

Student Guides Document
Information System Programming Project (ISP392) Topic
Application Development Project (SWP391) Topic
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I. Introduction

The purpose of this topic is for students to practice on developing the software application in working teams (project-based) following the industry-like software development activities of analyzing, designing, coding, and integrating. The success project team has to deliver the required deliverable items on time for the sufficient working scope with acceptable quality.

The project lifecycle is divided into 3 phases

- **Initiation:** this phase includes one iteration in one week (6 contact slots)
 - Build team,
 - Prepare working environment
 - Get familiar with the working environment & tracking tools
 - Prepare/define overall requirement & design for the whole project
 - Develop POC (Proof Of Concept) which include writing detailed requirement, code design, & code-review-test-integrate, each member one screen/function.
- **Construction:** This phase includes 3 development iterations; each iteration would last for two weeks (12 contact slots) with below main tasks to build the project assigned product.
 - Build the software package
 - Prepare the documentation as guided by the teacher,
 - Submit & demonstrate the working result to the teacher for evaluating.
- **Closing:** complete the software package and related documents, the phase lasts for three weeks (18 contact slots), and would be completed with student teams' presentation as final evaluation.

II. Practicing Guides

1. Initiation Phase

In the first training session, the students need to study the topic syllabus and this guides document to know details about the training topic and how to follow the topic.

Teacher would arrange the project teams and the product assignment for the teams to develop. Each team include 4-6 students (preferred to have 5 students/team) and would work together to develop one software product/application during the course as assigned and/or verified by the teacher.

Each team discusses & assign/promote a team leader for them, then they together to allocate the assignments for each team member (by filling into the product backlog document) study the assigned requirements and then prepare solution for the team assignment.

During the project initiation phase, the project team would

- Prepare/define overall requirement & design for the whole project
- Develop a POC which include writing detailed requirement, code design, & code-review-test-integrate, each member one screen/function. Each member needs to complete at least one screen (choosing order is by the defined priorities)

By the end of the phase, the team would discuss and prepare the new-development scope & assignments for the next iteration.

2. Construction Phase

In each iteration of this phase, the team would do following activities to complete the software functions/screens as you planned at the end of the last iteration

- Prepare high level requirement for the screens/functions, including screen layout
- Before coding, the team member has to prepare the detailed design (database, classes, sequence) for relevant software functions/screens.
- Write the code & self-test: the code must follow the provided coding convention & the design/naming conventions that the team has made (in the SDS document)
- After the coding, each team member
 - List out all the rules (business logics, input validation, etc.) that he/she has applied & would test into the relevant function section in the SRS document
 - Prepare the code design document for at least one of his/her functions
 - Integrate his/her codes with codes from other members in the project

By the end of the iteration, the team would discuss and prepare the new-development scope & assignments for the next iteration.

3. Closing Phase

The team complete/update the project documents & source codes for the whole project following the guides as mentioned in the Construction Phase part.

Besides, the team also need to prepare the final release document, final product backlog, an application demonstration video and a slide to show in the final presentation.

The demonstration video is to show the functionalities of the output product via introducing the main workflow of the application. In each workflow, the team would introduce and demonstrate the purpose and functionalities of the screens and integrating among them..

The presentation slide should include below contents (<= 15 slides)

- Project introduction: members, output product
- Use case diagram for each Role/Actor of the software
- Application Design: package diagram, database schema & design, and the UI design (theme/sample for admin, web screen)
- Actual screen flow for main work flows
- Project Results: Done, Not done, Lessons Learnt

4. Other Guides

At the initiation phase, the team would build a demo / POC application using the functions design as in the file ***Iteration 1_POC Requirements.pdf***

To complete the assigned/arranged product, the teams to discuss & agree on the working assignment (requirement function based) in the initiation phase. The assignment can be adjusted at the beginning of each phase or iteration

During the working progress, the teams would use

- The GitLab for manage source codes & project monitoring/controlling
- The Google Docs & Google Sheet for sharing & editing project documentations
- All the documentation and other project files are stored and shared via Google Drive

All the submits to the teacher for evaluating/demo need to baselined/tagged via GitLab

Students can find basic guides & samples about how to use GitLab for source codes & project issue tracking in the file ***Git & GitLab Guides_Doc***;

Templates to follow as listed below. During the project progress, the student teams can import those templates into the Google Docs or Google Sheets, from that to share among the team so that all team members can work in the same documents while the changes history of each document can be tracked accordingly

- Project Tracking: Template1_Project Tracking
- SRS Document: Template2_SRS Document
- SDS Document: Template3_SDS Document
- Issues Report: Template4_Issues Report
- Final Release Document: Template5_Final Release Document

Other guideline documents:

- Oracle Java Coding Standards.pdf
- Git & GitLab Guides.pdf

III. Project Deliverables

1. Iterations

Milestone	Main Scope	Weight
Iteration 1 (Iter1)	Integrated Code, SRS, SDS for the iter1 functions/screens (Admin)	OG-20%
Iteration 2 (Iter2)	Integrated Code, SRS, SDS for the iter2 functions/screens (Admin)	OG-20%
Iteration 3 (Iter3)	Integrated Code, SRS, SDS for the iter3 functions/screens	OG-20%
Final Iteration (Iter4)	Integrated Code, SRS, SDS for new functions/screens Updates for iter1-3 functions/screens (Integrated Code, SRS, SDS) Presentation slide & recorded product introduction/demo video	Final Eval (40%)

2. Deliverables

As defined in the topic syllabus, the deliverable items for each phase of the project and relevant evaluation criteria/weight are as in the table below. The templates that students can use to prepare the deliverable package are as mentioned in the section 3 (Document Templates) below

#	Phase	Deliverable Items & Evaluation Weight
1	Construction (Iteration 1)	Release Package (20%) <ul style="list-style-type: none"> • Project Tracking
2	Construction (Iteration 2)	<ul style="list-style-type: none"> • SRS/Requirement Document • SDS/Design Document
3	Construction (Iteration 3)	<ul style="list-style-type: none"> • Codes & DB Script • Issues Report Team Co-ordinating & Presenting: 20% Individual Results (60%, total of [LOC*Quality], iteration scope) <ul style="list-style-type: none"> • The value must be greater than or equal 180 to get max evaluation • LOC: 60, 120 or 240 for each completed function with the complexity of simple, medium or complex (respectively)

		<ul style="list-style-type: none"> Quality: 100%, 75% or 50% as evaluated by the teacher, for the code quality of high, medium or low (respectively)
4	Closing (Iteration 4)	<p>Final project release package (40%)</p> <ul style="list-style-type: none"> Final Project Tracking Final Release Document SRS/Requirement Document SDS/Design Document Codes & DB Script Issues Report Demo Video <p>Individual Results (40%, total of [LOC*Quality], whole project scope)</p> <ul style="list-style-type: none"> The value must be greater than or equal 720 to get max evaluation LOC: 60, 120 or 240 for each completed function with the complexity of simple, medium or complex (respectively) Quality: 100%, 75% or 50% as evaluated by the teacher, for the code quality of high, medium or low (respectively) <p>Team Co-ordinating & Presenting: 20%</p>

3. Document Templates

Assignment	Template	Contents
Iter1 Plan Submit	Template1_Project Tracking.xlsx	Sheet Product: list of all the screens or functions that the output product might need Sheet Iter1: the screens/function assignment for the iteration 1
	Template2_SRS Document.docx	Overall requirement for the whole project & the functional requirement specification for the iteration 1 functions / screens
	Template3_SDS Document.docx	Overall design for the whole project & the code design specification for the iteration 1 functions / screens
Iter2, Iter3, Iter4 Submit	Template1_Project Tracking.xlsx	Sheet Product: updated list of all the screens or functions that the output product might need Sheet IterX: the screens/function assignment for the iteration X
	Template2_SRS Document.docx	Updated overall requirement for the whole project & the functional requirements - New specs for the iterX functions / screens - Updated specs for the functions/screens from the previous iterations.
	Template3_SDS Document.docx	Updated overall design for the whole project & the code design specifications: - New design for the iterX functions / screens - Updated design for the functions/screens from the previous iterations.
	Template4_Issues Report.xlsx	Track all the requirements, tasks, defects, issues,.. related to the iteration X

Final Submit	Template1_Project Tracking.xlsx	Sheet Product: final list of all the screens or functions of the products, any changes (add, update, delete) are highlighted in RED Sheet Iter5: the new screens/function assignment for the iteration 5
	Template2_SRS Document.docx	Final requirement specifications (overall, functional requirement) for the whole project
	Template3_SDS Document.docx	Final design specifications (overall, code design) for the whole project
	Template4_Issues Report.xlsx	Track all the requirements, tasks, defects, issues,.. for the whole project
	Template5_Final Release Document	Final release document, which include: - Package items description - Installation Guide - User Manual