 

**Module Number: SWE4201**

**Module Name: Introduction to Software Development**

**Year/Semester: 2023-24 / Semester 2**

**Module Tutor/s:** Vanye Vanduhe, Kawther, Mohammad Shah

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| **Assessment Number** | 1 |
| **Assessment Type (and weighting)** | Report of 2000 words (100%) |
| **Assessment Name** | Portfolio |
| **Assessment Submission Date** | *Week 15* |

**Learning Outcomes Assessed:**

LO1: Develop algorithms to solve given problems.

LO2: Construct logically and syntactically correct programs using appropriate programming constructs.

LO3: Demonstrate systematic testing of programmed solutions to identify and correct syntax, semantic and logical errors.

LO4: Present effective use of modelling standards to represent system structure, behaviour and interaction.

**Part 1: (50% of total marks)**

All students are required to demonstrate their fully working programs in class in weeks 13 and 14. This is a practical assignment and therefore it vital all students take part to show how they are meeting the learning outcomes and to allow the lecturer to assess their programming skills.

**Part 2: (50% of total marks)**

**Assessment Brief**

You will develop a portfolio of written work for this module which will assess your understanding of the technical aspects of software development and object-oriented programming as well as your ability to undertake different forms of academic writing.

Produce a report of 2000 words in which you show your solutions to the three tasks. You are required to provide a thorough discussion within each task of your design and explanation of your programs and the programming constructs you are implementing. You are also required to provide a thorough evidence of testing for each task. In the section of this report, you are required to provide a critical reflection on your learning after completing this assignment.

**Portfolio Item 1 (20%):**

Design and write a Python program that contains a module in which you will add a number of functions that are used to represent a product monitoring system. Your program should implement a data structure to save and retrieve products’ details; individual products or all products at once. Your program should also implement error handling techniques.

You only need to provide explanation of your design and code in this document. You must not paste your code here. Please zip your code for this task and upload it to the separate link provided on Canvas.

**Portfolio Item 2 (20%):**

Design and write a Python program that will display the following structures:

a) A line of black snowflakes

Description automatically generated b) A group of black stars

Description automatically generated

You only need to provide explanation of your design and code in this document. You must not paste your code here. Please zip your code for this task and upload it to the separate link provided on Canvas.

**Portfolio Item 2 (50%):**

Design and implement a Java program that simulates a pizza ordering system. Your program will simulate an automatic pizza ordering system whereby a customer can select any type and size of pizza and add preferred toppings. The program will display an invoice at the end showing the details and price of the order.

* You are required to provide some requirements analysis and identify a number of classes with suitable justifications. This means you must avoid putting all your code in one class. You also must use suitable methods and avoid writing long methods.
* You need to design a class diagram showing classes and their relationships.
* You must explain your design ideas and programming constructs supported by suitable code snippets.
* You need to implement and explain object-oriented principles such as inheritance and encapsulation.
* You must implement error handling.
* You must upload a zip file of your code to the separate link provided on Canvas.

**Portfolio Item 4 (10%):**

Please write a critical reflection on the learning you have gained from this assignment, your strengths and areas of improvement

**Minimum Secondary Research Source Requirements:**

**Level HE4** - It is expected that the Reference List will contain between **five and ten sources**. As a MINIMUM the Reference List should include **one refereed academic journal** and **three academic books**

**Specific Assessment Criteria:**

(Please note that the General Assessment Criteria will also apply. Please refer to the table appended relevant to the assessment level)

**First class (70% and above):**

Students will provide evidence of excellent design and programming skills. They show excellent writing and presentation skills to produce well-written discussions and explanation of how they completed all the tasks.

Extensive research demonstrating use of a wide range of well selected secondary research sources will be evident. Academic writing style, English and referencing will be excellent.

**Upper Second Class 2(1) (60-69%):**

Students will provide evidence of very good design and programming skills. They show very good writing and presentation skills to produce well-written discussions and explanation of how they completed all the tasks. The evidence presented might be less than expected or more details might be needed in some sections.

Extensive research demonstrating use of a wide range of well selected secondary research sources will be evident. Academic writing style, English and referencing will be very good.

**Lower Second Class 2(2) (50-59%):**

Students will provide evidence of sound design and programming skills. They show good writing and presentation skills to produce acceptable discussions and explanation of how they completed all the tasks. The evidence presented might be limited or more details might be needed in some sections.

Research demonstrating use of a range of current and relevant secondary research sources will be evident. Academic writing style, English and referencing will be good.

**Third class (40-49%):**

Students will provide evidence of satisfactory design and programming skills. They show sufficient writing and presentation skills to produce adequate discussions and explanation of how they completed all the tasks. The evidence presented might be very limited or missing details in some sections.

Research demonstrating use of a range of current and relevant secondary research sources will be evident. Academic writing style, English and referencing will be generally competent.

**Fail (39% and below):** Students who do not meet the requirements of a third-class grade will not successfully complete the assessment activity.

**GENERAL ASSESSMENT GUIDELINES – LEVEL HE4**

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|  | **Relevance**  **Learning outcomes must be met for an overall pass** | **Knowledge and Understanding** | **Analysis, Creativity and Problem-Solving** | **Self-awareness and Reflection** | **Research/**  **Referencing** | **Written English** | **Presentation and Structure** |
| Class I (Exceptional Quality)  **85% - 100%** | Work is directly relevant and expertly addresses the requirements of the brief.  **Learning outcomes are met.** | Demonstrates breadth of knowledge and understanding of theory and practice beyond the threshold expectation for the level.  Demonstrates excellent understanding of key concepts in different contexts. | Presents an excellent and cohesive appraisal of findings through the critical analysis of information.  Draws clear, justified and thoughtful conclusions. Demonstrates creative flair, originality and initiative.  Demonstrates a critical understanding of problem-solving approaches and applies strong problem-solving skills. | Provides insightful reflection and self-awareness in relation to the outcomes of own work and personal responsibility. | A wide range of contemporary and relevant reference sources selected and drawn upon.  Sources cited accurately in both the body of text and in the Reference List/ Bibliography. | Writing style is clear and appropriate to the requirements of the assessment. An exceptionally well written answer with competent spelling, grammar and punctuation. For example, paragraphs are well structured and include linking and signposting. Sentences are complete and different types are used.  A wide range of appropriate vocabulary is used. | The presentational style and layout are correct for the type of assignment.  Evidence of planning and logically structured.  Where relevant, there is effective placement of, and reference to, figures, tables and images. |
| Class I (Excellent Quality)  **70% - 84%** | Work is relevant and comprehensively addresses the requirements of the brief.  **Learning outcomes are met.** | Demonstrates an excellent breadth of knowledge and understanding of theory and practice for this level.  Demonstrates in-depth understanding of key concepts. | Presents an excellent and cohesive discussion of findings through the interpretation and evaluation of information sources.  Draws clear, justified and thoughtful conclusions.  Demonstrates clearly creativity and initiative.  Applies excellent problem-solving skills. | Provides excellent reflection and self-awareness in relation to the outcomes of own work and personal responsibility. | A range of contemporary and relevant reference sources selected and drawn upon.  Sources cited accurately in both the body of text and in the Reference List/Bibliography. | Writing style is clear and appropriate to the requirements of the assessment. An excellently well written answer with competent, spelling, grammar and punctuation. For example, paragraphs are well structured and include linking and signposting. Sentences are complete and different types are used.  A wide range of appropriate vocabulary is used. | The presentational style and layout are correct for the type of assignment.  Evidence of planning and logically structured.  Where relevant, there is effective placement of and reference to, figures, tables and images. |
| Class II/i (Very Good Quality)  **60% - 69%** | Work is relevant and addresses most of the requirements of the brief well.  **Learning outcomes are met.** | Demonstrates a thorough breadth of knowledge and understanding of theory and practice for this level.  Demonstrates very good understanding of key concepts. | Presents a perceptive and cohesive discussion of findings through the interpretation and evaluation of information sources.  Draws clear and justified conclusions.  Demonstrates creativity and initiative.  Applies strong problem-solving skills. | Provides justified reflection and self-awareness in relation to the outcomes of own work and personal responsibility, as required by the assessment. | A range of appropriate reference sources selected and drawn upon.  Sources cited accurately in the main in the text and in the Reference List/ Bibliography. | Writing style is clear and appropriate to the requirements of the assessment. A very well written answer with competent spelling, grammar and punctuation. For example, paragraphs are well structured and include linking and signposting. Sentences are complete and different types are used.  A range of appropriate vocabulary is used. | The presentational style and layout are correct for the type of assignment.  Evidence of planning and logically structured in the main.  Where relevant, there is effective placement of figures, tables and images. |
|  | **Relevance**  **Learning outcomes must be met for an overall pass** | **Knowledge and Understanding** | **Analysis, Creativity and Problem-Solving** | **Self-awareness and Reflection** | **Research/**  **Referencing** | **Written English** | **Presentation and Structure** |
| Class II/ii (Good Quality)  **50% - 59%** | Work addresses key requirements of the brief. Some irrelevant content.  **Learning outcomes are met.** | Demonstrates a sound breadth of knowledge and understanding of theory and practice for this level.  Demonstrates sound understanding of key concepts. | Presents a logical discussion of findings through the interpretation and evaluation of information sources.  Draws clear and justified conclusions.  Demonstrates some creativity and initiative.  Applies sound problem-solving skills. | Provides valid reflection and self-awareness in relation to the outcomes of own work and personal responsibility, as required by the assessment. | Relevant reference sources selected and drawn upon.  Some sources accurately cited in both the body of text and in the Reference List/Bibliography. | Writing style is mostly appropriate to the requirements of the assessment  Grammar, spelling and punctuation are generally competent and minor lapses do not pose difficulty for the reader. Paragraphs are structured and include some linking and signposting. Sentences are complete.  A range of appropriate vocabulary is used. | The presentational style and layout are largely correct for the type of assignment.  Logically structured in the most part.  Where relevant, effective placement of some figures, tables and images. |
| Class III (Satisfactory Quality)  **40% - 49%** | Work addresses the requirements of the brief, although superficially in places. Some irrelevant content.  **Learning outcomes are met.** | Demonstrates a sufficient breadth of knowledge and understanding of theory and practice for this level.  Demonstrates a sufficient understanding of key concepts. | Presents a valid discussion of findings through the interpretation and evaluation of information sources.  Draws justified conclusions.  Demonstrates creativity and initiative in places.  Applies sufficient problem-solving skills. | Provides some reflection and self-awareness in relation to the outcomes of own work and personal responsibility, as required by the assessment. | Some relevant reference sources selected and drawn upon.  Some weaknesses in referencing technique. | Writing style is occasionally not appropriate for the assessment. Grammar, spelling and punctuation are generally competent, but may pose minor difficulties for the reader. Some paragraphs may lack structure, and there is limited linking and signposting.  Some appropriate vocabulary is used | The presentational style and layout are largely correct for the type of assignment.  Adequately structured.  Inclusion of some figures, tables and images but not always relevant and/or clear. |
| Borderline  Fail **35% - 39%** | Work addresses only some of the requirements of the brief. Irrelevant and superficial content.  **One or more learning outcomes have not been met.** | Demonstrates limited knowledge and understanding of theory and practice for this level. Demonstrates a lack of understanding of key concepts. | Presents a limited discussion of findings through the interpretation of information sources.  Draws some irrelevant conclusions.  Creativity and initiative are lacking.  Problem-solving skills are lacking. | Provides limited reflection and self-awareness in relation to the outcomes of own work and personal responsibility, when required. | Sources selected are limited and lack relevance.  Poor referencing technique employed. | Writing style is unclear and does not match the requirements of the assessment in question.  Deficiencies in spelling, grammar and punctuation makes reading difficult and arguments unclear in places. Paragraphs are poorly structured. | For the type of assignment the presentational style, layout and/or structure are lacking.  Figures, tables and images included when required but these lack clarity and relevance. |
| Fail  **<34%** | Work does not address the requirements of the brief. Irrelevant and superficial content.  **One or more learning outcomes have not been met.** | Demonstrates inadequate knowledge and understanding of theory and practice for this level.    Demonstrates insufficient understanding of key concepts. | Presents a limited discussion of findings with little consideration of the quality of information drawn upon.  Draws irrelevant conclusions.  Creativity, initiative and problem-solving skills are absent. | Provides inadequate reflection and self-awareness in relation to the outcomes of own work and personal responsibility, when required. | There is an absence of relevant sources.  Poor referencing technique employed. | Writing style is unclear and does not match the requirements of the assessment in question.  Deficiencies in spelling, grammar and punctuation makes reading difficult and arguments unclear. Unstructured paragraphs. | For the type of assignment the presentational style, layout and/or structure are lacking.  Figures, tables and images are absent when required or lack relevance/clarity. |