

CSC3131 Building Systems for People

Please note: This coursework requires a lot of self-driven learning; you will get the core principles from lectures and practical sessions. However, you are expected to be able to work on this on your own.

Aim

At the end of this assessment students should understand different aspects of the DevOps cycle, including front end, back end and maintenance. Students will show their learning through submission of a portfolio, which demonstrates their skills in research and development.

Objectives

1. To perform research and apply critical analysis on researched tools
2. To be able to design and show clear reasoning behind the choices.
3. To be able to implement choices made.
4. To clearly reflect and evaluate in a report format the choices made.

Scenario

You have been asked to develop a system, which helps a development company with their DevOps operations. The company does not yet have a DevOps culture, so you will be expected to start curating and expanding the companies DevOps capabilities, tools, and processes.

You are expected to develop a system which interacts with the three tiers of a three-tier architecture system. To do this you will need some sort of website or application, that can be the presentation layer. The three-tier architecture system includes:

- A Server (your choice on what web stack you implement)
- A Database (your choice on what database type you implement)
- Web Frameworks (your choice on what web framework)

On top of this you need to consider and implement features to assist with the needs of a DevOps team. This includes:

- Continuous Integration
- Deployment
- Maintainability
- Scalability
- Observability
- Load Balancing
- Security

You can choose:

- The name of the company, (keep it professional)
- The tools you choose to implement and work with (keep it free)

Your system at a basic level should cover what is discussed in the module, although for first class marks you should extend and explore things yourself.

Deliverables

The deliverables are a portfolio and three form submissions showing your progress on the project. The portfolio is worth 100% of marks but to pass the module students must pass the checkpoints and the portfolio. The portfolio is made up of the following documents (plus anything else you want to include) as a zip folder and submitted to NESS.

Portfolio 100%:

Storyboard 20%

The storyboard will show all the main design decisions and structure of the layout and content. It will be submitted as a pdf.

Development 5%

Development is any of the code you work on, including a sensible read me file. The code should be clearly commented and follow the following standards:

- Professional and Inclusive Comments
- Follow a consistent tidy structure

Please note you should write comments mindfully and so that you could pass your code to a teammate. Submitted as a zip file.

Report 75%

The report of your project will cover how you tackled your project and will be where you show your understanding of key concepts which you have researched and covered in the module. The report should be reflective and cover enough detail to show the technical aspects of your work and show your understanding. Submitted as a word/ pdf file.

Your report should cover:

- The description of the tools you have used
- Implementation Details
- Reflections and Evaluation

Word Limit: 3000 words.

Please note: This is the first time the assessment has ran so we will be lenient with the word count however we expect there to be print screens and detailed explanations and reflections. Given the nature of this coursework, the usual +/-10% on word limit has been raised to +/-30%.

Portfolio Deadline: 15/12/2021 @ 16:00 submit via NESS

Portfolio Marking Scheme:

General Description of Marks:	1 st Class Mark Work in this range distinguishes itself from the upper second band by its maturity, consistent display of high-level critical thinking and breadth and depth of knowledge about the subject material. It will have an elegantly structured argument, demonstrate reading beyond course material, be polished and fluent, and demonstrate a strong command over discipline-specific knowledge.		Upper Second Work in this range shows strong knowledge of the subject ranging beyond the module material. It will show competence in academic style and command of discipline-specific vocabulary. It will have evidence of critical thinking but will demonstrate some issues of thought, style, and/or expression. It will demonstrate breadth of knowledge but lack some depth, or vice versa. This work distinguishes itself from the lower second band by its independence and its persuasive level of competence.	Lower Second Work in this range shows adequate knowledge of the subject and some ability to think beyond the module but relies substantially on module material. It will show an uneven command of academic style and discipline-specific vocabulary. Work will show some level of analytical thinking, though it will lack polish and independence and may present problems of style and expression that affect the communication of the argument. This work distinguishes itself from the third band by its degree of accuracy.	Third Work in this range shows some basic or limited knowledge of the subject and module material. It will show a flawed or limited command of academic style and discipline-specific vocabulary. There may be some effort to present an argument. This work distinguishes itself from a marginal fail in terms of the degree of knowledge and its demonstration of a very basic level of competence.	Border Fail Work in this range shows insufficient or flawed knowledge of the subject and module material, falling short of basic competence. There will be many factual errors and omissions. It will show little to no command of academic style and discipline-specific vocabulary. The work distinguishes itself from a fail by showing some knowledge and effort, even if it is highly limited.	Fail Work in this range is incomplete and/or shows lack of knowledge of the subject and incompetence in handling of material. There are likely to be significant factual errors and omissions. It will show a very poor standard of academic style and will be largely incoherent
	80+	70 - 79	60-69	50 – 59	40 – 49	35 – 39	0 – 34
Report Form 5%	Formatting is good has titles and sensible screenshots. Screenshots captions detailing the screenshot. References and citation will have no errors. The style is consistent. There will be no errors within the report.	Formatting is good has titles and sensible screenshots. The style is consistent. There may be one or two errors.	Formatting is good has titles and sensible screenshots. The style is consistent. There may be one or two errors.	Formatting is ok but may have the odd error in the consistency of the style.	Formatting is ok but shows little effort. Content has errors but is easy to read and understand the points made.	Poor formatting throughout, with errors, hard to read but gets the point across still.	Extremely poor formatting, with errors throughout. Perhaps is hard to read and does not get the point across.
Report Description of Tools 10%	Choices made are sensible and shows research into choices. Shows a complete understanding of the tools being used and performs critical analysis on the choice. Description is clear and concise.	Choices made are sensible and shows research into choices. Shows a complete understanding of the tools being used. Description is clear and concise.	Choices made are mostly sensible and shows some research into some of the choices. Shows a good understanding of the tools being used but the description may be vague at times perhaps mentions something but does not go into detail.	Description of choices are not clear at times and shows little reasoning and research. Descriptions may be vague and raise more questions than answers.	Description of choices are not clear throughout and shows little reasoning and research. Descriptions may be vague and raise more questions than answers.	Description of choices are not clear throughout and shows little reasoning and research. Some choices may be missing, might read more like a list.	Very poor descriptions, which are hard to follow and understand.

	80+	70 - 79	60-69	50 – 59	40 – 49	35 – 39	0 – 34
Report Details of Implementation 50%	<p>Has shown outside learning throughout the report and development while using citations and references appropriately.</p> <p>The methods will show an excellent understanding of the tools have been selected and use sensible approaches.</p> <p>Will cover all scenarios used in the module and have more features which are sensible and correct.</p>	<p>Will show completely outside learning will have citations and references. The methods will show a true understanding of the tools have been selected and use sensible approaches.</p> <p>Will cover all scenarios correctly and have more features.</p>	<p>Will show mostly outside learning will have citations and references.</p> <p>The methods will show a good understanding of the tools but might read vague at times.</p> <p>Will cover all scenarios used in the module correctly.</p>	<p>The methods will show an ok understanding of the tools but might read vague at times.</p> <p>Will cover most of the scenarios used in the module correctly.</p>	<p>Will apply lessons used in class but not show any outside class learning.</p> <p>Will cover very few of the scenarios covered in the module correctly.</p>	<p>Will apply lessons used in class, not show any outside class learning and have many errors or gaps.</p> <p>Will cover very few of the scenarios covered in the module correctly.</p>	<p>Will apply very few lessons used in class, not show any outside class learning and have many errors or gaps.</p>
Report Evaluation and Reflection 10%	<p>Will show a true and professional evaluation and reflection without blame. Reflection will be clear with suggestions on how to move forward. Evaluations will have discussions on alternative choices.</p>	<p>Will show an excellent understanding of reflection and evaluating. Reflection will be clear with suggestions on how to move forward. Evaluations will have discussions on alternative choices.</p>	<p>Reflections and evaluations will be good and have a reflection section throughout most of the report.</p>	<p>Reflection and Evaluation may lack professionalism at times and be missing at times.</p>	<p>Reflection and Evaluation is lacking throughout the report and will not be professional.</p>	<p>Very little reflection or evaluation done in the report might read like a conclusion.</p>	<p>Next to no reflection or evaluations on the project. Or is professional and reads like a rant.</p>

Development Code 5%	Will show an excellent understanding of how a project would be passed on to a teammate in development. The code will most likely go beyond what is required from the spec and show a sincere effort has been made.	Will show a good understanding of how to a project would be passed on to a teammate in development. The code will have a complete account for all the scenarios tackled in the module.	Will show a good understanding of how to a project would be passed on to a teammate in development. The code will have a complete account for all the scenarios tackled in the module.	Code may be messy or incomplete at times. The code will have account for some of the scenarios tackled in the module.	Code may be messy or incomplete at times. The code will have account for very few scenarios tackled in the module.	Code may be messy or incomplete at times.	Code may be messy or incomplete at times.
	80+	70 - 79	60-69	50 – 59	40 – 49	35 – 39	0 – 34
Storyboard: Design 10%	Formatting is clear without errors and images used are clear. The Storyboard could be passed to someone else to develop.	Formatting is clear without errors and images used are clear. The Storyboard could be passed to someone else to develop but might need more support.	Formatting is clear might have few errors or mistakes made in the design. Storyboard could be passed to someone else to develop but likely to make mistakes.	Formatting is likely to have errors or mistakes made in the design. Storyboard would likely not be able to be passed onto someone else.	Formatting will be messy and have errors or mistakes made in the design. Storyboard would not be able to be passed onto someone else without editing.	Formatting will be messy and have errors or mistakes made in the design will show very little effort being made. Storyboard will be hard to understand but can still follow the flow.	Formatting will be messy and have errors or mistakes made in the design and will be very difficult to understand and follow.
Storyboard: Detail 10%	Storyboard design covers the specification design without any errors and is clear throughout.	Storyboard design covers specification without any errors and is mostly clear.	Storyboard design covers the specification with very minor errors.	Storyboard design covers the specification with major errors.	Storyboard design covers most of the specification and may have errors.	Storyboard design covers little of the specification and will have errors.	Storyboard design covers little of the specification and has major errors.

Check Points:

Students must also submit each checkpoint to pass the module.

Check in 1 Tasks:

Design Decisions have been made and there is evidence that a full usable draft storyboard is complete. The following form has been submitted before the deadline:

[Microsoft Forms](#)

Check in 1 Deadline: 13th October 2021 at 16:00 submit via NESS

Check in 2 Tasks:

Implementation is ongoing and there is evidence of tools being set up and implemented. Evidence of the skeleton structure of report has been submitted. The following form has been submitted before the deadline:

[Microsoft Forms](#)

Check in 2 Deadline: 17th November 2021 at 16:00 submit via NESS

Check in 3 Tasks:

Implementation is almost complete and there is evidence of working features.

A draft of the report is complete (there may be sections missing but it can be seen that the report has been worked on). The following form has been submitted before the deadline:

[Microsoft Forms](#)

Check in 3 Deadline: 1st December 2021 at 16:00 submit via NESS

Check in Marking Scheme:

It is ok, if you have said no to some of the checkpoint questions, we have set these up as a guide of where we think you should be.

Submission Details:

Check in Points:

Submit receipts of submission of form (as a word or pdf – just do a print screen of your receipt) to NESS by each deadline:

- Check in 1: 13th October 2021 at 16:00
- Check in 2: 17th November 2021 at 16:00
- Check in 3: 1st December 2021 at 16:00

Portfolio:

Submit your portfolio as a zip to NESS by: 15th December 2021 at 16:00

QA Measures for the coursework specification:

- The author of this coursework was Laura Heels and checked by Chris Bull.
- Final approval was completed by Ken Pierce as stage 3 coordinator.
- The coursework was sent to students for comment and has been edited to reflect comments