Assessment 2: Software Design

Last update 28 Mar 2024

Weighting: 15%
Due date: 5pm 19th April (Friday Week 7)
Type: Group Assessment
Learning outcomes: This assessment supports the following unit learning outcomes (ULOs)
- Design and document software architecture using appropriate diagrams and notations;
- Effectively work and communicate in team-based software development projects;

> **Guidance for the use of Generative Artificial Intelligence (more details <u>here</u>)**
>
> **Generative AI tools cannot be used in this assessment task In this assessment,** you must not use generative artificial intelligence (AI) to generate any materials or content in relation to the assessment task.

Assessment overview

> In this assessment, your team will focus on designing and documenting software architecture using appropriate diagrams and notations. Following the Week 4 Software Design and Modelling lecture and applied sessions, diagrams are used to capture the high level abstraction of different aspects of software. For this assessment, you will be asked to create a dictionary of abstraction based on a given requirements, create a use case diagram, an initial class diagram, use case scenarios, and a sequence diagram.

Assessment details

Pre-Assessment Activity: Dictionary of Abstraction

Prior to creating diagrams, we recommend students to create a dictionary of abstraction. Please refer to the Week 4 applied session for guidance and reference on how to create the dictionary of abstraction. To do so, we suggest the following steps:

1. Review the informal client requirements on Moodle and the information you collected on ED. Create a separate document that contains information from both sources.
2. Identify nouns in the artefacts available to you.
3. For each noun in your list, consider whether it:
   a. Lies outside the problem boundary and may, therefore, be ignored

      b. Is an abstract noun (To help you identity this easier: The abstract noun is usually something with no physical existence or belongs to a small part of an object. For example, if we are talking about cars, the colour of the car has no physical existence. Therefore it is an abstract noun), and usually this kind of noun might be considered as an attribute of an entity class

      c. Is a candidate entity class (Please note: if two nouns are really synonyms, only use one single candidate entity class).

4. Look at the candidate entity classes. Can you identify any ”is-a” (inheritance) or ‘has-a’ (Association or Aggregation)relationships between them?

5. Consider the abstract nouns. Are any of them suitable as attributes for your entity classes?

In summary, you usually produce the following information before draw your initial class diagram:

1. Identify all possible nouns
2. Identify nouns outside the problem boundary
3. Identify candidates nouns for entity classes
4. Identify "is-a" (Inheritance) relationship or ‘has-a’ (Association or Aggregation) between entity classes
5. Identify candidates nouns for attributes

Please note that it's essential to submit the dictionary of abstraction (the whole requirement) as an appendix for Assessment 2. You can refer to week 4 applied session reference. The dictionary of abstraction will be used as a reference to your diagrams and notations during the marking. Thus, failure to submit it may result in a score of zero for the assessment. Please ensure to include the dictionary of abstraction to avoid any penalties.

Task 1: Use case diagram

Draw a complete use case diagram for the Monash Merchant supermarket online shopping depicting all use cases, boundaries, actors and their respective relationships. Please refer to the week four lecture and applied session for guidance and reference on how to draw the use case diagram.

Task 2: Initial Class Diagram

Draw the initial class diagram for the Monash Merchant supermarket online shopping. Please refer to the week four lecture and applied session for guidance and reference on how to draw the use case diagram.

Your initial class diagram should:

☐ Include the classes

☐ Include appropriate attributes for the classes

- ☐ Describe the relationship between classes using but not limited to generalisation, association or aggregation.
- ☐ Represent the direction of the relationships properly when necessary
- ☐ Represent the direction of all the multiplicities

Task 3: Use case scenario and Sequence diagram

Write use case scenario(s) based on the user story(s) from your assessment 1, and draw their sequence diagrams based on the instructions below:

● During week 5 applied session, your mentor will assign you one user story (or a functionality) based on your assessment 1 for the teams of three.

● During week 5 applied session, your mentor will assign you two user stories (or functionalities) based on your assessment 1 for the teams of four.

Please use the template (attache the templates here) to write the use case scenario.

Moodle Submission

Students should submit the following files compressed in a single zip file:

1. The group coversheet (attache the templates here) in a PDF format, named as FIT5136_S1_2024_Appliedxx_TeamX_A2_groupcoversheet.pdf, where X is the team number.
2. A PDF file including all tasks, named as FIT5136_S1_2024_Appliedxx_TeamX_A2-design.pdf, where X is the team number.

Please refer to the applied session weeks 4 and 6 for guidance and reference on how to create a use case scenario and how to draw a sequence diagram.

Late Submission

Peer review in a group assignment (on Week 8)

Feedback Fruit Peer assessment will be performed to gauge the individual contributions to the group assignments. It will be used as an adjustment factor to an individual's grade based on the teammate's evaluation. Feedback Fruit will be made available on

Week 8 from Monday to Friday. You must complete it only after your team has made the submission on Moodle and have presented the prototype. If the whole team did not complete Feedback Fruit, it would result in the entire assessment being awarded a 0 mark.

Special Consideration Procedure

Eligibility

- Short extensions are not available for group assessments, in-class tests/assessments (including presentations), practical assessments (including laboratories), mid-semester tests, or scheduled final assessments. For these assessment types students must instead apply for special consideration
- Special consideration is available for students who are unable to undertake or complete an assessment task due to immediate and exceptional circumstances beyond their control
- Special consideration will not be granted for:
  - voluntary representation at club or society activities;
  - losing access to the learning management system because a compulsory module/s was not completed by the due date;
  - misreading the assessment submission date, including the final scheduled assessments timetable;
  - information technology or communication technology related issues that could have been prevented, or the effects minimised, with reasonable diligence by students (e.g. uploading correct files, allowing sufficient time to upload, ensuring the equipment is suitable, failing to save or back up documents or files);
  - scheduled final assessments, where students experienced a technical issue such as a brief interruption to power and/or internet service provision, and where the issue was resolved and the student received additional time to complete the assessment;
  - supplementary assessments; or
  - rescheduled deferred assessments.
- Students are not eligible if at the time of applying they have:
  - already submitted the assessment task for marking;
  - already performed an assessment task e.g. presentation, labs; or
  - attended or attempted the whole or part of a scheduled final assessment.
- An application will be considered by the Senior Director, Student Services (or delegate) when students are determined to be unfit to continue by a medical professional at the assessment venue (or online equivalent).
- The dean (or delegate) of the teaching faculty may approve certain assessment types that are not available for special consideration. This will be recorded in the unit entry of the Handbook. Students who are unable to complete an assessment task of this type

must contact the chief examiner (or delegate) who will determine alternative arrangements.

- **Applying for special consideration**
    - Eligible students must submit an application and supporting documentation via the special consideration application form (https://forms.monash.edu/special-consideration) as soon as possible, but no later than by 11.55pm (time zone of the unit location) on the due date of the affected assessment task.

Reference: https://publicpolicydms.monash.edu/Monash/documents/1935761