School of Information Technology

Diploma in Information Technology

IT2166
Enterprise Development Project

Project Guide
2022S2

1. Project Schedule

This project is divided into three phases as shown in the following table:

Week	Activity	Remarks
1 - 4	Form a project team and conduct brainstorming for project ideas. Approvals must be obtained from tutor on the project ideas.	Project Discussion
5 - 7	Arrange team meeting at least once per week. Record meeting minutes. Refer to Appendix A for template of meeting minutes. Review project solution with tutor and create project plan (refer to Appendix B). Design the application, which consists of - A Use Case Diagram to model the functionality of the system - Database Models and ER Diagram Students can construct use case diagram and data models from requirements gathering conducted in UXDMT using customer journey map or service blueprint and UI design Students can sign up accounts to create the Use Case Diagram and ER diagram, from www.lucidchart.com. At the end of this phase, teams must consolidate the project plan and design deliverables into one report and submit it to Brightspace (refer to Appendix C).	Document Project Plan & Design
8	Proposal Presentation Dress Code: Smart Casual	Submit Report and Slides
9 - 17	Build and test the application. All team members should work and communicate closely to address any interface and/or integration issue. Document and follow up the issue in minutes of meeting. Report to project supervisor.	Implementation
13, 16	Review project progress and code walkthrough with tutor.	Project Reviews
18	Final Presentation Dress Code: Formal Refer to Appendix D for instruction and Appendix E for checklist.	Final Presentation

Refer to Appendix F for the mapping of the deliverable with UXDMT.

2. Project Assessment

Week	Component	Team (%)	Individual (%)	Assessment Criteria
8	Project Plan & Design	10	10	**Team** ● Document Project Plan ● Construct Use Case Diagram **Individual** ● Design Data models with ER Diagram ● Pitch the proposed solution and how the design could meet the requirements ● Good effort in team collaboration
13	Project Review 1	-	15	**Individual** ● Data models created ● Database created using Entity Framework ● At least 2 Razor pages created ● At least 1 feature implemented ● Able to explain code
16	Project Review 2	5	10	**Team** ● System integrated with consistent look and feel **Individual** ● Validation in place and properly tested ● Improved feature since last review ● 90% completeness of features
18	Final Presentation	5	25	**Team** ● System fully integrated with consistent look and feel **Individual:** ● Innovativeness ● Completeness of features ● Prepare Test Data ● Presentation
	Overall	20	60	

The project assessment rubric is published in Brightspace.

3.   Project Organisation

Project teams consist of 4 to 5 students. Each team must elect a team leader.

3.1   Role of Project Supervisor (Module Tutor)

- Provide feedback to project plan and design.
- Advise the project group during project development, including the task allocation, development plan, tools used, etc.
- Provide input from the user perspective to the project team.
- Act as technical advisors (supervisors are **NOT** expected to debug programs or solve problems for the students).

3.2   Role of Team Leader

- Keep track of project schedule and documentation, appoint team members to record weekly minutes of meetings.
- Coordinate and assign work among members.
- Arrange meetings with the project supervisor includes the booking of meeting rooms if the meeting is held outside the lab/tutorial hours.
- Communicate with the supervisor on behalf of the team to discuss any project related matters.

3.3   Role of Team Members

- Carry out allocated tasks.
- To participate actively in all activities during practical and tutorial.
- To cooperate with the rest of the team and complete all the tasks allocated. (Marks may be deducted for individuals who need to rely heavily on others to complete his/her tasks. This is to cultivate an independent working attitude.)
- To be present and punctual for all group meetings
- To respect the authority and decisions of the team leader

4. Project Scenario

4.1 Project Theme

The project theme is Singapore Green Plan 2030.

The Singapore Green Plan 2030 is a national sustainability movement which seeks to rally bold and collective action to tackle climate change. Climate change is a global challenge, and Singapore is taking firm actions to do our part to build a sustainable future.

Reference: https://www.greenplan.gov.sg

4.2 Problem Statement

Identify one problem that public may have faced in one of the five pillars highlighted in the green plan.

Key Pillars of the Green Plan:
- City in Nature
- Energy Reset
- Green Economy
- Resilient Future
- Sustainable Living

Reference: https://www.greenplan.gov.sg/key-focus-areas/key-targets

Build a web application to provide the solution. Adopt the design thinking approach to design features/functions that will benefit all the stakeholders.

4.3 Minimum Requirements

- Must be web-based, mobile first response design

- Use a database for real time storage of data.

- Each member must build at least 3 dynamic razor pages with good usability.

4.4 Additional Features

- Calling external API to create innovative feature

- Data Visualisation on data collected

- Email/SMS Notification

4.5 Tools and Technologies

The development platform for this project will be Microsoft Visual Studio. All source code is to be written in C#, utilising the .NET Core framework and Microsoft SQL Server (or Express Local DB). Where appropriate, you may utilise additional development tools.

APPENDIX A – MINUTES OF MEETING

Date:	Time:	Location:

Presence:
Absence (indicate reason):

Topics Discussed / Issues Raised / Action Items:	Action By

Minutes Taken By:

APPENDIX B – PROJECT PLAN

Problem
(Define the problem statement based on the given theme)

Solution
(Describe the solution and how your solution will solve the problem)

Target Users
(Who are the users who will be using your application)

Team Members
(Describe team members in your project, role, and responsibility)

Features
(List the features of solution with task allocation, each team member to describe details for assigned features)

Project Schedule
(Describe the deliverable milestone, team member responsible for each deliverable)

Communication Plan
(Describe the communication plan, mode of communication to facilitate project discussion and information sharing)

APPENDIX C – PROJECT PLAN AND DESIGN REPORT

This report should follow the guidelines stated below:
- The report should be prepared using **one and a half line spacing**.
- **Name of the student** who has documented the section should appear at the **header** of the section.
- **Footer** should be used to show the project name and the page number.

Recommended content outline:

1.   Cover Page
   - Module Name
   - Module Group
   - Project Name
   - List team member's Name and Admin No.
   - Last updated date

2.   Project Plan
   - Problem
   - Solution
   - Target Users
   - Team Members
   - Features
   - Project Schedule
   - Communication Plan

3.   System Design
   - Use Case Diagram
   - Data Model Design with ER Diagram

4.   Minutes of Meeting

APPENDIX D – FINAL PROJECT PRESENTATION

Each team will be given 30 minutes for this session. Each team member will demonstrate and explain his/her features only.

Every team is expected to prepare and rehearse the presentation beforehand. Following is a suggested outline for the Presentation and Demo:

Component	Time (mins)
PowerPoint	1
- Explain about your project	
Individual Demo	3 - 5
- Sequence the demo to achieve a smooth workflow	
- Demonstrate and explain implemented features	
- Manage and distribute the time fairly among all team members	
Q & A	3 - 5

APPENDIX E – CHECKLIST OF QUALITY ATTRIBUTES FOR PRESENTATION

1. **Presentation Materials***
   - ☐ Content – Quality of info, Well Organised, Logical
   - ☐ Vocal – Clear and Audible
   - ☐ Visual – Effective use of poster to explain the project
   - ☐ Verbal – Standard of English
   - ☐ Impact-full (Convincing and lasting impression)

2. **Quality of Presentation**
   - ☐ Attire#
   - ☐ Eye Contact
   - ☐ Body Language (e.g., posture & mannerism)
   - ☐ Level of Confidence & Enthusiasm
   - ☐ Time Management

3. **Q & A**
   - ☐ Ability to understand & respond
   - ☐ Quality of response
   - ☐ Level of confidence

*Presentation Slides
   - 👍 Use appropriate pictures and diagrams (avoid unprofessional clipart)
   - 👍 Use colours and different fonts for emphasis and highlight
   - 👍 Use appropriate colour scheme
   - 👍 Font should be of good size
   - 👍 No wordy slides
   - 👍 Use professional slides templates

 # Attire
Dress code is formal business attire, with NYP student lanyard

For Ladies: blouse, skirt / pants
   - 👍 Top: no T-shirt.
   - 👍 Bottom: no denim material.
   - 👍 Foot wear: no slippers or flip-flops.

For Gentlemen: long sleeve business shirt
   - 👍 Top: no T-shirt, should wear business shirt with collar.
   - 👍 Bottom: no denim material, no cargo or baggy pants.
   - 👍 Footwear: no slippers or flip-flops.

Watch the article below if you are interested to express the idea in an impactful way
How to Sell Your Idea from the executive producer of Shark Tank (ucf.edu)

APPENDIX F - MAPPING OF PROJECT DELIVERABLE AND UXDMT DELIVERABLE

Week	Activity	UXDMT Activity
Project Plan Phase		
1	Project Discussion	Discuss different Ideation Techniques Brainstorm project ideas
2	Project Discussion	Conduct market and user research. - Design Survey Questions - Conduct Survey
3	Project Discussion	Compile data and Complete Survey Report.
4	Consult your tutor to review the project solution.	Translate the survey data into Personas. **Assignment 1 (15% - 30 marks)** *Submit survey report and Personas*
Analysis and Design Phase		
5	Identify and assign project features to team members. Record meeting minutes (refer to Appendix A). Complete project plan (refer to Appendix B).	Build an Empathy Map and Customer Journey Map.
6	Complete system design - Team to construct a use case diagram. - Individual to identify key entities, attributes, and relationships for the data models. Construct ER diagram.	Define problem statement, create user flow of each idea and design wireframes using PowerPoint.
7	Consolidate project plan and design report (refer to Appendix C). Prepare slides for proposal presentation.	**Assignment 2 (30% - 60 marks)** Presentation and submission - empathy map - customer journey map - User flow - Sketches - Wireframes
8	**Project Plan & Design (20%)** Present slides to pitch the proposed solution. Submit project plan and design report and presentation slides.	Convert wireframes into high fidelity prototypes.

Week	Project Activity	UXDMT Activity
Development & Testing Phase		
9	Construct a web application with models, services, and Razor pages. Set up a database using Entity Framework.	Continue to improve high fidelity prototypes and apply psychology concepts to design challenges.
12	Implement features Perform unit test Monitor and report progress Record the issues	Prepare Usability Test Plan
13	**Project Review 1 (15%)** Walkthrough the code with your tutor and demo the web app functions for project progress review.	Submission of Usability Test Plan
14	Implement features Perform unit test Perform minor integration Monitor and report progress Record the issues	Conduct UX evaluation and studies
15	Implement features Perform unit test Perform more integration Perform integration test Monitor and report progress Record the issues	**UX Design Methods and Techniques Test (15% - 30 marks)**
16	**Project Review 2 (15%)** Walkthrough the code with your tutor and demo the web app functions for project progress review.	Compile usability evaluation findings and proposed recommendations.
17	Implement features Perform unit test Perform full integration Perform integration test Monitor and report progress Record the issues	**Assignment 3 (40% - 80 marks)** Usability Evaluation and Findings Presentation
18	**Final Presentation (30%)** (Refer to Appendix D)	

~ End ~