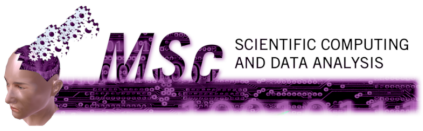

Coursework: Agile, Responsible, and Collaborative Development

Module: Professional Skills (COMP 51915)
Term: Michaelmas Term 2024
Lecturer: Christopher Marcotte

Submission Please submit the peer-evaluation forms, and your presentation video file.

Deadlines Consult the MISCADA learning and teaching handbook for submission deadlines.

Plagiarism and collusion Students suspected of plagiarism, either of published work or work from unpublished sources, including the work of other students, or of collusion will be dealt with according to Computer Science and University guidelines.

Description

For this coursework, consider a scenario where you have been recently hired in a software development company; your first task is develop basic documentation and infrastructure for building the *very impressive* software developed by this company. You are charged with implementing a build system and continuous integration for the repository to ensure the interns cannot break it too badly, and documenting the process. Your target audience is the group of new interns expected to join the company.

For this assignment, you will be assigned groups. You are tasked to:

- clone the template repository, then
- choose a testing framework and implement some tests, before you
- add a README file with detailed instructions for building the application locally, and
- create a build system for the software, and
- implement continuous integration (CI) for your repository.

You will then deliver a *short presentation* about your contribution to the project, which will take the form of a recorded video for submission.

Important Information

The template repository is: www.github.com/scicomp-durham/gray-scott-sim.

The peer-evaluation form can be found here: https://forms.office.com/e/52CPWjaYvj, or by scanning the QR code in 1.

As this is group work you should work collaboratively in a single *private* repository hosted on GitHub. Likewise *if there are any issues with your group peers which you expect will affect the quality of your submission*, you should contact me early for intervention.

As mentioned above, ***your repository should remain private to your group***.

Testing

The template repository holds a C++ code (`gs.cpp`) for the simulation of the Gray-Scott reaction-diffusion system. You should implement at least three unit tests for the program, demonstrating a range of sophistication or difficulty. Some example tests are below:

(0.1) Check that the type of the model parameters (F, k) matches that of the element type of the u and v vectors.

(0.2) Check that the variables u and v are the same size.

(0.3) Check that the evolution equations produce the mathematically correct answer when $u = 0$ and $v = 0$.

(0.4) Ensure the simulation is deterministic for some set of parameters.

There are a number of simple testing frameworks for C++. You should select one and use it consistently for all your testing. Several suggestions are collected below:

- https://github.com/google/googletest
- https://github.com/mity/acutest
- https://www.boost.org/

Submission

You will be assigned into groups for this coursework, as collaborative working is an essential professional skill. You will use git to clone or fork a template repository, add appropriate tests, add a README with specific content, and implement a build system with continuous integration for the repository; you will then present on your approach, recorded as a video for submission. Your video should be **no more than 4 minutes long**, and focus on the high-level aspects of your contributions to the project; e.g. rather than the details of the tests discuss what these tests are meant to catch and why you think that is valuable, instead of discussing the details of your build system explain what elements of the workshop were relevant for your task and why.

Your submission will also include peer-evaluation forms for your group peers; these are at the link earlier in this sentence or in 1. It is essential that you fairly assess your peers and their contributions to the project, and that you submit one peer-evaluation form for each member of your group other than yourself. Inappropriate or unprofessional content in the forms will be marked down.

You will be asked to include a link to your shared group repository in the peer-evaluation form, which I will then use to request access to investigate the content in the repository, and eventually produce a mark. Work not represented in the repository – e.g. 'in-person coding with your peer and uploading a final, complete, file' – ***will not be marked***. In extreme cases where the repository can not be shared *in situ*, you may be asked to share a zip archive of your groups repository for partial credit.

Marking criteria

All submissions will be marked using the following criteria:

- Effective use of git features and commands at all stages of process. (10/100 marks)
- Clear build instructions in a correct, concise format. (15/100 marks)

- Functional Continuous Integration including unit testing. (15/100 marks)
- Presentation clarity and thoroughness. (50/100 marks)
  - Presentation thoroughly covers all major components of the coursework (10/50 marks)
  - Presentation explains interesting or novel technical approaches (10/50 marks)
  - Presentation timing is appropriate (8-12 minutes) and fairly distributes the content (10/50 marks)
  - Presentation technical content is correct and demonstrates mastery of the submodule content (10/50 marks)
  - Presentation is clear and complete (10/50 marks)
- All peer-evaluation forms are submitted and appropriate (10/100 marks)

Generic coursework remarks

Stick exactly to the submission format as specified. If you alter the format (submit an archive instead of plain files, use Word documents rather than PDFs, ...), the marker may refuse to mark the whole submission. Markers will not ask for missing files. If you have to submit code, ensure that this code does compile and, unless specified otherwise, does not require any manual interaction. Notably, markers will not debug your code, change parameters, or assess lines that are commented out.

All of MISCADA's deadlines are hard deadlines: In accordance with University procedures, submissions that are up to 5 working days late will be subject to a cap of the module pass mark. Later submissions will receive a mark of zero. If you require an extension, please submit an official extension request including medical evidence and/or acknowledgement by college. Do not contact the lecturers directly, as lecturers are not entitled to grant extensions. Details on extensions and valid reasons to grant extended deadlines can be found in the Learning and Teaching Handbook.

It is the responsibility of the student to ensure that there are sufficient backups of their work and that coursework is submitted with sufficient slack. Submit your coursework ahead of time. If in doubt, submit early versions. Technical difficulties (slow internet connection around submission deadline, lost computer hardware, accidentially deleted files, ...) will not be mitigated. Please see `https://www.dur.ac.uk/learningandteaching.handbook/6/2/6/` for further information regarding illness and adverse circumstances affecting your academic performance.

If collusion or plagiarism are detected, both students who copy and students who help to copy can be penalised. Do not share any coursework with other students, do not assist other students, cite all used sources incl. figures, code snippets, equations, ... Please see `https://www.dur.ac.uk/learningandteaching.handbook/6/2/4` and `https://www.dur.ac.uk/learningandteaching.handbook/6/2/4/1` for further information.

Coursework is to be treated as private and confidential. Do not publish the whole or parts of the coursework publicly. This includes both solutions and the plain coursework as handed out.

Group work

This work is group work. You will be assigned to small groups of students to complete this assessment prior to the last lecture of the course. Students can not change the assignment to groups or request to be made member of a particular group under normal circumstances.

Every group member has to submit individually. If you are asked to work collaboratively on one piece of work, every team member has to submit a copy of the work. Please ensure that the work clearly identifies your group members, i.e. enlists all collaborators.

While the work is completed as a group, you will receive individual marks depending on your individual performance.

Extension requests have to be submitted individually and do not carry over to all team members. If individual group members cannot make significant contributions, the marking will take this into account as contextual factor for the affected members of the group. For these reasons, it is particularly important to complete collaborative group work ahead of deadlines, and to clearly keep track and provide evidence for affected days if unexpected circumstances arise.

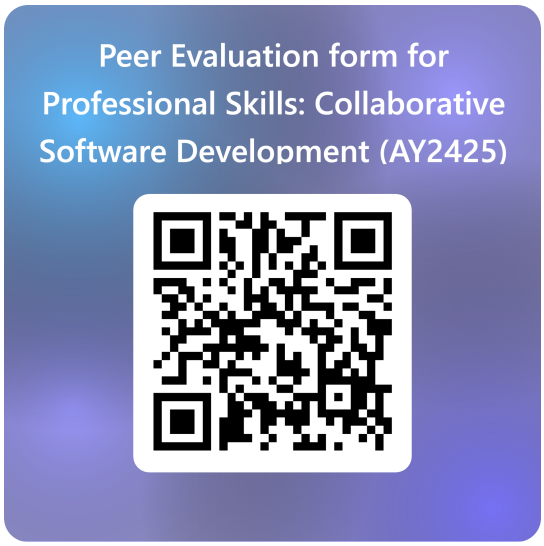

Figure 1: QR Code for the peer-evaluation form.

Category	Generic oral marking remarks				
	0–20	20–40	40–60	60–80	80–100
Clarity • Right amount of content. • Original creative ideas. • Clear guidance for audience.	Talk and answers show next to no comprehension what is important and what are minor details. Descriptions do not grab the attention of the audience. Answers and/or presentation are disorganized.	Talk and answers show minimal comprehension what is important and what are minor details. Descriptions somewhat get the attention of the audience. Description lacks a cohesive idea.	Talk and answers show appropriate comprehension and attention to details what is important. The structure of answer effectively gets the attention of the audience. Answers somewhat cohesive.	Talk and answers show appropriate comprehension and attention to details what is important. The structure of answer effectively gets the attention of the audience through original explanations or presentations. Answers somewhat cohesive.	Excellent talk and/or answers showing appropriate comprehension and attention to details what is important. The structure of answer effectively gets the attention of the audience through original explanations or presentations. Answers very cohesive.
Timing • Right amount of content, • on time	Amount of content relative to time not appropriate.	Amount of content relative to time barely appropriate.	Covered reasonable amount of content within given time frame.	Amount of content chosen excellent relative to given time frame.	Amount of content chosen excellent. Excellent timing.
Scientific Accuracy • How is the required level of knowledge addressed? • How are the necessary elements of the topic addressed?	Insufficient level of knowledge displayed. Comparison and contrast of findings/ topics/ ideas and their connections are lacking.	Partially meets the level of knowledge required by the course. Comparison and contrast of findings/ topics/ ideas and their connections are provided but lack thoroughness. Components of the topic are covered partially.	Partially meets the level of knowledge required by the course. Comparison and contrast of findings/ topics/ ideas and their connections are provided quite well. Components of the topic are covered sufficiently.	Sufficiently fulfills the level of knowledge required. Comparison and contrast of findings/ topics/ ideas and their connections are sufficiently provided. Components of the topic are covered sufficiently.	Fully meets the level of knowledge required by the course. Thorough comparison and contrast of findings/ topics/ ideas and their connections are provided. All essential components of the topic are covered
Visuals and design • Clear design with right amount of content. • Proper use of citations/references. • Correct spelling.	Too much detail or not enough content. Not properly cited. Spelling errors.	All details covered but too much content. Not properly cited. Spelling errors.	All details covered but too much content. Properly cited. Minor spelling errors.	All details covered, right amount of content. Properly cited with clear highlights of important details. No spelling errors.	All details covered, right amount of content. Original references to further work. No spelling errors.
Oral presentation • Good grammar. • Easy to follow statements. • Good understanding of questions.	Answers do not match questions. Major grammar and pronunciation errors. Difficult to follow (notably for non-native speakers).	Answers match questions eventually, but are not to the point. Grammar and pronunciation errors. Difficult to follow (notably for non-native speakers).	Answers match questions eventually, but are not immediately to the point. Minor grammar and pronunciation errors. Difficult to follow (notably for non-native speakers).	Answers match questions. Good grammar and pronunciation. Easy to follow.	Answers match questions and provide further details. Good grammar and pronunciation. Easy to follow engaging with audience.