

5. Customer support issues

6. Modifying or cancelling the service request after the deadline.

7. Providing additional service at a time-of-service delivery.

4.1 PROJECT PROCESS MODEL

Because waterfall project management is linear, it will be applied. The waterfall approach will make planning and design easier because this is our first release.

The program may be created thoroughly and more carefully using a waterfall paradigm, based on a better understanding of all software deliverables. Before we begin development, we may freeze the requirements and obtain design approval from the clients. There will be fewer uncertainties and better execution because of this.

Furthermore, the waterfall model's extensive documentation and clear idea will require all our stakeholders (including clients) to grasp deliverables and dates. For example, while coding is in progress, testers can construct test scripts using requirements documents.

The Waterfall Method

Reference : https://www.workfront.com/project-management/methodologies/waterfall
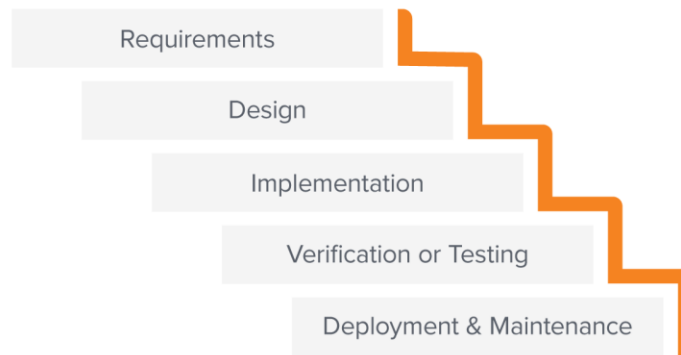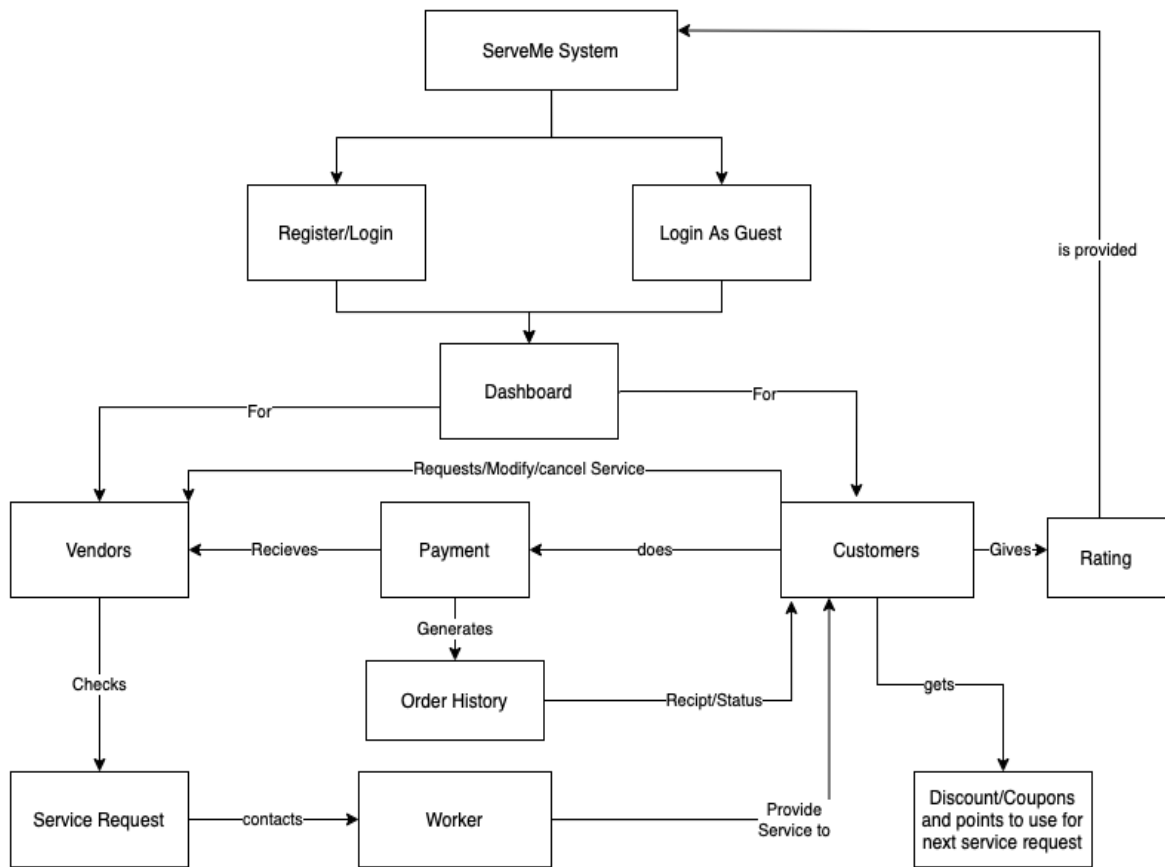
4.2 PROJECT CONTEXT

Diagram Implementation : Draw.io

5. Assumptions and Constraints

5.1 ASSUMPTIONS

The following is a list of assumptions:

- Assume all users are over the age 18.

- 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.

- All hired developers are highly skilled and knowledgeable.

- During the rainy season, cheap labor will be available.

5.2 CONSTRAINTS

The following is a list of constraints:

- Our developers are not trained in Android programming.

- Project schedule too short (i.e., only 3 months)

- ServeMe system should run smoothly on website as well as mobile application.

- Similar kind of services already provided by many service providers. E.g., Yelp.

- Budget should be strictly followed as it was given initially.

7. Project Tasks, Schedule, and Cost

COST BENEFIT ANALYSIS:

All the resources are used for 8 hours per day, 5 days per week.

Category/Resources	Quantity	Cost	Total
Infrastructure(Building)	1	$8000 per month	$24,000
Project Manager	1	$100 per hour	$48,000
Developers	4	$50 per hour	$96,000
Testers	2	$50 per hour	$48,000
Software and License	Ubuntu for enterprise	$750 per month	$2250
Database and Cloud server	MongoDB server, AWS server	$1500 + $10000 per month	$34,500
Hardware	7 Laptops, Mobile devices, External HDD	$15,000	$15,000
Advertising	8	$500 per month	$1,500
Health Insurance	7	$2000 per head	$14,000

TOTAL ESTIMATION OF PROJECT : $283,250

ADDING PROFIT MARGIN (50%) : $141,625 + $283,250 = $424,865

TASK SCHEDULING :

Tasks	Duration (From)	Duration (To)	No. of Days
Discovering Project Requirements (Infrastructure, Resources, Technologies)	2/1/22	2/10/22	10 days
Design (Architecture Planning)	2/11/22	2/17/22	7 days
Implementation of Planning (Development of project)	2/18/22	3/30/22	41 days
Verification of the development (Testing and fixing bugs)	3/31/22	4/20/22	21 days
Deployment of project phase 1	4/21/22	4/25/22	5 days
Deployment of project phase 2 (Fixing issues from 1st phase of deployment)	4/26/22	4/31/2022	5 days
Final Phase Delivery	5/1/22	5/1/22	1 day

8. Conclusion and Recommendations

To summarize the project, this will be a user-friendly application (android/iOS) as well as a fully functional website. The services will be provided in accordance with the needs of the customers, and users will receive attractive discounts and points upon completion of their service request. This will be extremely beneficial to the vendors in terms of gaining more customers and profit.

With time, this will increase spotlight for the ServeMe System application and website.

Recommendations:

1. More resources should be hired to make the development phase smoothly working.
2. Payment options should not only be limited to credit card. UPI, apple pay, amazon pay, etc. platforms should be involved.

Appendices

References:

https://asana.com/resources/project-risks

https://www.workfront.com/project-management/metrics

https://pmstudycircle.com/assumptions-and-constraints-in-project-management/

https://www.projectcubicle.com/assumptions-and-constraints/

https://aws.amazon.com/cloud-migration/how-to-migrate/

https://app.diagrams.net

https://www.mongodb.com/nosql-explained/advantages

https://imaginovation.net/blog/react-native-app-development-cost-breakdown/

https://www.hitachivantara.com/go/cost-efficiency/pdf/white-paper-reducing-costs-and-risks-for-data-migrations.pdf