Topic 12

Unit Review and Final Examination

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Unit Review

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- Python is one of the most popular and most in-demand programming languages today.
- It is widely used in data science, in AI, in science, in engineering, and in many other industries.
- This unit is a required unit for our Master of IT course. It is particularly important if you are enrolled in Artificial Intelligence and Data Science major.

Unit Review

- To many students, this unit is the first programming unit. The unit teaches you
  - how to think logically
  - how to express an idea precisely
  - how to use the divide-and-conquer strategy to break down a large task into a sequence of smaller, actionable tasks
  - how to use "abstraction" as a powerful tool to handle complexity
  - how to analyse the user requirements, break them down into a collection of components and/or a sequence of steps that can be separately realised using a computer programming language, and then combine these components and/or steps into a coherent computer program, and finally test and validate that the program satisfies all user requirements.

Unit Review

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- These skills are generic, not limited to one programming language, perhaps not even limited to computer programming!
- Of course, to fully master these skills require continuous practice and experimentation.
- We have started the course, but it is up to you to continue the journey and reach a new height!

Unit Review

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- The unit has covered many basic language constructs such as
  - Data representation: data types, variable declaration, data storage issue behind the variables
  - Execution flow control: condition and branching, loops and iterations, and handling of exceptional events
  - Important language built-in data structures such as strings, range, tuples, lists, sets and dictionaries
  - Functions and modules as a way to implement divide-and-conquer strategy, to support abstraction and information hiding
  - Constructs for object-oriented programming such as class and object instantiation, inheritance, etc.
- The unit has also covered important third-party packages such as Numpy for numerical processing and Matplotlib for data visualisation

Unit Review

- It is hoped that this unit will
  - deepen your understanding of the impact of IT on our society
  - provide you with a solid foundation of programming
  - provide you with an essential tool for solving problems you will be studying in the subsequent units
  - serve as a starting point in your journal to become an IT professional.

Final Examination

- Date: Monday, 13 November 2023
- Time: 13:30
- Duration: 1.5 hours
- Type of exam: Face-to-Face, invigilated exam
  - Closed book exam, no books, no notes, no calculator, no mobile phone. Only bring with you a couple of good black or blue pens.
- Venue:

  415 Gym [Surnames E-Z]

  460.3.032 ECL2 –LT [Surnames A-D]

Final Examination

- This exam is worth 35% of the unit assessment.
- There will be 4 questions (25 x 4) worth a total of 100 marks.
- Some questions have sub-questions.
- The first question is a theory question asking you to explain some concepts.
- The other questions are programming, ie, you are given a small problem and asked to write a Python program to solve the problem.
- All 11 topics will be examined.

Final Examination

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- How to prepare for the exam?
  - Read the lecture notes, topic by topic
  - Try the examples in the lecture notes. Do not copy and paste the code into your editor. Type the code into your computer. Better still, read the code until you think you understand it, then write the code without looking at the lecture notes.
  - Review all lab exercises for each topic – if you did not complete a lab exercise before or did not do it well, maybe you should complete it now as part of the review. You may find that some of the exam question resemble some lab exercises.
  - Review your assignment
  - Try the sample exam paper
  - One way to increase your understanding is to create hypothesis and test it by creating or changing the program.

Final Examination

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- Where to write my answer
  - Write your answer directly in the space under each question or sub-question
- What should I do if I do not remember the exact syntax of a function?
  - If you want to use a function or method in your program but do not remember its exact syntax (eg, exact function name, required parameters and their order, etc), do not panic!
  - you may use a notation of your own with a written note stating the purpose of the function or method, the purpose and type of each parameter, etc.
  - Then use your notation in place of the function or method in your program.

Final Examination

- For a theory question, how long should my answer be?
  - Use the common sense – look at the amount of space left under the question and also look at the marks allocated to the question, decide what much you should write.
  - When we assess your answer, we will be looking at how many critical points you have covered and the quality of your answer, not how long your answer is.

Sample Examination Paper

- You may use the sample exam paper (available from the LMS) to prepare your exam.
- The sample exam paper is similar to the incoming exam paper in scope and the level of difficulty.
- However, there are two important differences between the sample exam paper and the incoming exam paper:
    1. The sample exam paper was used in an online exam, therefor the way to write and submit your answers is completely different from those of the incoming exam which is a face-to-face, invigilated exam. Please see the instruction page of the incoming exam paper in the next slice for details.
    2. The allowed time for the sample exam was 2 hours while the incoming exam takes 1.5 hours. Therefore, you can expect that there will be fewer questions in the incoming exam.

The Front Page of the Final Exam Paper

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ICT582 Python Programming Principles and Practice

Final Examination

Semester 2, 2023

Time Allowed 1.5 hours plus 10 minutes reading time

INSTRUCTIONS

1. There are 12 pages in this Paper, including 3 blank pages at the end.
2. There are 4 questions in this exam paper with a total of 100 marks.
3. Attempt all questions.
4. Write your answer directly on this Paper in the space below each question or sub-question.
5. If more space is required, continue your answer on the blank pages at the end. Make clear on the original page that your answer is to continue on a blank page and give the page number.
6. Use the back of each page for rough notes if required.

Your Surname: _____

Your Given Names: _____

Your Student Number: _____

Your Signature: _____

EXAMINATION AID ALLOWED

Provided by the University
Nil

Provided by the Candidate
Closed Book Examination – No Calculators Permitted

Criteria to Pass the Unit

- Your final grade for the unit will be reported as a letter grade and a mark. To pass the unit you must:

1) have an aggregate score for the combined assessment of 50% or better, and

2) achieve satisfactory performance in the final examination. Satisfactory performance is normally considered to be 50% or higher.

Assessment Components

Work	Weighting	Due Date
Tutorial participation	10%	
Weekly labs	25%	Demonstrated and assessed in the following week's tutorial time
Assignment	30%	Week 14
Final exam	35%	Examination period
Total	100%	

How is your aggregate mark calculated

- The raw marks of each of your weekly lab, your assignment and your exam are moderated first.
  - As some markers are more strict than others. Moderation will iron out these differences.
- The moderated marks are used to calculate the aggregate:

aggregate mark = combined tutorial participation mark (capped at 10)

+ moderated mark of 9 weekly labs (%) * 0.25

+ moderate assignment mark (%) * 0.30

+ moderated final exam mark (%) * 0.35

How to Determine Whether You Will Pass the Unit?

- If your aggregate mark >=50 and your exam mark >= 50, your pass the unit. Your unit mark is your aggregate mark. Your unit grade will be HD, D, C or P.
- Elsif your aggregate mark >=50 but your exam mark < 50, you will be given a supplementary assessment. Your interim grade is either SA or SX.
- Elsif your aggregate mark >= 45, you will be given a supplementary assessment. Your interim grade is either SA or SX.
- Else you fail the unit, your unit grade is N.

Supplementary Assessment

- The supplementary assessment is either in the form of a supplementary assignment or a supplementary exam.
- In most cases, it will be a supplementary exam.
- The style, the scope and the level of difficulty of the supplementary exam will be same as the final exam.
- If you are given a supplementary assessment, you will pass the unit if you pass the supplementary assessment.
- If you fail the supplementary assessment, you fail the unit.

What is My Unit Mark After the Supplementary Assessment

- If you are given a supplementary assessment, you will pass the unit if you pass the supplementary assessment if your mark is >= 50.
  - in this case, your unit mark is 50 and your unit grade is P.
- If your supplementary assessment mark is < 50, you fail the unit.
  - in this case, your unit grade is N.
  - if your aggregate is >= 50, your unit mark is 49
  - if your aggregate is < 50, your unit mark is either your aggregate or your supplementary mark, which ever is higher.

How Are My Unit Mark Determined – 7 Examples

- The following table shows you seven typical scenarios and how the unit mark and unit grade are determined in each scenario.

Student	A	B	C	D	E	F	G
Aggregate mark	67	54	54	46	46	46	43
Final exam mark	54	47	47	51	51	51	42
Award a supplementary assessment?		Yes	Yes	Yes	Yes	Yes	No
Supplementary assessment mark		55	40	57	48	40	
Unit mark	67	50	49	50	48	46	43
Unit Grade	C	P	N	P	N	N	N