ENGG1003 - Thursday Week 12

Final exam preparation

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27 May 2021

Last compiled: May 27, 2021 2:03pm +10:00

Lecture overview

1. Final exam organisational details
   - when, how, how long, how much ...
   - academic integrity
2. Overview of final exam questions
   - Q1, Q2, Q3, Q4
3. Questions & answers

1) Final exam organisational details

- **Date:** Tuesday 8 June
- **Time:** 2:00pm AEST
- **Location:** ONLINE exam, via Blackboard (BB)
- **Duration:** 130 minutes
  - 2:00pm–4:10pm
- final exam is **OPEN BOOK**

- counts for 35% of overall course grade in ENGG1003

Tue, 8 Jun 2021 **2:00 PM**

ONLINE

ENGG1003	Introduction to Procedural Programming	ONLINE

Final exam organisational details

- you will be asked to write Python code in the exam
  - have your PyCharm setup prepared
- the following resources ARE PERMITTED:
  - lecture notes
  - lab sheets
  - notes, textbook, study guides
  - pre-existing Python code, eg: developed for labs, quiz, assignments
  - any pre-existing Internet resource
- the following ARE NOT PERMITTED:
  - assistance from friends, fellow students or any other person
  - active participation in online forums

Academic integrity

- Student Academic Integrity Policy
- Student Conduct Rule
- cases of suspected collusion, plagiarism or other forms of academic misconduct will be reported to the School's *Student Academic Conduct Officer (SACO)*
- Course Coordinators may need to perform an Oral Examination (Viva) with a student as a way of verifying the authorship of materials

2) Overview of final exam questions

- exam consists of four (4) questions *
  - 10 marks per question
  - marks indicated for parts (a),(b),(c) etc within a single question

$\star$ **NOTE:** exact format of exam may differ to fit BB requirements
  - will advise any changes to number of questions on BB/email/discord
  - BUT will only be a *re-organisation* of Q1–Q4

- questions tend to get more difficult: Q1 "easy", Q2 slightly harder, Q3 harder again, Q4 hardest
- Q1 graded by BB, Q2–Q4 manually graded

Question 1

- ten (10) multiple choice (1 mark each)
- given Python code, asked to:
  - identify coding error (if any)
  - what is the output when code runs? (if any)
  - maybe other styles of multiple choice questions

A student wrote the Python code below to calculate the sum total of all entries in array `x`. What happens when the code is run?

```
import numpy as np

x = np.array([-1, 3., 5., -2. ])

total = 0;
for k in range(1, len(x)):
    total += x[k]

print(total)
```

(a) PyCharm `SyntaxError: invalid syntax`
(b) the code prints the total 5.0
(c) the code prints the total 6.0
(d) the code gets stuck in an infinite loop

Question 2

General scope of Q2 as follows ...

Write Python code to:

- evaluate an expression $f(x)$ at a single value of x
- evaluate an expression $f(x)$ at a range of values x using *loops*
- evaluate an expression $f(x)$ at a range of values x using a *vectorised solution*
- generate a plot
- put x-labels, y-labels, title, grid etc on plot

Question 2

Write a Python script to plot the following function:

$$f(t) = e^{-at}\left(\sin(5t) + \cos(10t)\right)$$

using 200 linearly spaced time points over the range $0 \leq t \leq 5$. Your script should use the value $a = 2$. Display todays date in the title of the plot. Use of any Python library is permitted.

(a) Upload your Python code to the submission box below

(b) Upload the plot image to the file upload box below

Question 3

- XXX

Question 4

- XXX

3) Questions & answers

- XXX