**FEASIBILITY STUDY**

REPOSITORY LINK: <https://github.com/AQSAN/SOFTWARE-ENGINEERING->

**The Group**

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**The Client**

General Electric Considering GE’s fear, we proposed a low-risk solution, where liability is on Microsoft in managing/securing GE data and its future

**Requirement Analysis**

**Statement:**

An inventory management system is a combination of technology (hardware and software) and processes and procedures that oversee the monitoring and maintenance of products stocked by a company. Good inventory management systems allow companies to manage their inventory across multiple warehouses in different locations.

This inventory management system software features include the ability to set up automatic restock of products. You set a limit on how many of each item you need to have in stock. Once a product falls below the limit, your inventory management system places an order with your supplier to restock the low items

## Performance Requirements

The following performance characteristics should be taken care of while developing the system:

* **User friendliness:** The system should be easy to learn and understand so that new user can also use the system effectively, without any difficulty.
* **User satisfaction:** The system should meet user expectations.
* **Response time:** The response time of all the operations should be low. This can be made possible by careful programming.
* **Error handling:** Response to user errors and the undesired situations should be taken care of to ensure that the system operates without halting.
* **Safety:** The system should be able to avoid or tackle catastrophic behavior.
* **Robustness:** The system should recover from undesired events without human intervention.

**SOFTWARE REQUIREMENT**

* Visual Studio .Net 2019
* SQL Server 201
* Windows 10 Pro

**HARDWARE REQUIREMENT**

* Core i3 (2 CPUs ~@2.5GHz)
* 2 GB RAM
* 20GB HARD DISK

**Suggested Deliverables**

**Management Deliverables:**

***Requirements Analysis:***

A document and a presentation to go over the formal

requirements of the project, both functional and non-functional. This

deliverable ensures that the Group is working on a system that closely matches

to the wishes of the Client. This deliverable gives the Client a chance to

modify and correct items that were mis-communicated or missed out before

allowing the Group to proceed further in the design.

**Design Document:**

A document and a presentation to go over the design of the

system. This is the Group’s opportunity to go over how the project is to be

implemented to the Client. This deliverable is done by the more technical and

experienced in the Group, based on the understanding of the requirements

established in the previous deliverable.

**Source Code**:

A document, presentation along with the source code of the final

completed project. This final deliverable wraps up and concludes the project.

In this deliverable, the Group delivers the final implementation based on the

requirements specified and the design developed in previous stages. The

system would have been tested thoroughly with unit tests and with a final

acceptance test and would be ready for deployment to the production system.

**Technical Deliverables:**

* A database with the required tables to support the inventory system a

database needs to be set up on the library servers with the tables needed in the

system to store the inventory information, geo-referenced materials, and other

cartographic data

* An administrative interfaceto add, modify, delete and search for inventory a

webpage designed to allow the administrator (i.e. the Client) of the system to

add information to the inventory system for every map that is found in the

library and to build up an electronic record of the resources that are found in the

library.

* A side menu that is populated with cartographic information based on the

Inventory a portion of the web page that shows available cartographic

resources for the selected region, based on information in the inventory

database. The information that will be displayed has yet to be decided.

**Proposed of Inventory Management System**

The inventory management system will be designed to support the following features

* The proposed system has a user-friendly Interface for porting of data to server.
* The proposed system provides the facility to pull the data from the server of the specified
* Supply order number and get the respective report.
* The proposed system provides the no replication of data.
* User can get the desired output according to their queries. This is an added advantage.

**WATERFALL MODEL**

This is the most common and classic of life cycle models, also referred to as a linear sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed in its entirety before the next phase can begin. At the end of each phase, a review take place to determine if the project is on the right path and whether to continue or discard the project. Unlike what I mentioned in the general model, phases do not overlap in a waterfall model.

**Outline Plan (Principal activities and Milestones)**

I. Milestone 1 (March 3, 2020) – Requirements Analysis (draft). An initial draft

of the requirements analysis should be done as Milestone 1. This should come

after a formal requirement gathering meeting with the Client.

II. Milestone 2 (March 10, 2020) – Requirements Analysis (final). The final

draft of the requirements analysis should be done for Milestone 2. In addition,

a presentation will be prepared as a part of this milestone.

III. Milestone 3 (March 24, 2020) – Software Architecture and Design (draft). An

initial draft of the software architecture and design should be done as Milestone

3. A meeting with the Client should follow Milestone 3 to get feedback on the

design of the system.

IV. Milestone 4 (April 7, 2020) – Software Architecture and Design (final). A

final draft of the software architecture and design document should be done for

Milestone 4. A presentation should be prepared for the Client.

V. Milestone 5 (April 14, 2020) – Database. The database is the most important

part of the system, as it is the center of all information. All subsequent system

components depend on this deliverable. A database schema needs to be fixed

for Milestone 5 to provide a basis for the other components to be based on.

VI. Milestone 6 (April 21, 2020) – Inventory system. As the menu of

cartographic information needs to be published using information in the

database, the next bottleneck is the inventory control, which is a graphical

interface to allow the administrator to enter, modify, and delete data.

VII. Milestone 7 (April 28, 2020) – Map and Menu. The map and the menu are the

front-end graphical web interface that the public user sees and interacts with.

Milestone 7 is to reach feature-completion on the requirements.

VIII. Milestone 8 (May 5, 2020) – Testing, Debugging and Integration. The system

needs to be well-tested, debugged at this milestone. Also, once the system has

passed the acceptance test, it needs to be integrated to the actual production

system for this milestone.

IX. Milestone 9 (May 11, 2020) – Project Deadline. The project source code

should be handed over to the Client for the final milestone. A presentation is

presented to the Client.

**Visibility plan:**The group will take endeavors to expand the perceivability of the system and the development procedure. This will guarantee that the task is being created in accordance with customer requirements. Any deviations from those determinations can likewise be gotten early and revised through customer feedback. Various visibility methods the team intends to use are described below.

**Communication:**

Zoom meetings and messages would be the essential type of open correspondence to keep the customers refreshed with the advancement of the project. Regular meetings will be held with the customer to talk about advancement and for the reasons for two-way feedback. The group will likewise meet all in all in any event once every week to guarantee all individuals are up to speed and understand their roles and jobs.

## Intermediate Deliverables and Presentations:

* Live demonstration: The customer will be given demonstrations of the advancement through introductions at the customer site and at the month to month introductions comparing to each significant stage in the task.
* Presentations: Slideshows of structure designs of screens, reports and demos of working capacities, and the framework will be appeared to the customer to keep them refreshed with the group's advancement.
* Reports: The customers will likewise be given duplicates of the documentation, which record subtleties at each stage in the product advancement process. These advancement reports will likewise empower them to be very much aware of the subtleties of the task from their viewpoints.

**BUSINESS CONSIDERATIONS:**

There are several business considerations that must be considered when determining the feasibility of the General Electric project: disclosure of trade secrets and sensitive information, copyright and trademark issues, and considerations with regards to patents.

## Trade Secrets and Sensitive Information

As far as the team could gather from discussions with representatives from the general Electric there are some vulnerable trade secrets that are shared among the GE team and the software development team. It contains some old database of company’s old records and customer information as well the inventory logs of the company.

## Copyrights and Trademark

Since this project is being completed for the General Electric team, the team intends to give General Electric team a limited license to use and modify the system. A preliminary agreement is as follows:

The team consists of the following members: Aqsa Noor Kamran, Shahrukh Amir, Ausayd ur Rahman, Zain Ali Paracha , Omar Ali. This limited license will allow the client to use and modify the software system for an unlimited period. The team will not be responsible for any modifications after the software system is delivered but will help with any questions or concerns of the client as time and circumstances permit. The team reserves the right to be able to demo the software system to prospective employers and showcase the software system as a work created by each team member.

Since the team does not plan to trademark any names in relation to the software system, trademark is not foreseen as being an issue.

**Patents:**

No piece of the framework is anticipated to be qualified for any patent applications. Be that as it may, if upon a later date, a piece of the framework is seen as patentable, the group holds the rights to the uncontested patent and any subsidiary works based in that, while the customer will consequently pick up non-elite rights to utilize the framework, and will have full rights to the utilization and adjustment of the framework paying little mind to any patent rights held by the group.

**Risk analysis. What can go wrong? What is your fallback plan?**

Similarly, as with any task, this endeavor isn't totally chance free. Three significant risk categories have been distinguished: time, resource, and functionality.

## Time Risks

As course requirements indicate that the task must be finished inside one academic semester any extensions are not possible. This presents the risk that the system may not be finished with the full usefulness the customer needs inside the given time span of a semester. For this situation, there is additionally a second risk of delayed implementation of the system if the client chooses to wait until the system is fully functional.

## Resource Risks

Resource risks involve technologies the team has available for their use. Due to costs and other external constraints, the group will most likely be unable to get the required or best assets to finish portions of the projects. For example, one identified resource is that team members will need laptops running a Windows operating system. What's more, there are inalienable dangers in the resources, such as the software and hardware the team decides to use. As of now, to keep costs at the very least, the team is thinking about open-source software, which is available without charge.

## Functionality Risks

Functionality risks have to do with how the system works. Issues that fall under this class incorporate building up a UI that isn't easy to understand or not popular with the customer or creating capacities that have limited sustainability. The greatest risk originates from building up a framework that doesn't do what the customer needs it to do.

Out of the three risk categories, functionality risks are the easiest to reduce since functionality constraints are more flexible than time or resource constraints. Be that as it may, limiting functionality risk is normally practiced by excluding specific parts and/or functions of the system as decreasing functionality naturally decreases its associated risks. The group might want to abstain from doing this however much as could reasonably be expected. The customers must know that it is possible this must be done to convey the system by the due date toward the finish of the semester.

## Risk Management/Minimization

Having laid out the fundamental dangers related with this task over, the group is set up to take prudent activities to limit these risks. The guideline plan is to create and rehearse great administration techniques. The team intends to divide the project into a series of iterative phases that have concrete milestones as talked about in past areas. These milestones will provide project visibility and allow the client to see the team’s progress at each stage. Different mockups will permit the customer to assess convenience, increment commonality with the system, and shorten the learning curve.

Frequent communication and feedback from the client are also essential for client satisfaction with the user interface and functionality. The team will also constantly review their progress and modify goals if necessary, to deliver a satisfactory system on time to the client.

**Technical requirements:**

* Server:

The framework will be running on a worker in General electric. The Group is as of now chipping away at a contact to discover precisely who might be accountable for this work. In the case of nothing else, the Group could be given a test work in General Electric to test the improvement code on. Most of the group workers are SQL Workers.

* Database:

The current library catalog system is hosted on a Local database. The Group will have access to this database, and permission to add tables as needed for the inventory control system.

* QR -Code:

Every QR code consists of several black squares and dots which represent certain pieces of information. When your Smartphone scans this code, it translates that information into something that can be easily understand by humans.

**Questionnaire:**

The interview is conducted with the key players at GE to figure out what they wanted and get their buy-in on the solution we proposed. The survey was conducted relate to project characteristics.

1.Anyone can access the website without making account?

* Agree
* Disagree
* Neutral

2.To be a part of any inventory management privacy is necessary?

* Agree
* Disagree
* Neutral

3. Project must give descriptive information about system?

* Agree
* Disagree
* Neutral

4.Worker should right have given opinion about project?

* Agree
* Disagree
* Neutral

5.Worker can take part in development at a time?

* Agree
* Disagree
* Neutral

6. Privacy is necessary for project?

* Agree
* Disagree
* Neutral

7. Every user should receive a confirmation message after login their account?

* Agree
* Disagree
* Neutral

8. Account should be automatically logout from device when the browser is closed?

* Agree
* Disagree
* Neutral

9. Only one account should be confirmed by one phone number?

* Agree
* Disagree
* Neutral

10. Password must be containing more than 6 character in alphanumeric form?

* Agree
* Disagree
* Neutral

11. User must be fill word verification after tried wrong password 3 times?

* Agree
* Disagree
* Neutral

12. Graphical user interface of website must be friendly?

* Agree
* Disagree
* Neutral

13. Users can view their information if any problem they can return it?

* Agree
* Disagree
* Neutral

14. Project should be responsive means on any device website layout will not adverse?

* Agree
* Disagree
* Neutral

15. Information of user must keep confidential?

* Agree
* Disagree
* Neutral