INFO1111: Computing 1A Professionalism

2025 Semester 1

Skills: Team Project Report

Submission number: 1

GitHub: Click here

Team Members:

Name	Student ID	Target * Foundation	Target * Advanced	Selected Major
HAZAN, Leo	550480855	A	NA	Computer Science
BUCKLE, William	530658678	A	NA	Data Science
ANSTED, Emerson	520442911	A	NA	SW Development
CRONIN, Lauren-Grace	530619945	A	NA	Cyber Security

* Use the following codes:

- NA = Not attempting in this submission
- A = Attempting (not previously attempting)
- AW = Attempting (achieved weak in a previous submission)
- AG = Attempting (achieved good in a previous submission)
- S = Already achieved strong in a previous submission

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Instructions

Important: This section should be removed prior to submission.
Edit
You should use this LaTeX template to generate your team project report. Keep in mind the following key points:

- **Selecting a major**: Each team member must select one of the computing degree majors (a different one for each student) - i.e. Computer Science; Data Science; Software Development; Cyber Security. If there are more than four members in your team then your tutor will suggest a fifth alternative. The choice for each student should be included in the table on the cover page.

- **Teamwork**: Whilst the team project is just that – a team project – it has been designed to also allow different members of the team to achieve different outcomes. We do expect you to work together as a team – i.e. your team can only submit a single report. There will be some sections that need to be worked on as a team, and some sections that are done individually. This means that your team will need to collaborate to combine your individual components for each submission. This collaborative aspect is a requirement for both the foundation and advanced tasks (since the two tasks are submitted using this one template). The only exception to this is where a member of the team has already achieved the level they are targeting (e.g. OK for the Foundation task) in a previous submission and has decided to not attempt higher levels, and so is not contributing anything further (this should be obvious because no target is indicated for that student on the cover page).

- **Team problems**: If you do come across problems working together then the first step should be to discuss this with your tutor. You should do this as soon as possible, and not wait until it is too late for your tutor to address any problems.

- **Choosing Levels**: Whilst the report is compiled as a team, for each submission each team member can individually attempt the foundation task, advanced task or neither, (though you need to achieve a "STRONG" on the foundation task before being eligible to attempt the advanced task). Each team member will then be individually assessed for the levels they have attempted.
  For example, in the first submission, one team member attempted only the foundation task and the other three all attempted both the foundation task and the advanced task. For the one who attempted only the foundation task, they were not successful in achieving an "OK" (a pass) or a "STRONG" (opportunity to proceed to advanced task). In the second submission, they then reattempted the foundation task (successful – "STRONG"). For the third and final submission they could attempt the advanced task, or even just choose to not submit anything further and remain at the foundation "STRONG" rating.

- **Minimum requirement**: Remember that in order to pass the unit, you must achieve at least foundation – "OK" rating by the end of the third submission.

- **Assessment**: In order to attempt the advanced – "OK" or "STRONG" you must first have achieved foundation – "STRONG". This means that we will not assess any attempts made on the advanced task until the "STRONG" rating has been achieved on the foundation task.

- **Using this template**: When completing each section, you should remove the explanation text and replace it with your material. For each submission, each individual must complete their subsections and then collectively compile and submit the report.
- **Referencing**: You should also ensure that any resources you use are suitably referenced, and references are included into the reference list at the end of this document. You should use the IEEE reference style [1] (the reference included here shows you how this can be easily achieved).

1. Task 1 (Foundation): Core Skills

Throughout your Computing degree we will help you learn a range of new skills. Once you graduate however you will need to continue to learn new languages, new tools, new applications, etc. Task 1 focuses on core technical skills (related to LaTeX and Git) and the key technical skills used in different computing jobs. Each member of the team should individually complete their subsection below. You should begin by allocating to each team member a different major to focus on (i.e. one of: Computer Science; Data Science; Software Development; Cyber Security). If you have a fifth member, then your tutor will suggest a fifth topic to cover. This allocation should be specified above (see lines 37-56 in the LaTeX file).

Each member of your team is required to select one of the designated domains and collaboratively work on the scenario presented below. The primary objective is to reflect on the collaborative process and problem-solving strategies rather than solely focusing on the final solution.

The focus is on your team's collaborative process and problem solving skills rather than the solution itself.

You will need to integrate your information into this shared collaborative LaTeX document and compile the result.

Foundation is based on 3 components:

Scenario: Collaborative Disaster Response System Development

With devastating natural disasters, such as the 2025 LA wildfires, communication between emergency services, volunteers, and affected communities is chaotic and inefficient.

Develop an approach to streamline communication and optimise resource distribution during such crises.

ROLES:

- Computer Science (CS) domain develops the system infrastructure and applications to allow for integration between emergency services, databases, volunteers, and affected people. They will need to ensure this is automated and efficient in allocating resources.
- Software Engineering (SE) will ensure the infrastructure is scalable and robust to manage unpredictability of material disasters and amount of people affected. The system must have offline capabilities since natural disasters can disrupt telecommunications. They will make sure the infrastructure runs smoothly and ensures its user friendly.
- Cybersecurity protects communication channels from disruptions or hacks, protects personal data and ensures that access to confidential information is managed appropriately by authorised personnel. They will need to implement measures to mitigate false reporting or misinformation.
- Data Science (DS) will use analytics including data visualisation to forecast natural disasters from historical and real time data. They need to identify high risk areas from multiple sources of data to optimise resource allocation, routes and most urgent areas of need for emergency responders.

- If there is a 5th group member, Human-Computer Interaction (HCI) will ensure the system is intuitive and accessible for all users. This includes usability testing and refining the application and focusing on User Experience and Interaction (UI and UX) design.

Component 1 Project management / technical skills:
The team is required to create a project on GitHub and manage their tasks using GitHub's issue tracking system.

- Create a project within your GitHub repository
- Define tasks as issues and assign them to team members
- Track task progress throughout the project lifecycle
- Mark issues as resolved upon completion

For example, issue: 'research 2 technical skills for Data Science' and assign to John Applesmith.

Component 2 Group questions:

- Describe your team's collaborative process in developing a solution.
- How did you approach the problem as a team, and what challenges did you encounter in working together?
- Discuss how your team arrived at your final approach, including the decision-making process, compromises made, and key turning points.

Target: 300-500 words

Component 3 Individual questions:

- Reflect on the skills relevant to your domain that were essential for this project. What technical or professional skills have you identified were relevant to the project? Refer to the Skills Framework for the Information Age (SFIA) list of skills [2] and describe at least 2 skills per domain.
- How did working collaboratively on this project help you strengthen those skills?
- What professional or technical skills have you identified you need to develop or fine-tune?

Target: 300-400 words

OVERALL REQUIREMENTS:
To achieve an "OK" rating for this task you must individually accomplish the following:

- Each member of your team **has been** allocated a different major (Computer Science, Data Science, Software Development, Cyber Security (and Human-Computer Interaction for a fifth member).

- Submission Contribution section is completed with each subsequent submission
- Each member of your team **has identified** 2 key technical skills that you would need to be able to work in the industry of your allocated major.
  - Each skill must have an explanation on why it is a key skill required for the industry of the major (∼100 words per skill).
  - The 2 key tech skills must be identified from the skills framework for the information age SFIA.
- Github & LaTeX
  - Your team has created a team repository on Github for the project and put a copy of the LaTeX template, bib file, and image file into the team repository (only needs to be done by one member of your team).
  -
  - You have added your tutor to your git repository
  - Your team has created a GitHub project, created issues and allocated to each member, and closed issues upon completion
  - The information has been compiled into the shared collaborative LaTeX document using the template provided on Canvas with your team members sections - you have edited the LaTeX template to include your chosen major and responses to both the group discussion questions and individual questions.
  - You have cloned the team repository to your local machine.
  - Provide evidence that you can compile from the command line (provide screenshots of the command entered and output).
  - Provide evidence that you can commit to your local repo (provide screenshots of the steps taken to commit to their local repo).
- Referencing
  - You have provided in-text references (IEEE) to support your claims or where they gathered the information from.
  - You have a reference list following the IEEE referencing guidelines.
  - Some common things to look for to see whether your have correctly followed the referencing guide are:
    * The sources you have listed are only the sources that are present in-text.
    * All sources seen in-text are included in the reference list.
    * You followed the correct convention for references that don't have author's details or multiple sources have the same author and year of publication
    * You have included the required information for the source type as outlined in the guide.
    * Sources are not a list (i.e. dotpoints)

To achieve a "STRONG" rating, you must individually accomplish all of the above in addition to the following:
Demonstrate the following to your tutor during the tutorial:

- You are able to retrieve your team's shared repo

- You are able to make changes, recompile, commit changes, and push back to repo.
- Note: you should also provide screen-shots of relevant actions taken to make changes, recompile etc. does not require you to provide evidence of detailing conflicts.

1.1. Group response

We began by identifying common issues with communication during disasters such as access to network connection, delays in communication, misinformation and automation. We then brainstormed ideas for our own roles, then taking input from other team members on how it can be feasibly incorporated. We also made regular check ins during tutorials and opened issues on GitHub to complete tasks and closed them when they were complete.

After the brainstorming phase, everyone wrote down their own implementation according to their role and then we discussed as a group how to polish each part of the larger solution to work smoothly. The main challenge encountered in development of our plan was when there were two conflicting ideas about how we should implement a part of the system. We allowed each group member to express their thoughts and then decided which way we wanted to proceed.

In order to make a cohesive software that was able to solve several issues across multiple disciplines, we had to compromise and make decisions based on priorities. A key turning point was when we realised the communication needed to work offline. The software engineering team proposed local caching and delayed synchronisation . this ensured users could still receive and input data without internet access.Another decision we had to make was about usage for different user levels. As This software would be used by volunteers, civilians and emergency responders.

The cybersecurity team proposed role based access, with user IDs to support this. The data science team identified that responders needed real-time data to locate priority areas, however with unstable connection this was going to be difficult. A turning point came when they suggested analysing and using historical emergency data to forecast areas likely to be affected next. We combined this satellite image data processed through AI models to detect patterns. Using historical data enabled the team to provide offline available maps with high-risk zones highlighted.

Computer science team worked to ensure data could be visualised on dashboard That were easy and intuitive to understand and interpret. Computer science team also created a database to store data and users. They worked with Software engineering team to ensure this was scalable and the cybersecurity team to ensure the data stored was encrypted. For secure communication, the cybersecurity team also ensured end-to-end encryption in messages. To prevent misinformation they worked with all teams to implement a system to monitor logs. This detected abnormal behaviour, possible hacks, and with AI, could detect misinformation.

1.2. Skills for Computer Science: HAZAN, Leo

Two important skills that were relevant to my work in this project as a computer scientist were **Information Management (IRMG)** and **Organisational Facilitation (OFCL)**.

Information management (IRMG) is defined as planning, implementing, and controlling the full life cycle management of digitally organized information and records. Effective management of information is crucial during a crisis because it can heighten efficiency among responders and help save lives. This skill also provides data security which can ensure that sensitive data such as personal details of affected individuals remains stored securely preventing any data loss. This was useful for the project because it allowed for clear and concise information between everyone involved.

Organizational facilitation (OFCL) involves implementing principles and practices for effective teamwork across organizational boundaries to promote cohesion between groups and is especially important in a project such as this. The utilization of this skill is critical in a crisis because it allows teams to work together cohesively with clear communication and coordination while also ensuring and maintaining that concise information reaches the desired destination. Organizational facilitation is an important skill to utilize in this project because systemizing and distributing information between groups establishes transparent communication and allows authorities to adapt to the crisis at hand.

Working collaboratively helped me develop and strengthen these skills. Information management allowed for close and efficient communication between team members to ensure we were all on the same page. Additionally, my ability to collaborate in a team grew stronger as I worked to accomplish team objectives and ensure the smooth flow of information and tasks.

In the future, I need to further develop and progress in my leadership skills by strengthening my ability to lead and coordinate a team, ensuring that I can address any challenges or conflicts that arise efficiently, and keeping everyone aligned toward the shared objectives.

1.3. Skills for Data Science: BUCKLE, William

As the Data Scientist, the two choosen skills that were relevant to my work on the project were **Data Analysis (DTAN)** [2] and **Data Visualisation (VISL)** [2].

Data Analysis (DTAN) [2] is a core skill in the field of Data Science, and will be applied to great effect in this scenario. Data Analysis will facilitate the interpretation of real-time and historical data to pinpoint high-risk disaster zones and coordinate emergency services and resource distribution. Efficient data analysis is necessary for predicting outcomes by building realistic and evidence based models, as well as making informed decisions. In this scenario, Data Analysis will be used with community impact data, data surrounding impacts similar scenarios have on the community, which will contribute to clearly mapping out emergency response priority and zones of high risk, altogether facilitating informed decisions.

Data Visualisation (VISL) [2] is necessary for displaying complex data sets in understandable and concise formats such as graphs, labelled maps and other forms of data visualisation in dashboards. In emergency scenarios, decision makers do not have the time to analyse and parse data themselves, especially in their raw form. Data visualisation prepares the data, transforming it into comprehensive forms of data, which in turn allows decision makers to quickly understand the situation easily and act. This will greatly increase the efficiency of emergency response.

These two skills work hand in hand to analyse data and convert it into understandable forms, enabling the informed and efficient response of emergency services.

Working with teammates of different majors, and therefore different expertise and technical skills required clear and swift communication. As a Data Scientist, it was my role to interpret data sets, to output useful information, using Data Analysis skills, and then presenting this information in a way that bridges the gap between different disciplines and technical expertise. This project helped me understand the importance of concise evidence-driven data for efficient and informed decision making.

Looking forward, I would like to improve my skills in data visualisation, as I would already understand the data before making it understandable for others, therefore it will not always occur to me when a piece of data is not as well explained or accessible as it should be for my teammates. To improve this, continual and honest communication is required, as well as an openness to improvements and an understanding of my teammates' point of view.

1.4. Skills for SW Development: ANSTED, Emerson

As the software engineer in the group the two main skills that were relevant to my work on the project were **Solution Architecture (ARCH)** and **Radio Frequency Engineering (RFEN)**.

Solution Architecture (ARCH) is focused on the development of multi dimensional solution architecture which is able to deliver company or organisational outcomes [3]. This is essential for the disaster response system to ensure smooth interaction between websites, backend processes and other network functionalities to assist in communication between all parties involved or impacted by disasters. This skill also involves evaluating alternative architectures and analysing the trade-offs involved based on operational costs and performance. This was useful to the project as the solution needed to be economically viable as well as impactful and efficient. An example of where this was used was in development of a mobile application which connects to dedicated servers.

Radio Frequency Engineering (RFEN) involves the design, installation and maintenance of radio frequency devices and software [4]. During disaster response there are volunteers and workers out in the field and during dangerous weather events communication is essential, so radio communications need to be utilised for an effective and safe response. An example of where this was used was in the development of a central channel to inform field workers of important events or situations.

Working collaboratively helped me to develop these skills, as I knew that the software architecture had to be well developed to be able to incorporate everyone's contributions effectively. This large scale project also helped me to develop radio frequency engineering knowledge as all communications had to run as smoothly as possible.

In future I need to improve my ability to lay out solution architecture visually and explain it to my team members so that they are all aware of how everything interacts with each dimension of the project.

1.5. Skills for Cyber Security: CRONIN, Lauren-Grace

In this project, two SFIA skills [2] that were particularly relevant to my role in cybersecurity were **Information Security (SCTY)** and **Data Management (DATM)**.

Information Security (SCTY) [5], as defined in the SFIA framework, involves the design, implementation, and operation of controls and management strategies to maintain the confidentiality and integrity of information systems. This skill is essential when designing secure systems that manage sensitive information, particularly in emergency contexts where communication channels are vulnerable to disruption or attack. SCTY also encompasses the ability to assess risks, enforce policies, and protect against unauthorised access or malicious activity. An example of where this was used in the project was the implementation of authentication and authorisation mechanisms, as this enforced security policies that maintain integrity and prevent unauthorised access.

Data Management (DATM) [6] is concerned with the management of practices and processes to ensure the accessibility, quality, and security of data, such as personal data (address, phone number, name etc.) and also data sent through communication such as messages or emails. This includes establishing and controlling data handling procedures, as well as ensuring data compliance with regulatory and ethical standards. Within a cybersecurity context, it also relates to ensuring that access to confidential information is governed appropriately, and that data flows are protected and traceable. An example of this in the project was the encryption of messages/packets sent across the network so hackers are unable to read the data being sent across channels.

Collaborating with teammates across different disciplines required me to clearly communicate technical needs and align security considerations with broader system objectives. For example, discussions around data access and user permissions helped reinforce my understanding of how security policies integrate with system design. It also required me to think critically about practical implementation—not just theoretical knowledge—particularly in scenarios involving limited resources or conflicting priorities.

Professionally, I want to improve my ability to communicate technical ideas clearly and collaborate more effectively under pressure. Technically, I'd like to build my confidence in areas like threat detection and securely configuring systems. Particularly, understanding how to configure secure systems from the ground up is something I'm keen to get better at. This project helped me identify those gaps and gave me a clearer idea of what skills to focus on moving forward.

LaTeX Compilation and BibTeX Evidence

I compiled the LaTeX report using the command line via `pdflatex` and `bibtex` on my local machine. The process involved multiple compilation steps to ensure that citations and references were correctly processed:

- `pdflatex main.tex` — compiled the document and generated `.aux`
- `bibtex main` — generated the `.bbl` file using my `main.bib` database
- Re-ran `pdflatex main.tex` twice to resolve cross-references and citation rendering

All BibTeX entries are stored in `main.bib`, and I used the `IEEEtran` style for formatting.

1.6. Screenshot for Git Push

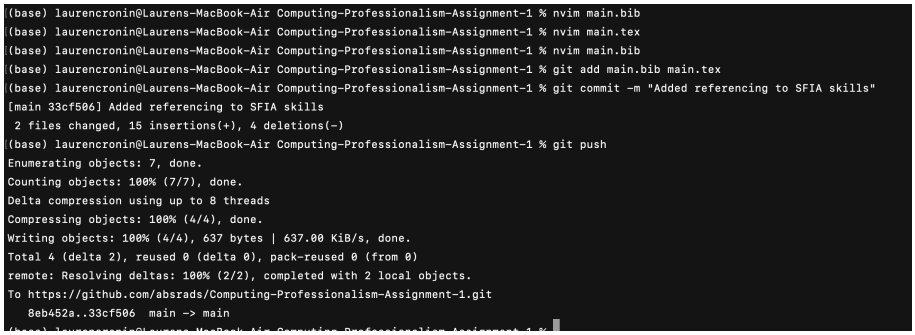

Figure 1: Committing changes to GitHub from the command line.

1.7. Screenshot for Pdflatex

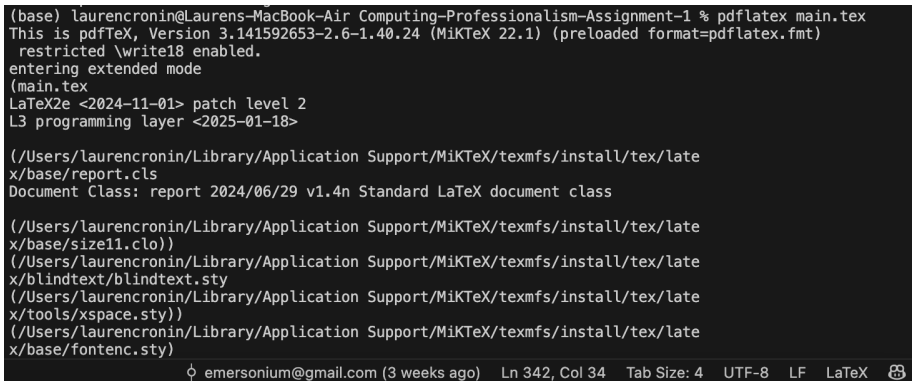

Figure 2: Compiling latex file from the command line.

1.8. Screenshot for Bibtex

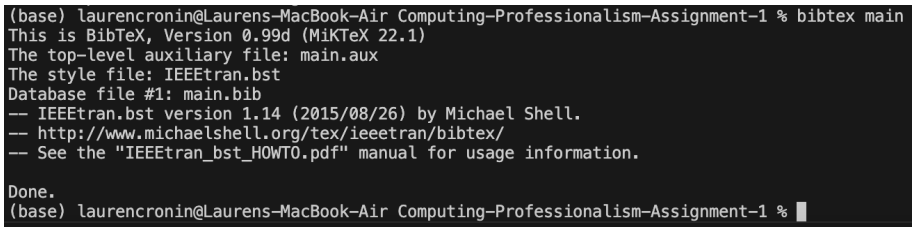

Figure 3: Compiling bib file from the command line.

1.9. Sceenshot for GitHub

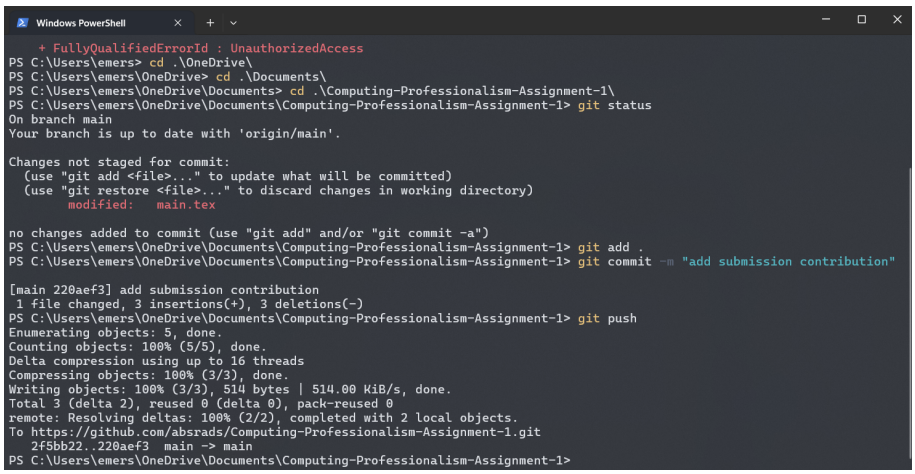

Figure 4: Committing changes to GitHub from the command line.

2. Task 2 (Advanced): Advanced Skills

Task 2 contains two components (both required).

Component 1: Project management
The team is required to extend on your project on GitHub.

- Add issues and assign as the project progresses
- Create parent issues and subdivide tasks into sub-issues
- Filter for fields in the project
- Create a line chart using GitHub project chart to represent project activity over time

Component 2: Exploration of Tech Tools
This component focuses on researching and exploring industry-relevant tools within each domain and is split into 2 parts.

Part A:
Each student must undertake an exploratory analysis of the below tool relevant to their domain. Each student is to take on an exploration and investigative research of tools below relevant to their major.

- Computer Science: Python Websockets package (API requests and system integration)
- Data Science: choose between Python NumPy or Pandas package (data analytics)
- Cybersecurity: choose between Wireshark or Burp Suite (network security analysis)
- Software Engineering: choose between Python Pytest or UnitTest (software testing)

If there is a fifth member:

- Human-Computer Interaction (HCI): Figma (UI & UX design)

You should then describe:

1. What are the main functionalities of the tool? Describe at least 3.
2. What is the importance of the tool in the relevant major (CS, SE, Cybersec, DS) and role in the given problem above?
3. What are the weaknesses or limitations of the tool? Describe at least 3.

Target: 300 words

Part B: More advanced technical skills

Each member attempting to undertake Advanced Strong component are to undertake self-learning of the selected tool for their allocated major and provide a practical example.

- Develop a simple example using the tool.
- Provide evidence in the form of screenshots showcasing implementation of the tool and results.
- Please provide a reflective paragraph detailing how you undertook learning this tool, barriers you encountered and how you overcame it. What did you realise about the relevance of this tool in your respective major?
- Assess the importance of this tool in addressing the disaster response scenario above.

Target: 250 words

OVERALL REQUIREMENTS:
To achieve an "OK" rating for this task you must individually accomplish the following:

- **Component 1**
  - Created a project in your Github repository to track and manage progress of the project. Issues are allocated to respective members and closed when completed. Tasks are not too broad and have a clear goal.
- **Component 2**
  - Select tools relevant to your chosen major.
    * Answer the following questions in Part A and B
    * Describe the main functionalities of the identified tools
    * The ways in which those tools are used in the industry of your chosen major;
    * At least 3 weaknesses or limitations of each of the tools
- Referencing
  - You have provided in-text references (IEEE) to support your claims or where they gathered the information from.
  - You have a reference list following the IEEE referencing guidelines.
    * Some common things to look for to see whether your have correctly followed the referencing guide are:
    * Sources are listed in alphabetical order
    * The sources you have listed are only the sources that are present in-text.
    * All sources seen in-text are included in the reference list.
    * You followed the correct convention for references that don't have author's details or multiple sources have the same author and year of publication
    * You have included the required information for the source type as outlined in the guide.
    * Sources are not a list (i.e. dotpoints)

To achieve a STRONG rating you must accomplish all of the above in addition to the following:

- You have demonstrated the use of your selected items either through activity in Git, or through including items in this report.
- You have added your tutor to your git repository and when they view it they are able to see your activity that demonstrates the use of your selected tool
- You have included screenshots and annotations (where necessary) in your report and provided an explanation of your undertaking of advanced technical skills
- Reflective response in component 2B shows a deep understanding of the learning process and the tool

2.1. Tools and Skills for Computer Science: HAZAN, Leo

Part A: Exploration of tech tools

Your text goes here

Part B: Technical Skills and Analysis

Your text goes here

2.2. Tools and Skills for Data Science: BUCKLE, William

Part A: Exploration of tech tools

Your text goes here

Part B: Technical Skills and Analysis

Your text goes here

2.3. Tools and Skills for SW Development: ANSTED, Emerson

Part A: Exploration of tech tools

Your text goes here

Part B: Technical Skills and Analysis

Your text goes here

2.4. Tools and Skills for Cyber Security: CRONIN, Lauren-Grace

Part A: Exploration of tech tools

Your text goes here

Part B: Technical Skills and Analysis

Your text goes here

3. Submission contribution overview

For each submission, outline the approach taken to your teamwork, how you combined the various contributions, and whether there were any significant variations in the levels of involvement. (Target = ∼100-300 words).

3.1. Submission 1 contribution overview

In this first submission the contribution from each member was fairly equal, with everyone writing their skills section and collaborating for the group response questions. There were no significant variations in levels of involvement.

3.2. Submission 2 contribution overview

As above, for submission 2

3.3. Submission 3 contribution overview

As above, for submission 3

Bibliography

[1] The University of Sydney, "Referencing and citation styles: IEEE," 2022, see https://libguides.library.usyd.edu.au/c.php?g=508212.

[2] SFIA, "The global skills and competency framework for the digital world," 2022, see https://sfia-online.org/en/sfia-8/all-skills-a-z.

[3] ——, "Solution architecture - sfia 9," 2024, see https://sfia-online.org/en/sfia-8/skills/solution-architecture.

[4] ——, "Radio frequency engineering - sfia 9," 2024, see https://sfia-online.org/en/sfia-8/skills/radio-frequency-engineering.

[5] ——, "Information security - sfia 9," 2024, see https://sfia-online.org/en/sfia-9/skills/information-security.

[6] ——, "Data management - sfia 9," 2024, see https://sfia-online.org/en/sfia-9/skills/data-management.