**MIS4312 – Mobile Web App Development**

**Semester Project: General Information**

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# Overview

Through the semester, the student is required to work on a group project to develop a mobile web application.

# Phases

## Overview

Like the process to develop a system, the process to develop a mobile web application go through four major phases; each phase has its own deliverable.

1. Phase I: Planning 🡪 Deliverable: Project Plan
2. Phase II: Analysis 🡪 Deliverable: System Proposal
3. Phase III: Design 🡪 Detailed Design
4. Phase IV: Implementation 🡪 Deliverable: Completed Mobile Web Application

## Phase I

In Phase I, the group works on planning the project.

The **deliverable** of this phase is the **project plan** of the application.

For more details, please refer to the lecture of “System Development Life Cycles.”

For an example of the project plan in software engineering, refer to the sample of project plan in e-learning.

## Phase II

In Phase II, the group tries to answer the following questions

* Who will use the system
* What the system will do
* Where it will be used
* When it will be used
* How it will be used
* Etc.

In this phase, the project group investigates to find out

* if any current system(s) already exists ,
  + if YES, the group identiﬁes opportunities to improve the current system(s)
* OR the group will develop the concept of a brand new system.

A major task in this phase is that the group has to investigate and create the list of system requirements while trying to answer the above-mentioned questions. The group also has to sketch an overall system architecture of the application.

Besides, the group should also discuss in details how the application is developed by describing the system environment of the application (The group can refer to the details of the lecture “Mobile Web App System Environment”)

The **deliverable** of this phase is the **system proposal**.

For more details, please refer to the lecture of “System Development Life Cycles.”

For an example of the system proposal in software engineering, refer to the sample of system proposal in e-learning.

## Phase III

### High Level Design

High-level design provides an overview of an entire system, identifying all its elements at some level of abstraction. This contrasts with detailed design, a.k.a. low level design, which exposes the detailed design of each of these elements.

High level software design, also called software architecture, is the first step to analyze and consider all requirements for a software and attempt to define a structure which is able to fulfill them.

In the high level design, the list of system requirements are briefly reviewed (***NOTES****: the system requirements - both functional and non-functional - are discussed in details in the system proposal*), including the non-functional requirements, such as scalability, portability and maintainability. This first design step has to be more or less independent of a programming language. This is not always 100% possible, but a good high level design can be further refined into a detailed design, a.k.a. low level design, which then describes the implementation in any desired programming language.

For an example of the high level design in software engineering, refer to the sample of High Level Design in e-learning.

### Detailed Design

In Phase III, the group figures out the details of the system architecture of the application. The group also work on the design of

1. UI (User Interface) of the application
   1. List all the screen models that the user might access while using the application
      * Each screen must be labeled with a unique name
   2. For each screen model
      * Is described visually either with a real photo or an image that contains all the visual details of the real screen model: colors, buttons, text labels, text fields, tabs, menus including dropdown menus with all the entries, radios (checked), etc.
      * Specify the pre-conditioning screens?(the user open this screen from which screen)
      * Specify the post-conditioning screens (the user open another screen from this screen)
2. Software programs
   1. List all the .html/.php/.js…. files that provide the interaction with the user (NOTES: only “list”, not implement.) For each file, specify
      * What is the goal of this file, e.g: Allow the user to log in
      * Programming languages to be used, e.g.: HTML5, CSS3, Javascript, php, etc.
      * Any library of these programming languages, e.g. JQuery, etc.
      * Any framework based on these programming languages, e.g. JQuery Mobile
      * Handling any user’s input?
        1. If YES, how to get the user’s input 🡪 use FORM?
        2. If YES, where (which file) the input data is delivered to?
      * Handling any user’s output?
        1. Is YES, how to display the data to the user 🡪 use text?, images? Video? Etc.
      * Any Javascript script?
        1. If YES, describe what the script tries to achieve
        2. If YES, describe what any embedded Javascript function tries to do
   2. List all the php files that handle the data processing. For each file, specify
      * What is the goal of this file, e.g.: contain php code to do what …
      * Programming languages to be used: PHP
      * Handling any user’s input?
        1. If YES, data is delivered from which source, i.e. which file
      * Handling any user’s output?
        1. Is YES, data is destined to which destination, i.e. which file
   3. List all the php class files. For each file, specify
      * What is the goal of this class
      * List all the attributes (comments to explain what they represent)
      * List all the constructors
      * List all the methods:
        1. Provide description of what it does
        2. Provide description of each parameter that it can accept
        3. the pseudo-code to describe the steps of coding the method
   4. List all the external .js (Javascript) files
      * List all the JS functions available in each file
      * For each function, describe what the function tries to do
      * For each external .js file, list all the other files that would include it
3. Database
   1. Specify which database software? (MySQL)
   2. Specify the names of all the database instances with which the application is involved in its operations
   3. For each database:
      * Specify whether it is brand new (newly created for this application) or already existing
      * List all the tables (belonging to this database) with the application is involved in its operations
   4. For each table:
      * Specify the database it belongs
      * Describe the purpose of this table, e.g. to store the info of users
      * List all the data fields, i.e. columns, of this table
      * Specify which field(s) is/are primary keys
      * Specify which field(s) is/are foreign keys, if existing
   5. For each data field:
      * Specify data type, length
      * Specify any special property of this data field
      * Describe the purpose of this data field, e.g. to represent the ID of the user
   6. Draw the table diagrams to show the relationship among these tables

## Phase IV

In Phase IV, the group implements the application, based on the detailed design.

The deliverable of this phase is the completed and deployed mobile web application that the user can access (via web browser) and use it.

# System Environment of the Project Development

For the details, the student should refer to the lecture “Mobile Web App System Environment”

# Cloud-Based Application for the Deployment Purpose

Each group of students is provided with a fully setup cloud-based application whose name is formatted as follows:

**mwa**<group id>

This cloud-based application is used to deploy the semester project application of each group.

## Application Names Assigned to Groups

### (1) Group 1: mwa1

### (2) Group 2: mwa2

### (3) Group 3: mwa3

### (4) Group 4: mwa4

### (5) Group 5: mwa5

### (6) Group 6: mwa6

### (7) Group 7: mwa7

### (8) Group 8: mwa8

## Root URL of the Cloud-based Application

Each group of students is provided with a fully setup cloud-based application whose **root URL** is formatted as follows:

**http://mwa**<group id**>-mis4312gr**<group id>**v2**.**rhcloud**.**com**

***For examples****:*

*The root URL of the application of GROUP 8 is*

***http://mwa8-mis4312gr8v2****.****rhcloud****.****com***

In order to run a mobile web page in this application, e.g. gr8\_index.php, the user needs to enter the following URL into the web browser:

***http://mwa8-mis4312gr8v2****.****rhcloud****.****com/gr8\_index.php***

# HOWTO Submit the Deliverables

## Deliverables of Phase I, II, III

For the deliverables of PHASE I, II, and III:

* Each group submits only one copy
* The group submits the document using message in e-learning.
* The subject of the message is formatted as follows:
  + MIS4312 - GROUP <group id>: <Deliverable>
  + e.g.: MIS4312 – GROUP 8: System Proposal
* The message should be sent by the group leader (or by other members if the group leader cannot – for some reason)
* The message is sent to me, copied to the TA, and all the group members
* The document is attached to the message
* The document must contain the cover page in which group id and the names of all the group members of the group are clearly shown.
* In the body of the message, the group leader reports the status of the group while working on this phase (the same report as the group does while submitting the presented materials of the coding research)

## Deliverable of Phase IV

After completing all the code of the application files and successfully testing the application locally, the group uploaded all the application files to the cloud-based application to deploy and release the mobile web application to the user.

# Submit the Project

## Required Items for Submission as the Group

The group of students should refer to the document semester\_project\_howto\_submit.docx for the details of requirements for submission of the project report on behalf of the group.

## HOWTO Submit as the Individual Student

**Each student** is required to **submit** a project report **individually**.

The student should refer to the document semester\_project\_howto\_submit.docx for the details of requirements for the individual submission of the project report.

**IMPORTANT NOTES:**

*In some rare case, if a member did not make any contribution to the group work through the semester, the whole team can make a collective decision* ***not to let*** *that member* ***to access and get*** *the code and documents required to submit as the individual project report at the end of the semester*.

# Grading

## Overview

The grade of the semester project comprises the following grading components:

1. Phase I: deliverable 🡪 **10%**
2. Phase II: deliverable 🡪 **15%**
3. Phase III: deliverable 🡪 **25%**
4. Phase IV: deliverable 🡪 **30%** (successfully tested/deployed mobile web application)
5. Individual Project Report 🡪 **20%**