**BIT216 - Assignment 1**

**Release date:** 8 January 2024

**Due date:** Project Plan/Proposal Due by 7 February 2024 by 4pm

Requirement Specification Due by 21 February 2024 by 4pm

**Output:** Project Plan/ Proposal

Requirement Specification

**Value:** 20%

**Late Penalty**: 5 marks per working day

**LEARNING OUTCOMES**

* CLO1: Develop a prototype by applying software engineering principles and tools available to the software developer (C4, PLO3, MQF3d)
* CLO2: Apply techniques to manage software project timelines and risks(C3, PLO1, MQF1)
* CLO3: Demonstrate effective communication skills to make design and development decisions through written and oral demonstration (A4, PLO5, MQF3c)

**HELP Carbon Footprint System (HCS)**

Malaysia has been experiencing unpredictable weather such as increasing rainfall intensity, worsened air quality, with extreme heat wave to name a few. These are the effects of climate change which results from increased of greenhouse gases (GHGs) in the atmosphere. Carbon dioxide concentrations in the atmosphere have risen one third since the industrial revolution and are set to double in the next 100 years (IPCC, 2007).

Carbon dioxide and other heat-trapping gases are the main drivers of global warming. In order to help decelerate the dramatic climate change and protect the ecosphere, consumers must reduce their carbon emissions. As a consumer we are unaware of our carbon footprint, thus HELP CarbonFootPrint System (HCS) will be a tool to indicate our consumption and report the emissions caused to help us control and reduce our carbon footprint.

**Problem statement:**

Develop a mobile or web application that allows users to calculate and track their carbon footprint based on various lifestyle factors such as transportation choices, energy consumption, and dietary habits.

HCS will encourage users to be mindful of their daily activities, provides actionable insight and raises awareness about the environmental impact of personal choices. (refer to Fig. 1).

**General Requirements:**

Students are required to work in a team of **THREE**(**3) ONLY** to create the application: **HELP Carbon Footprint System (HCS).**

**NOTE:** The mark allocation for collaboration (in Assignments 2 and 3) will be awarded **ZERO** if the project does not reflect teamwork.

There are **TWO (2)** tasks in this first assignment.

The **first task** of the first assignment has been designed to give students the opportunity to understand and develop an appropriate project **plan/proposal** in a software development environment.

The **second task** is to create the requirements definition and specification document.

**TASK 1: Writing the project proposal/project plan (Due by 7/02/2024)**

Software project plan defines the technical and managerial processes necessary to satisfy the project requirements. Based on the file *HCS Common Case Study*, write the project plan with the following details:

|  |  |
| --- | --- |
| a. | **Decide** on the TITLE of your project for the case study. *The name of your project will be reflected in the GanttProject and the GitHub repository that will be created by your team.* |
| b. | Develop a project plan for the project that you have chosen. The plan should include:   1. Cover Page consisting of the following:  * Title of Project * Team Members: Team Leader + Member+ Contact Details  1. Table of Contents   The content of the proposal plan will include the following:   1. Overview *(starts from page 1)*   *This section describes a management* ***summar****y which will answer the following questions:*   * What is the motivation for this project? * Who the customer/user is/are? * What the project will deliver. Is it a new product or an extension of an existing one? * What it will cost? * How long it will take?  1. Project Aims   *Aims are statements of intent. They are usually written in broad terms. They set out what you hope to achieve at the end of the project.*   1. Project Objectives   *Objectives are specific statements that define* [*measurable*](https://thedigitalprojectmanager.com/project-objectives/) *outcomes – DO NOT list use cases as your objectives.*  *Readings:* [*How to Write Project Objectives?*](https://thedigitalprojectmanager.com/project-objectives/)   1. Project Scope   *Clarify what the project will (and will not) deliver, in order to avoid future shifts* *in the level of ambition. Note: a summary of the use cases in your own words.*   1. Project Schedule   Applying Iterative and Incremental Methodology prepare the   * Work breakdown Structure - *deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables* * Milestones/Deliverable - *Estimate the effort for the project activities and plan the activity sequencing. Can be combined in the WBS table and indicated in the Gantt Chart* * Gantt Chart *-Create a baseline with expected start/end dates and deliverables, Resource allocations should also be specified.*  1. Technical description of the proposed system - *Define methods, tools, languages, etc. to be employed for design, implementation, test, and documentation.*  * Development Platform * Demonstration Platform  1. Risk management plan - *the risks are listed, assessed, and mitigation and contingency are defined.* |

#### TASK 2: Writing the Requirements Definition and Specification Document (separate document) (Due by 21/02/2024)

This part of the assignment was designed to give the students the opportunity to understand and develop the requirements for the case study.

The use case diagram is shown in Fig. 1.

A diagram of a diagram

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**Figure 1: HCS Use Case Diagram**

Based on Fig 1. and the file *HCS Common Case Study,* write the requirements definition and Specification Document. You should have the following in your report.

1. Cover Page:

Title of Project

Team Members: Team Leader + Member+ Contact Details

1. Table of Contents
2. Content

* Functional and Non-functional requirements
* Modeling the requirements
  + 1. Epic + User Stories + Acceptance Criteria (Individual work)

*Each student is responsible for 2 use cases in total – For each use case, each student is required to derive the epic followed by the user stories and the acceptance criteria.*

***Note: There could be multiple user stories for 1 use case. There should also be at least 1 user story with Should Have and 1 user story with Could Have***

*Example:*

*Student Name & ID : Alex Choong (B1928299)*

*[Epic 1] : Features or functionalities*

|  |  |
| --- | --- |
| *[User Story 1]* | As a [user role], I need [the ability to do something], so that I can [get some benefit or avoid some consequence] |
| *Acceptance Criteria* | Given [input | preconditions], when [actions | triggers], then [output | consequences]. |
| *MoSCoW* |  |
| *Tasks* |  |
| *Test Cases* | *[Leave Blank to fill in Assign 2 and 3]* |
| *[User Story 2]* | As a [user role], I need [the ability to do something], so that I can [get some benefit or avoid some consequence] |
| *Acceptance Criteria* | Given [input | preconditions], when [actions | triggers], then [output | consequences]. |
| *MoSCoW* |  |
| *Tasks* |  |
| *Test Cases* | *[Leave Blank to fill in Assign 2 and 3]* |

*[Epic 2]: Features or functionalities*

|  |  |
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| *[User Story 1]* | As a [user role], I need [the ability to do something], so that I can [get some benefit or avoid some consequence] |
| *Acceptance Criteria* | Given [input | preconditions], when [actions | triggers], then [output | consequences]. |
| *MoSCoW* |  |
| *Tasks* |  |
| *Test Cases* | *[Leave Blank to fill in Assign 2 and 3]* |
| *[User Story 2]* | As a [user role], I need [the ability to do something], so that I can [get some benefit or avoid some consequence] |
| *Acceptance Criteria* | Given [input | preconditions], when [actions | triggers], then [output | consequences]. |
| *MoSCoW* |  |
| *Tasks* |  |
| *Test Cases* | *[Leave Blank to fill in Assign 2 and 3]* |

Requirements are prioritized to deliver the greatest and most immediate business benefits early. MoSCoW stands for:

M – Must have (Requirements with this label are critical to current delivery of software)

S – Should have (Requirements with this label are important but not necessary for delivery in current software release)

C – Could have (Requirements labeled with this label are desirable but not necessary)

W – Won’t have (These requirements are least critical, or not appropriate at that time)

#### *Note:*

#### *Recommended Distribution of use cases (optional)*

|  |  |  |
| --- | --- | --- |
| **Student A** | **Student B** | **Student C** |
| User Profile and Activity Tracking (Iteration 1) | Carbon Footprint Calculator (Iteration 1) | View/Upload Educational Content  (Iteration 1) |
| Recommendations  (Iteration 2) | Social System (Iteration 2) | Historical Tracking  (Iteration 2) |
|  |  |  |

#### *The student will bear the responsibility of these use cases in Assignments 2 and 3 which will be the design and implementation phases.*

*Example of User Stories:*

A screenshot of a computer screen

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*These tasks must be reflected in the Gantt Chart.*

#### General Marking criteria and Submission Requirements

* All documentation must be word-processed using Times New Roman font size 12 with 1.5 spacing.

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| **TURNITIN**  **Submission** | Assignment Submission to LMS Turnitin by 4PM.  **NO** resubmission allowed. It’s a **SINGLE**submission. |
| **Late Submission** | Please fill out the **Late Submission Form** to be considered for extension.  Penalty of 5 marks per working day will be imposed if:   * late submission form is not included; * reason for extension is not given; * extension is not granted. |
| **Cover Sheet & Marksheet** | Include the **Assignment Cover Sheet and Marksheet** |
| **Academic Integrity** | You are expected to adhere to the [Academic Integrity Policy](https://hlms.help.edu.my/mod/resource/view.php?id=32767).  All referencing and citation should use APA Style (7th Edition preferred).  You do not need to submit a similarity report.  Turnitin similarity reports will be generated by the lecturer and penalties imposed for similarity exceeding 15%.  You may be subject to additional penalties according to the [Academic Integrity Policy](https://hlms.help.edu.my/mod/resource/view.php?id=32767). |
| **Use of AI generative tools** | 1. Utilizing AI generative tools should be seen to augment creativity, problem-solving, and productivity while maintaining the integrity of the subject matter and upholding academic and professional standards. 2. Students must demonstrate their own knowledge, skills, and understanding of the subject matter in their work. 3. Where an assignment requires ChatGPT to be cited, you must reference all the content from Generative AI tools that you include. Failure to reference externally sourced, non-original work can result in Academic misconduct. 4. Students are to apply APA Style for any AI content generated that is utilized and integrated into the final work. This acknowledgment is to be added to the footnote of the respective pages.  * **To cite AI-generated work that you did not edit or revise:**   Name of AI Tool. (Year, Month Day you generated the content). Exact text of question or prompt you entered [AI-generated text/image/video, etc.]. Name of Company/Developer if different than name of AI tool. URL.  Example: ChatGPT. (2023, June 3). “Steps of creating a running website using XAMPP?” [AIgenerated text]. OpenAI. <https://chat.openai.com>.   * **To cite AI-generated work that you edited or revised:**   Name of AI Tool & Your Last Name, First Initial. (Year, Month Day you generated the content). Exact text of question or prompt you entered [AI-generated text/image/video, etc.]. Name of Company/Developer if different than name of AI tool. URL.  Example: ChatGPT & Chong, L.Y. (2023, July 19). How to setup cloud based CI/CD for a website deployment? [AI-generated text]. OpenAI.  https://chat.openai.com/c/9bb6771b-209b-4c8c-ac79-6a8a9f39604a     * **General Format for In-Text Citations**   Examples:  Cloud-based CI/CD requires the following steps to be applied (ChatGPT & Chong, L.Y., 2023)   1. Any violation of this policy will result in appropriate academic sanctions, which may include penalizing your grades, failing the course, and other disciplinary actions. |

#### Appendix A: Marking Scheme

#### Student ID A : Student ID B : Student ID C:

### Project Proposal

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| --- | --- | --- | --- | --- | --- | --- |
| LO | **Assessment Area** | **Poor** | **Satisfactory** | **Good** | **Excellent** | **Marks** |
| **CLO1** | **Appropriate level of scope coverage**  [2+5+5+5+5]   * Title * Overview * Project Aims * Project Objectives * Project Scope |  |  |  |  |  |
| **CLO2** | **Project plan [5+5+10]**   * Work breakdown * Milestones/Deliverables * Gantt chart - Timelines, Resource Usage |  |  |  |  |  |
| **CLO1** | **Resource planning [4+2]**   * Development   Hardware/Software   * Demo Environment Hardware/Software |  |  |  |  |  |
| **CLO2** | **Risk Management [5]** |  |  |  |  |  |
| **CLO3** | **Documentation[2+2+3]**   * Format Consistency * Spelling/Grammar * Professionalism |  |  |  |  |  |
|  |  | **Final Total /60** | | | |  |

### B. Requirements

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| LO | Assessment Area | **Poor** | **Satisfactory** | **Good** | **Excellent** | **Marks** | | | | |
| **CLO1** | **Requirements definition[4]**   * Functional Requirements * Non-func. Requirements (measurable) |  |  |  |  |  | | | | |
| **CLO1** | **Requirements specification [15+15 = 30]**  Epic + User Stories + Acceptance Criteria + Tasks |  |  |  |  | A | | B | | C |
| use case 1 [2+3+5+5= 15 marks]  use case 2 [2+3+5+5= 15 marks] |  | |  | |  |
| **CLO3** | **Documentation [2+2+2]**   * Format Consistency * Spelling/Grammar * Professionalism |  |  |  |  |  | | | | |
|  |  | **Sub-total (/40 marks)** | | | |  |  | |  | |

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| --- | --- | --- | --- | --- |
|  |  | Student A | Student B | Student C |
| Violation of Academic Integrity Penalty | (As per Academic Integrity Policy) |  |  |  |
| Late Submission | 5 marks per day ( \_\_\_\_ days) | (- ) | | |
|  | **TOTAL** |  |  |  |

## COMMENTS:

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## Feedback

**Appropriate level of scope coverage:**

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Title not appropriate/not found

Project Overview insufficient / not clearly defined / irrelevant / not found

Project objectives and aims insufficient / not clearly defined / irrelevant / not found

Project scope insufficient / not clearly defined / irrelevant / not found

**Initial project plan:**

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Work breakdown incomplete / slight inconsistent with proposed methodology/not found/no predecessor tasks must reflect the user stories

Milestone/Deliverables incomplete / slight inconsistent with proposed methodology/not found

Gantt chart wt timelines incomplete / slight inconsistent with proposed methodology/not found

Gantt chart wt milestones incomplete / slight inconsistent with proposed methodology/not found

Gantt chart wt resource incomplete / slight inconsistent with proposed methodology/not found

allocation

**Platform:**

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Development Platform insufficient / not concise / contain irrelevant facts / not specified

Demo Platform insufficient / not concise / contain irrelevant facts / not specified

**Risk Management:**

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Risk Identification &Mitigation contain irrelevant facts / not specified/not found

**Documentation:**

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Format table of contents not found/inconsistent font size/no proper headings/etc

Spelling/Grammar spelling mistakes/sentences are not comprehensible/sentences too long

**Requirements definition:**

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Functional Requirements insufficient / not clearly defined / irrelevant

Non-functional Req. insufficient / not clearly defined / irrelevant/not measurable

**Requirements specification:**

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Technical representation incomplete / lack in labelling / inconsistent notation / poor / not found

**Documentation:**

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Format table of contents not found/inconsistent font size/no proper headings/etc.

Spelling/Grammar spelling mistakes/sentences are not comprehensible/sentences too long

 **Assignment Cover Sheet**

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

|  |  |  |
| --- | --- | --- |
| **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** | BIT216 |  |
| **Module/Subject Name** | Software Engineering Principles |  |
| **Lecturer/Tutor/Facilitator** | Seetha Letchumi |  |
| **Due Date** | 7 February 2024 |  |
| **Assignment Title/Topic** | Assignment 1 – Task 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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| **Suggestions for improvement** |
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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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Page **2** of **2**

A picture containing text, clipart

Description automatically generated **Assignment Cover Sheet**

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

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| **Student Information (For group assignment, please state names of all members)** | | **Grade/Marks** |
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| **Module/Subject Information** | | **Office Acknowledgement** |
| **Module/Subject Code** | BIT216 |  |
| **Module/Subject Name** | Software Engineering Principles |  |
| **Lecturer/Tutor/Facilitator** | Seetha Letchumi |  |
| **Due Date** | 21 February 2024 |  |
| **Assignment Title/Topic** | Assignment 1 – Task 2 |  |
| **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.

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

*ACA-F-020(010611:01)*

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

Note:

1. A soft and hard copy of the assignment shall be submitted.
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