## BIT201 System Architecture and Design Assignment 1

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| **Due dates**  **Final Submission:**  **Initial Draft:** | 9 October 2020 before 11:55 PM  21 September 2020 |
| **Release date:** | 1 September 2020 |
| **Value:**  **Late Submission Penalty:** | 25%  5 marks per day |

#### Rationale

This assignment assesses the following learning outcomes:

CLO1: discuss various frameworks, architectural concepts and design patterns used in information systems development; (C2, PLO1, MQF1)

CLO2: produce analysis and design artifacts to address information systems requirements; (C3, PLO2, MQF2)

This is a group assignment. You should form a group of TWO to THREE students. You are required to collaborate with your team using your Teams Channel in the subject.

You should carry out the tasks in sequence, which means that you will have to plan and start work early in order to collaborate well.

**Each team member** must submit the soft copy of the Functional Specifications Report (Item (e) **ONLY**) to <http://turnitin.com>. The class information for turnitin submission is as follows:

Class code: **26174172**

Enrolment code: Architect

Do not put the cover sheet, marksheet or any names or student IDs in your soft copy submission; only your TEAM NAME. Your assignments will be peer-evaluated. Each team member must submit a copy of the entire assignment into turnitin. This will result in a 100% similarity ; but we are using turnitin for the peer evaluation, not similarity index.

**Problem Statement**

Crest Malaysia (www.crestmalaysia.org) is an NGO (Non Government Organization) that aims to help people who are facing crises arising from natural disasters such as flood and earthquakes. The Crest team consists of the Crest Manager and Administrators, and they are governed by a Board of Directors.

Crest works with other similar partner organizations around the world in order to have a team of volunteers that can be mobilized to make trips to support crisis victims anywhere in the world.

There are three business problems that they think currently face.

1. They have a large pool of volunteers. However, the volunteers need to undergo various types of training in order to be able to be useful during crises. For example, they need to complete life saving and boat navigation training programmes in order to help out with floods. Crest needs to keep track of which the training that each volunteer has completed or needs to complete.
2. When they receive notifications about crisis trips, Crest will need to record the trip and record which volunteers are able to participate on short notice. They will need to keep track of where the volunteers are located and whether they have valid travel documents to particular countries. If not, they will have to keep track of the applications for travel documents.
3. In order to participate in trips, Crest will need to organize fund-raising events. When donors make contributions at the events, they will need to record information about the donors, the amount they have contributed and whether the total will be enough to fund the trip.

Functional Specifications Report

As a team, you are required to discuss and propose an information system to support ONE of the problems faced of Crest Malaysia. You may choose between

1. Volunteer Training
2. Trip Organization
3. Fund Raising

Notes:

* Group Marks will comprise 60% of your marks and Individual Marks 40%.
* You are expected to work from the beginning using your Teams Channel so that your discussion and contributions to the group work can be recorded.
* You are required to evaluate each other's individual work and give feedback, comments, remarks and suggestions. This will be checked on the teams channel.
* You will also be required to evaluate another team’s submission using Turnitin, after the due date. You must adhere to the Academic Integrity Policy available on the lms at <https://lms.help.edu.my/helpelearning/mod/resource/view.php?id=32767>. Please read the policy carefully and take note of penalties for plagiarism.

The following sections are required in your report.

Name of Team

Name of Proposed System

**Part 1: First draft to be submitted to LMS by 21 Sept 2020**

Task 1: Business Architecture Models

Describe the problem your team will be focusing on, who are the main stakeholders and your proposed solution in terms of:

* **Architecture Vision** (maximum one page) describing the problem statement, system objectives and stakeholders’ key concerns.
* **Activity Diagram** representing the process model of the system.

Task 2: Systems Development Approach

* Identify the actors and use cases for the system and draw a **Use Case Diagram**. This should match the system objectives of the Architecture Vision. There should be between 3 – 5 use cases identified.
* Discuss how you would organize the use cases in an **iterative** and **incremental** manner using the selected approach.

Task 3: Conceptual Modelling

* Develop the **High Level Use Cases** for your system, as a group.
* Draw the **Analysis Class Diagram**

**Part 2: Continue working on Tasks 1 – 3 as a group. Task 4 is the individual component but you are expected to help each other and provide feedback on your team members’ work so that all the artifacts from Task 1 up to Task 4 are consistent. Marks will be given for providing comments on work by your team members and classmates.**

Task 4: Individual Component

* Each team member should be responsible for at least one use case and develop the **Expanded Use Case(s)** selected**.** If you are not sure which use case to do, please consult your tutor.
* Each team member should develop the **System Sequence Diagram** for their use case(s), by referring to the expanded use case and class diagram.
* Each team member should write the related **Contracts** for their use cases.

Task 5: Peer Evaluation

* Each team member is expected to provide feedback on comments on the other team member’s SSD and Contracts, by referring to the Analysis Class Diagram and ensuring that all the documentation is consistent.
* Each student must also perform the peer evaluation on Turnitin and evaluate documentation produced, especially the class diagram to ensure that it forms the basis for the system.

**BIT201 Systems Architecture and Design Assignment 1 Semester 3, 2020**

**Team Name: Group Marks (60%)**

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| **Category** | **Item (LO Assessed)** | **Poor** | **Good** | **Excellent** | **Marks** |
| **Task 1: Problem Definition** | **Architecture Vision Document (CLO1 - 10 marks)** | Problem and/or system objectives not clear. Stakeholders and key concerns missing or inappropriate. (0 – 4) | Problem and system objectives defined but lack clarity. Stakeholders identified but concerns not appropriate. (5 – 7) | System objectives clearly described and address the problem. Stakeholders and their key concerns identified clearly. (8 – 10) |  |
| **Activity Diagram  (CLO1 - 10 marks)** | Activity diagram does not show logical flow. Major errors in the use of diagram components.  (0 – 4) | Main flow of activities identified with minor errors. Suitable use of some components(5 – 7) | Flow of activities is logical and clear with correct use of activity diagram components. Corresponds to system features. (8 – 10) |  |
| **Task 2: Systems Development Approach** | **Use Case Diagram (CLO1 - 10 marks)** | Use case diagram does not give a clear idea of users or system functionalities. (0 – 4) | Basic system functionalities and actors identified. Use case or actor names could be better clarified.  (5 – 7) | Provides a clear overview of the system functionalities and actors. Suitable advanced relationships identified (8 – 10) |  |
| **Iteration Plan (CLO4 10 marks)** | Does not apply a iterative and incremental approach to the use cases. (0 – 4) | Attempt to organize the use cases in an iterative and incremental manner. (5 – 7) | Clear and suitable description of how the use cases are organized in the iterative and incremental approach (8 – 10) |  |
| **Task 3: Conceptual Modelling** | **High Level Use Cases  (CLO1 - 10 marks)** | High level use cases poorly written with overlap between use cases. (0 – 4) | Most of the use cases give a clear and brief description of the system, with minor errors. (5 – 7) | Each use case gives a brief description of the system, with all use cases describing the main features of the system. (8 – 10) |  |
| **Class Diagram  (CLO2 - 10 marks)** | Class diagram does not reflect a conceptual understanding of the system. Major errors in formatting and relationships.  (0 – 4) | Some attributes and/or relationships missing or inappropriate, minor errors in formatting and minor inconsistencies. (5 – 7) | Captures overall understanding of system. Consistent with expanded use cases. Attributes relevant and comprehensive. Suitable relationships identified between classes. (8 – 10) |  |
| **A: TOTAL FOR GROUP MARKS (60%)** | | | | |  |

**Name: StudentID:**  **Individual Component (40%)**

Use Case(s) Selected:

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| **Category** | **Item (LO Assessed)** | **Poor** | **Good** | **Excellent** | **Marks** |
| **Task 4: Individual Component** | **Expanded Use Case  (CLO1 - 10 Marks)** | Expanded use cases are too brief, main flows of information not clear. (0 – 4) | Some details missing from expanded use cases but generally captures user requirements. (5 – 7) | Expanded use cases consistent with class diagram, use case diagram and high level use cases. Includes all possible scenarios. (8 – 10) |  |
| **System Sequence Diagram  (CLO2 - 10 marks)** | SSD not consistent with the use case. Parameters missing or incorrect. (0 – 4) | SSD generally correct but has minor inconsistencies or errors. Operation names not consistent with purpose. (5 – 7) | Each SSD illustrates all events from the actor to the system based on the use case. Parameters reflect required data. Operation names appropriate. UML notation correct with suitable advanced elements. (8 – 10) |  |
| **Contracts  (CLO2 - 10 marks)** | Contract not consistent with SSD. Parameters missing or incorrect. State changes incorrect. (0 – 4) | Contract generally consistent with SSD. Minor issues with some state changes. (5 – 7) | Each contract describes the purpose of the operation clearly. State changes correctly described. (8 – 10) |  |
| **Task 5: Peer Evaluation** | **Peer Evaluation on Team Member’s work ( CLO2 – 5 marks)** | No comments given on expanded use case, SSD and contracts to check that it is consistent with the class diagram. (0 – 1) | Minimal comments given on the expanded use case, SSD and contracts to check that it is consistent with the class diagram. (2 - 3) | Substantial and relevant feedback and comments given on other team members’ expanded use case, SSD and contracts to check that it is consistent with the class diagram. (4 - 5) |  |
| **Peer Evaluation on Other Teams’  (CLO2 – 5 marks)** | No comments given on class diagram and other artifacts produced (0 – 1) | Minimal comments given on the class diagram and other artifacts. (2 - 3) | Substantial and relevant feedback and comments given on other teams’ documentation, with emphasis on the class diagram to understand the proposed system. (4 - 5) |  |
| **B: TOTAL INDIVIDUAL MARKS (40%)** | | | | |  |
| **C: Penalty for Late Submission (5 marks per day)** | | | | |  |
| **TOTAL MARKS (A + B – C)** | | | | |  |

 **Assignment Cover Sheet**

Assignment No.: \_\_\_\_\_

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| **Student Information (For group assignment, please state names of all members)** | | **Grade/Marks** |
| **Name** | **ID** |  |
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| **Module/Subject Information** | | **Office Acknowledgement** |
| **Module/Subject Code** | BIT201 |  |
| **Module/Subject Name** | Object-Oriented Analysis and Design |  |
| **Lecturer/Tutor/Facilitator** | Ng Shu Min |  |
| **Due Date** | 9 October 2020 |  |
| **Assignment Title/Topic** | Assignment 1 |  |
| **Intake (where applicable)** |  |  |
| **Word Count** | n/a | **Date/Time** |

**Declaration**

* I/We have read and understood the Programme Handbook that explains on **plagiarism**, and I/we testify that, unless otherwise acknowledged, the work submitted herein is entirely my/our own.
* I/We declare that no part of this assignment has been written for me/us by any other person(s) except where such collaboration has been authorized by the lecturer concerned.
* I/We authorize the University to test any work submitted by me/us, using text comparison software, for instances of plagiarism. I/We understand this will involve the University or its contractors copying my/our work and storing it on a database to be used in future to test work submitted by others.

Note: 1) The attachment of this statement on any electronically submitted assignments will be deemed to have the same authority as a signed statement.

2) The Group Leader signs the declaration on behalf of all members.

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| Signature: | Date: |
| E-mail: |  |

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| **Feedback/Comments\*** |
| **Main Strengths** |
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| **Main Weaknesses** |
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|  | **Student acknowledge feedback/comments** |
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| Grader’s signature | Student’s signature: |
| Date: | Date: |

Note:

1. A soft and hard copy of the assignment shall be submitted.
2. The signed copy of the assignment cover sheet shall be retained by the marker.
3. If the Turnitin report is required, students have to submit it with the assignment. However, departments may allow students up to **THREE** (3) working days after submission of the assignment to submit the Turnitin report. The assignment shall only be marked upon the submission of the Turnitin report.

\*Use additional sheets if required.

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