Project Plan
for
Sales and Customer Service Enterprise Resource Planning System
V3.0

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Contents

1. Overview

The aim of the project is to create an ERP system unifying the E-Commerce,Sales.Customer Service and Administration modules of an organization. The SCERP project would replace a manually maintained data entry system that the company uses to manage and track their sales and customer service operations.The SCERP application would help manage the customer UI, manage products, manage the orders, check inventory, manage customer requests and feedbacks. The overall goal is to provide an automated system for managing products and orders, inventory, and improve the business management, reduce paperwork and manual effort with shortened response times.

The SCERP system is an integrated management system to manage the resources as well as various operations of sales and customer service departments in an organization.

The primary goal of the project is user satisfaction which would be the user who will pay for and use the products.

2. Goals and Scope

2.1 Project Goals

The SCERP system has been developed to manage the resources as well as various operations of sales and customer service departments in an organization. The SCERP system offers functionality in many areas including supply, shipping, managing inventory and check customer requests. The SCERP project would replace a manually maintained data entry system that the company uses to manage and track their sales and customer service operations. SCERP is an integrated application that will allow employees to meet the supply demand needs with proper tracking of the goods and generate reports.

The SCERP system will offer a secure access to the sales and customer service interfaces from any location having internet connection and a computer installed with SCERP client. Moreover, SCERP will cover the activities of Order Acceptance, Payment verification, Shipment tracking, and all the customer related operations. The system will also help to manage customer UI and check inventory.

SCERP system will help organization improve their inventory management, reduce paperwork and manual efforts. Also it will eliminate the need to enter the information on multiple systems. This powerful and user-friendly application will boost productivity and improve storage and usage of information.

The project will increase profits for the organization by decentralizing data entry and reporting, providing reliability and accuracy, improving access to information and speeding up all the operations.

Project Goals	Priority	Comment/Description/Reference
Functional Goals:		
E-commerce	2	Functionality where customer will place order
Sales	3	Functionality where sales department will handle sales as well as products
Customer Service	4	Functionality where queries and problems of customers will be solved
Administrator	1	Functionality where admin can set access rights of employees
Business Goals:		
Time to market	3	Design a user friendly interface for customer to Sign Up /login, buy products, make payment, manage order, give feedback, raise queries.
Flexibility of Software Access	1	Provide a secure access to the sales and customer service interfaces from any location having internet connection and a computer installed with SCERP client.
Efficiency	4	To replace a manually maintained data entry system that the company uses to manage and track their sales and customer service operations.
Cost, Resources	2	To have improved results with minimal use of resources and cost.
Technological Goals:		
Use spring boot	1	Spring boot helps in reducing the development time therefore faster development and increased productivity.
Use micro service architecture	2	It provides the freedom to the developers to develop and deploy the services. It also provides scalability and efficiency.
Quality Goals:		
Efficiency	1	using the resources optimally where resources could be memory, CPU, time, files, connections, databases etc.
Effectiveness	2	how easily the code can be understood, tested and maintained
Reusability	13	degree to which the software artifacts can be reused
Flexibility	3	ability for the solution to adapt to possible or future changes in its requirements

Understandability	5	how easily can another developer can understand the software working and code
Extendibility	9	ability to extend a system and the level of effort required to implement the extension
Structuredness	4	how efficient, easy to understand and modify the program structure is.
Testability	8	how easily the software can be tested
Analyzability	10	capability of the software product to be diagnosed for deficiencies or causes of failures
Stability	6	sensitivity to change of a given system that is the negative impact that may be caused by system changes
Changeability	11	capability of the software product to enable a specified modification to be implemented
Maintainability	12	how easily the software can be adapted or corrected to add or correct features
Complexity	7	how code interacts with other pieces of code
Constraints:		
Administrator		There will not be more than one administrator.
Additional Access		Addition of employees who can access the system and creation of IDs and passwords for them should only be done by the administrator.

Table 1: Project Goals

2.2 Project Scope

The goal is to produce a Sales and Customer Service Enterprise Resource Planning System.The project will cover four modules and the products the software will produce are listed below:

2.2.1 E-Commerce System

This module will cover the aspects such as Display Products, Purchase Products, Track Order, Provide Feedback and Send Query/Complaints

2.2.2 Sales System

The sales module will Manage products,Process Orders, Check Inventory, Verify Payment. It will also cover areas of Order Fulfilment, Processing requests/queries from Customer Service department

2.2.3 Customer Service System

The Customer Service System is responsible for Handling Queries/complaints, Processing feedbacks,Coordinating with sales department about Incomplete/wrong orders, Order Modifications, Generating customer satisfaction reports

2.2.4 **Administration System**

The Administration system will Add Users and provide access control.

2.2.1 Included

The deliverables of this project and their receivers are listed in detail in the delivery plan in section 10.

2.2.2 Excluded

This project will exclude the below mentioned points:

- Authorization: No Authorization library is used . Therefore, we do not have session management and also due to this, we have not created the logout functionality.
- Test plan and Documentation: Proper Test plan has not been designed and is not used for testing purposes.
- Maintenance Plan: There is no plan designed for future maintenance and improvement.
- Payment: Payment functionality is not available for the customer.
- Cart:Adding multiple items to the cart is not available. A customer who wants to order multiple items would have to order multiple times.

3. Organization

The project is organised into four microservices which interact to provide the overall functionality.The four services of the project are:

1. Sales: This module will be handled by sales department of the organization which will look into the gathering new orders, shipping products and handling replacement orders.
2. E-commerce: This module is the front end of the organization through which customers/clients can place order for products.
3. Customer Service: This module will be handled by customer service department of the organization which will look into the problems faced by customers, queries of the customers and will provide solution to problems.
4. Administration: Administration department will assign roles to employees according to the departments.

Existing system of the organization was based on monolithic system. Whenever there was a failure in one module, whole system fails down due to which organization was facing problem. In order to increase scalability and robustness of product, organization decided to move to microservice architecture.

3.1 Organizational Boundaries and Interface

The environment of project is based on retail industry. Customer will place order through ecommerce and ERP system will help ABC organization to process all the requests of customer.

The external stakeholders involved in the project are as follows:

1. The customers

2. Project Team Members
3. Project Leader
4. Technical Project Leader
5. Project testers
6. Business Analysts

The organisation ABC is responsible for all the services and their corresponding functions. There are no suppliers or other sub-contracted organisation.

3.1.1 Resource Owners

Resource Owners are Management of XYZ Company.

3.1.2 Receivers

ABC organization is the receiver of the project. They will perform acceptability test and project will be deployed.

3.1.3 Sub-contractors

None.

3.1.4 Suppliers

None.

3.1.5 Cross Functions

Function	Organisation: Contact	Responsibility/Comment
Product Mgmt	XYZ: Navdeep Kaur,Karan Behl, Komaldeep Singh, Manisha,Kritika,Mohit Saini, Ramit	Activity and Resource Planning, Organizing and motivating project team, Cost Estimating and developing budget of project, Ensuring Customer satisfaction, analyzing and managing project risk, monitoring progress, managing reports and necessary documentation.
Technology	XYZ: Karan Behl, Komaldeep Singh, Mohit Saini	Coding, Ad-hoc Unit Testing, Integration
Quality	XYZ:Ramit, Manisha, Kritika	Manual Testing

Table 2: Cross-Functions

3.1.6 Other Projects

None.

3.2 Project Organization

The organisation is divided into a functional hierarchical structure. Once the project begins, the entire team is subdivided into sub-teams where each team is responsible for their modules. So, the once the requirements are identified, each unit takes charge of coding , ad-hoc testing and risk management of their components. After the completion of each unit, the manager is responsible for the integration and the project coordination. Post Integration if the project does not runs as expected, the sub- teams have to reconsider their decisions , make changes and rework accordingly.

3.2.1 Project Manager

Role	Organization: Name
Project Manager	Navdeep Kaur Brar
Technical Project Mgr.	Karan Behl

Table 3 **:** Project Manager and Technical Manager

Role of Project Manager: The responsibility of project manager includes resource planning of project, organizing and motivating project team, cost estimating, developing budget of project, ensuring customer satisfaction, analyzing and managing project risk.

Role of Technical Project Manager: Responsibility of technical project manager includes developing and maintaining a technological project plan which outlines projects tasks, milestone dates. The technical project manager is responsible for clearly defining and quantifying each step, as well as establishing concrete deadlines for each project milestone and deliverable. To this end, they have must have a demonstrated ability to anticipate problems and to find resolutions before that problem can derail a major milestone or deliverable.

3.2.2 Project-internal Functions

Function	Organization: Name	Comment
Quality Assurance	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for Quality Assurance of the assigned SCERP's service. Sales:.Mohit and Navdeep Customer Service:Komal and Karan E-Commerce:Ramit and Manisha Administrative:Kritika and Navdeep
System Test Lead	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for testing of the assigned SCERP's service. Sales:.Mohit and Navdeep CustomerService::Komal and Karan E-Commerce:Ramit and Manisha

		Administrative:Kritika and Navdeep
Validation Lead	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for Validation of the assigned SCERP's service. Sales:.Mohit and Navdeep Customer Service:Komal and Karan E-Commerce:Ramit and Manisha Administrative:Kritika and Navdeep
Configuration Management	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for proper configuration of the assigned SCERP's service Sales:.Mohit and Navdeep Customer Service:Komal and Karan E-Commerce:Ramit and Manisha Administrative:Kritika and Navdeep
Change Management	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for Quality Assurance of the assigned SCERP's service. Sales:.Mohit and Navdeep CustomerService::Komal and Karan E-Commerce:Ramit and Manisha Administrative:Kritika and Navdeep
Risk Management	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for Risk Management of the assigned SCERP's service. Sales:.Mohit and Navdeep Customer Service:Komal and Karan E-Commerce:Ramit and Manisha Administrative:Kritika and Navdeep
Documentation	ABC:Navdeep Kaur Brar, Karan Behl, Mohit Saini, Komaldeep Singh, Manisha Sharma, Kritika Saini,Ramit Basra	All the team members are responsible for accurate and up to date documentation of the project.

Table 4: Project Internal Functions

3.2.3 Project Team

Organization: Name	Availability
ABC: Navdeep Kaur Brar	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Karan Behl	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Mohit Saini	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Komaldeep Singh	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Manisha Sharma	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Kritika Saini	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.
ABC: Ramit Basra	Monday: 9 a.m. - 2 p.m. Tuesday: 9 a.m. - 2 p.m. Wednesday: 9 a.m. - 2 p.m. Thursday: 9 a.m. - 2 p.m.

Table 5: Project Team

3.2.4 Steering Committee

None

4. Schedule and Budget

4.1 Work Breakdown Structure

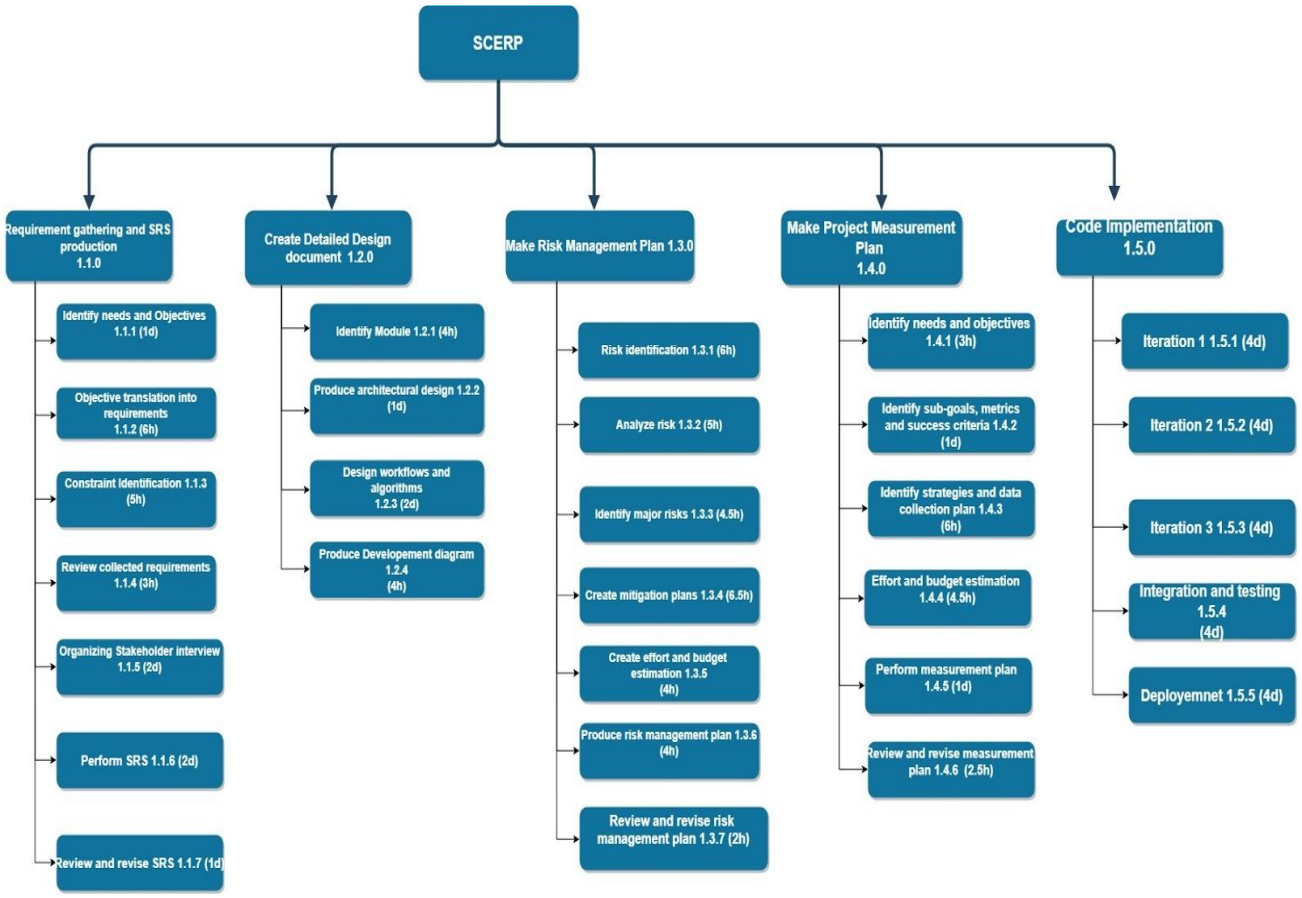

Fig 1: Work- Breakdown Structure

4.2 Schedule and Milestones

Milestone	Dates	Activity	Sub Activity	Outcome	Effort (Days)	Budget ($)
M1	24th Sep - 27th Sep 1st Oct - 4th Oct	Gathering requirements and Producing the Software Requirement Specification	Identify the organization's needs and objectives	Software Requirement Specification Document	8	$19,600
			Translate the needs and objectives into requirements and functionalities			
			Identify the constraints and other external factors affecting the requirements			
			Review the requirements collected			
			Organize interviews with stakeholder and formal inspection and reviews			
			Formulate the Software Requirement Specification			
			Review and revise the SRS			
M2	8th Oct -	Create the	Identify modules by mapping requirements	Detailed	4	$9,800

	11Th Oct	detailed design document	Produce the architectural design	Design Document		
			Design workflows and algorithms			
			Produce the deployment diagram			
M3	15th Oct - 18th Oct	Make the Risk Management Plan	Identify the Risks	Risk Management Plan	4	$9,800
			Analyse the risks by assigning likelihood and severity of impact			
			Identify the major risks that will affect the project			
			Create prevention and mitigation plans for each risk			
			Create effort and budget estimation of each risk			
			Produce the risk management plan			
			Review and revise the Risk Management plan			
M4	17th Oct - 23rd Oct	Make the Project Measurement Plan	Identify the measurement needs and objectives	Project Measurement plan	4	$9,800
			Identify subgoals, associated metrics and success criteria			
			Identify the strategies and data collection plan for each subgoal			
			Effort and budget estimation for measurement			
			Formulate the measurement plan			
			Review and revise the Measurement plan			
M5	22nd Oct - 25th Oct	Make the Project Plan	Effort and budget estimation for project	Project plan	4	$9,800
			Identify the activities involved			
			Identify the organizational boundaries and external factors			
			Include the Risk Management plan			
			Identify communication and reporting methods			
			Formulate the delivery, quality assurance and change management plan			
			Produce the Project plan			
			Revise and review the project plan			
M6	29th Oct - 1st Nov	Implementation Iteration 1	Implement the administration and ecommerce microservices	Administration and ecommerce microservices implemented and tested.	4	$9,800
			Test the functionalities			
			Apply the measurement plan to review conformance of quality requirements			

			Review the effort and budget estimation	Project documents reviewed and revised		
			Review the risk management plan			
			Identify any risk occurrences, risk mitigation and prevention tasks carried out			
			Identify all backlogs or deviations from project plan			
			Review and revise the risk Management plan			
			Review and revise the Measurement plan			
			Revise and review the project plan			
M7	5th Nov - 8th Nov	Implementation Iteration 2	Implement the Sales microservice	Sales microservice implemented and tested. Project documents reviewed and revised	4	$9,800
			Test the functionalities			
			Apply the measurement plan to review conformance of quality requirements			
			Review the effort and budget estimation			
			Review the risk management plan			
			Identify any risk occurrences, risk mitigation and prevention tasks carried out			
			Identify all backlogs or deviations from project plan			
			Review and revise the risk Management plan			
			Review and revise the Measurement plan			
			Revise and review the project plan			
M8	12th Nov - 15th Nov	Implementation Iteration 3	Implement the Customer Service microservice	Customer service microservice implemented and tested. Project documents reviewed and revised	4	$9,800
			Test the functionalities			
			Apply the measurement plan to review conformance of quality requirements			
			Review the effort and budget estimation			
			Review the risk management plan			
			Identify any risk occurrences, risk mitigation and prevention tasks carried out			
			Identify all backlogs or deviations from project plan			
			Review and revise the risk Management plan			
			Review and revise the Measurement plan			
			Revise and review the project plan			
M9	19th Nov - 22nd	Integration Testing and	Integrate project modules	Integrated System	4	$9,800

	Nov	Quality Analysis	Perform necessary changes required during integration			
			Perform System Testing			
			Perform changes requested after testing			
			Apply quality measures to analyse quality of product			
			Improve Code to meet required quality criteria			
M10	26th Nov - 29 Nov	Deployment and Final Inspection	Send project for acceptance testing	Project completion Reports	4	$9,800
			Make required changes asked by client			
			Deploy product at client site			
			Analyze the development process and project plan analyze risk management and measurement plans			
			Generate Project Completion reports			
			Improve all documents for future projects			
Total					44	$107,800

Table 6: Schedule and Milestones

4.3 Budget

Category	**Budget for Period in k CAD$**									
	M1	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**
Human Resources (internal)	19.6	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
Human Resources (external)	0	0	0	0	0	0	0	0	0	0
Purchases (COTS)	0	0	0	0	0	0	0	0	0	0
Equipment	7	0	0	0	0	0	0	0	0	0
Premises	1	0	0	0	0	1	0	0	0	0
Tools	0	0	0	0	0	0	0	0	0	0
Travel costs	.357	0	0	0	0	.357	0	0	0	0
Training	0	0	0	5	0	0	0	0	0	0
Review activities	0	0	0	0	0	0	0	0	0	5
Other	0	0	0	0	0	0	0	0	0	0
Total	28	9.8	9.8	14.8	9.8	11.2	9.8	9.8	9.8	14.8
Total accumulated	**28**	**37.8**	**47.6**	**62.4**	**72.2**	**83.4**	**93.2**	**103**	**112.8**	**127.6**

Table 7: Project Budget

4.4 Development Process

The project is developed with the spiral incremental process. The project begins with requirements gathering followed by the project design. The database for the project is created, after which converted and service classes are developed with their functional implementation. Post the implementation of the functionalities, it is verified and validated with ad-hoc testing. The build is then evaluated by proper risk management approach to rework if necessary.

This approach's design flexibility allows changes to be implemented at several stages of the project.This also makes Cost estimation easier as the prototype building is done in small fragments.Development is fast and features are added in a systematic way

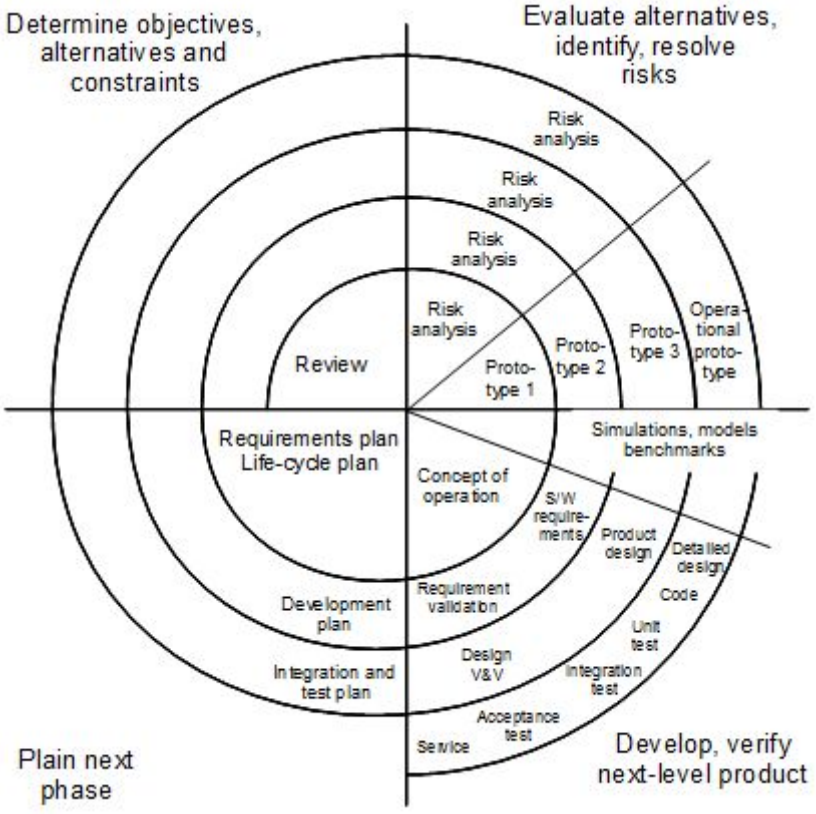

Fig 2: Spiral Incremental Development Process

4.5 Development Environment

Item	Applied for	Availability by
Methods		
Use Case	Requirements capturing	M1
ER diagrams	System Design	M2
Class Diagrams	System Design	M2
Sequence Diagrams	System Design	M2

Deployment Diagrams	System Design	M2
Tools		
lucid chart	Diagramming tool	M1, M2,M3,M4,M5
Coggle.ie	Diagramming tool	M1,M2,M3,M4,M5
draw.io	Diagramming tool	M1,M2,M3,M4,M5
Github	Communication Tools	M6,M7,M8,M9,M10
,Sql Server	Communication Tools	M6,M7,M8,M9,M10
Google Drive	Communication Tools	M1-M10
Slack	Communication Tools	M1-M10
Languages		
UML	Design	M1-M5
Java	Backend	M6-M10
XML	Project properties	M6-M10

Table 8: Development Environment

4.6 Measurements Program

Refer to SCERP Software Measurement Plan

4.7 Gantt Chart

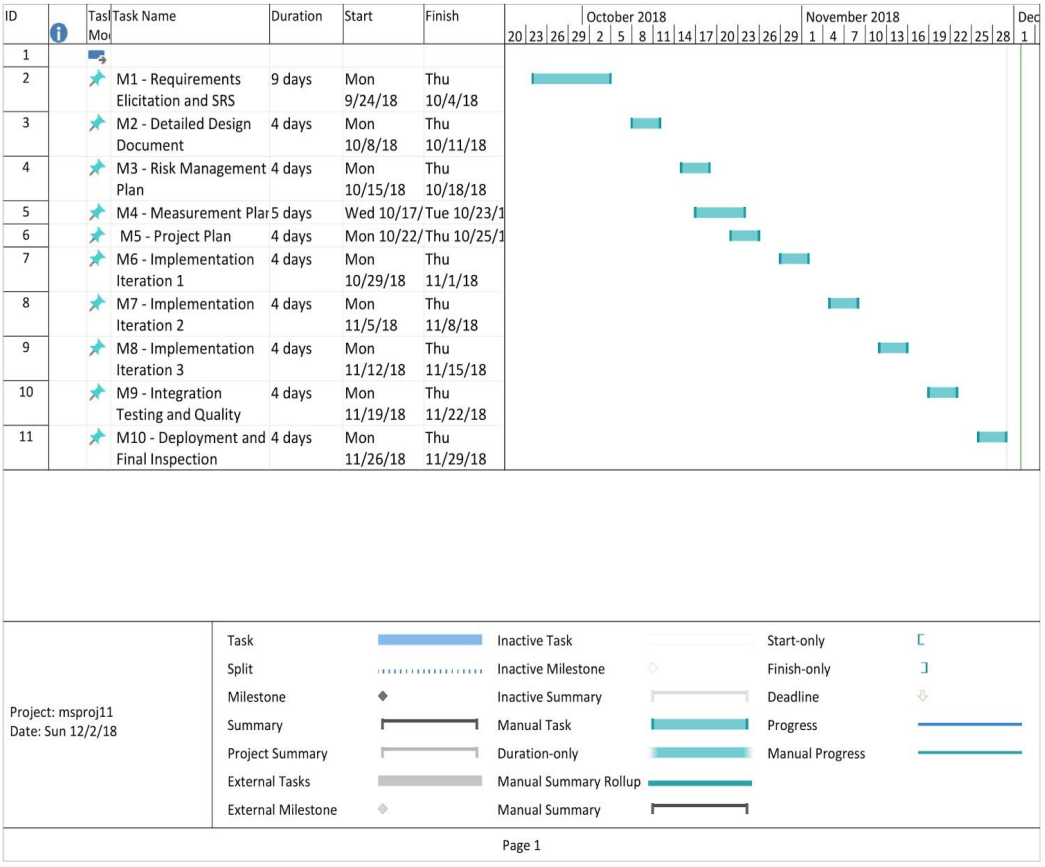

Fig 3: Gantt Chart

5. Risk Management

While considering risk management for this project we followed a strategic approach which includes:

5.1 Risk Identification and Categorization: In this phase the team members of the project spot, arranged and classified different types of risks using various techniques covered in detail in the later part of the document.

5.2 Risk Prioritization: Risks were assigned priorities based on various factors covered below. The highly probable and affected risks were taken into consideration during scheduling project.

5.3 Risk assignment, mitigation, tracking and prevention: Risks were assigned to different team members for preventing those risks, monitoring and performing the appropriate actions to relieve feedback on time.

5.4 Weekly Risk assessment meetings: Timely record sheets on the risks would be provided in weekly team meetings and any changes or updates required would be made.

5.5 Risk Management Plan Assessment: When project reaches the end state, the project leader examines all the risks and the risk management process, strong points and shortcomings, any surprise risks which were not included or discarded due to low priority but later on caused issues and on this basis any advancements would be suggested as a part of risk management approach for the upcoming projects.

6. Sub-contract Management

None.

7. Communication and Reporting

Type of Communication	Method / Tool	Frequency/Schedule	Information	Participants / Responsibilities
Internal Communication:				
Project Meetings	Conference	Weekly and on event	Project status, problems, risks, changed requirements, Measurement	Project Mgr, Technica, Project Mgr, Project Team
Sharing of project data	Google Drive,	When available	All project documentation and reports	Project Mgr, Technical Project Mgr,

	Github			Project Team Members
Milestone Meetings	Teleconference	Before milestones	Project status (progress)	Project Mgr Technical Project Mgr
Final Project Meeting	Conference	M10	Wrap-up Experiences	Project Mgr Project Team
External Communication and Reporting:				
Project Report	Excel sheet	Weekly	Project status - progress - forecast - risks	Project Manager Technical Project Mgr

Table 9: Communication and Reporting

8. Delivery Plan

8.1 Deliverables and Receivers

Ident.	Deliverable	Planned Date	Receiver
D1	Software Requirement Specification, Detailed Design	14th October	ABC organization
D2	Final Product	28th November	ABC organization

Table 10: Project Deliverables

9. Quality Assurance

The following steps are taken to ensure that the quality of the software is not compromised:

- Developing the clear vision of the desired change to avoid confusion and ensuring there is clear expressions for the reasons of change.
- Assessing the size and impact of the change
- Conducting research on all modules before the development.
- Frequent and open communication with the clients through emails and scheduled meetings.
- Analyse the stakeholders to know the level of involvement and their training needs.
- Training the employees to carry out the changes without compromising on the quality of the product.
- Regular Meeting Reviews were conducted to make sure that documentation is accurate and up to date.
- In addition to this, Ad-hoc Testing was carried out to maintain the code quality and test against bugs and errors.

10. Configuration and Change Management

Change management and control is done by taking below-mentioned points in consideration:

● Notify the team members for the changes that impact project.

● The change that is suggested by one member must be approved by other members of the team. The change should be accepted by most of the team.

● All the changes will be documented and made accessible to all the members of the team to track the status of the change.

● Formal versioning number will be used.

Also for proper configuration management, All the versions would be recorded and stored in case the team needs to revert and ensuring the required version is available

- GitHub: It was used to manage and maintain different versions of the code and also to make sure that changes are made to the updated one.

- Google Drive: It was used for the documentation of the project. The team members were given the rights to view and update and also all the changes were made in parallel.

11. Security Aspects

For Security , two approaches were used which are as follows:

- Github: Repository was made private and only the members of the team have the authorization to view and commit changes.
- Google Drive: Only the team members were given the right to view and edit the documents which helped to avoid information leakage and maintaining privacy.

12. Abbreviations and Definitions

SCERP	SALES AND CUSTOMER SERVICE ENTERPRISE RESOURCE PLANNING SYSTEM
SRS	SOFTWARE REQUIREMENT SPECIFICATION
Mgr	MANAGER

13. References

[1]	Document 1	SRS for SCERP
[2]	Document 2	Detailed Design for SCERP
[3]	Document 3	Risk Management Plan for SCERP
[4]	Document 4	Software Measurement Plan for SCERP

14. Revision

Rev. ind.	Description	Date
1	Original Draft	23rd October 2018
2	Revised Project Plan	24th October 2018
3	Final Project Plan	25th October 2018