**Skills and Resources Audit: Scoring Oral Skills Project**

Professional Computing Group 10

Client: Dr Marinella Caruso

**Purpose:**

The purpose of this skills audit is to assess and evaluate the existing skills and competencies of the team against the skills that we believe will be required to adequately complete the project. We have used a self-evaluation survey paired with reflection questions to help us determine and address the strengths and weaknesses of our team.

Proficiency ratings:

1: Little to no experience

2: Limited experience, need guidance

3: Moderate experience, can work independently

4: Confident, can mentor others

5: Advanced, authority

Team member: Nathan O’Neill

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| --- | --- | --- | --- | --- | --- |
| Skill Area | Proficiency Rating | | | | |
| 1 | 2 | 3 | 4 | 5 |
| **Software Development** | | | | | |
| Programming languages (Python, JavaScript, SQL etc) |  |  |  | x |  |
| Web development frameworks (Flask, Django) |  |  |  | x |  |
| Front-end development (HTML, CSS, JS) |  | x |  |  |  |
| Backend development (Server-side logic) |  |  | x |  |  |
| Database management (SQL, MongoDB) |  | x |  |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) |  |  | x |  |  |
| Familiarity with code management software (namely Git) |  |  |  | x |  |
| Error handling and bug tracking |  | x |  |  |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) | x |  |  |  |  |
| Knowledge of audio similarity APIs | x |  |  |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  | x |  |  |  |
| Visual feedback | x |  |  |  |  |
| Interactive elements |  |  | x |  |  |
| Mobile responsiveness | x |  |  |  |  |
| Progress tracking for users (achievements, progress visuals) |  | x |  |  |  |
| Website audio controls | x |  |  |  |  |
|  |  |  |  |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  |  | x |  |  |
| Resource allocation |  |  | x |  |  |
| Communication and collaboration |  | x |  |  |  |
| Task tracking and progress reporting |  | x |  |  |  |
| Documentation and reporting |  | x |  |  |  |
| Scope management |  | x |  |  |  |
| Flexibility (handling unforeseen challenges) |  |  | x |  |  |

Self-reflection:

1. What areas might I struggle in? Where will I need to learn?
2. What skills do I feel most comfortable with?
3. Identify any potential challenges you might encounter, and how you plan on overcoming them.
4. What are some skills I might need to acquire?

Nathan:

1. As reflected in my skills audit survey, I have no experience regarding audio processing libraries, and I will need to develop my knowledge and practical skills accordingly. Furthermore, I have little experience in project management, so I will need to be able to adapt to my team and improve on my communication skills.
2. I feel most comfortable using git and basic frontend and backend technologies, but I need to refresh my skills and improve.
3. I will need to be cautious of managing the scope of the project, making sure I don’t waste time on irrelevant issues or allowing scope creep. I plan on addressing this by referring to the project scope often and keeping in contact with my team members.
4. Skills I need to acquire include gaining knowledge of audio processing and comparison, front end technologies, project management and group collaboration.

Team member: Tom McAdam

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| --- | --- | --- | --- | --- | --- |
| Skill Area | Proficiency Rating | | | | |
| 1 | 2 | 3 | 4 | 5 |
| **Software Development** | | | | | |
| Programming languages (Python, JavaScript, SQL etc) |  |  |  | x |  |
| Web development frameworks (Flask, Django) |  |  |  | x |  |
| Front-end development (HTML, CSS, JS) |  |  |  | x |  |
| Backend development (Server-side logic) |  | x |  |  |  |
| Database management (SQL, MongoDB) |  | x |  |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) |  | x |  |  |  |
| Familiarity with code management software (namely Git) |  |  |  | x |  |
| Error handling and bug tracking |  |  |  | x |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) | x |  |  |  |  |
| Knowledge of audio similarity APIs | x |  |  |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  |  | x |  |  |
| Visual feedback |  |  |  | x |  |
| Interactive elements |  |  |  | x |  |
| Mobile responsiveness |  |  |  | x |  |
| Progress tracking for users (achievements, progress visuals) |  |  |  | x |  |
| Website audio controls |  | x |  |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  |  | x |  |  |
| Resource allocation |  |  |  | x |  |
| Communication and collaboration |  |  |  | x |  |
| Task tracking and progress reporting |  |  |  | x |  |
| Documentation and reporting |  |  | x |  |  |
| Scope management |  |  | x |  |  |
| Flexibility (handling unforeseen challenges) |  |  | x |  |  |

Self-reflection:

1. What areas might I struggle in? Where will I need to learn?
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4. What are some skills I might need to acquire?

Tom:

1. I may struggle with the back-end development, and particularly how that ties together with database management. I also have no experience with audio processing and/or audio similarity API’s for audio comparison. This is also my first time working in an official project management setting.
2. I feel confident with front-end development (HTML, CSS, JS, etc)
3. I will need to be careful of not wasting too much time if I get stuck on a particular aspect of the development. I plan to address this by touching base with team members and asking for help/advice if I need it.
4. I want to refresh my knowledge with web development frameworks and build knowledge on backend and database technologies. I will also need to research audio processing and how to compare audio tracks - possibly with the use of an API.

Team member: Sapphire Carter

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| --- | --- | --- | --- | --- | --- |
| Skill Area | Proficiency Rating | | | | |
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| **Software Development** | | | | | |
| Programming languages (Python, JavaScript, SQL etc) |  |  |  | x |  |
| Web development frameworks (Flask, Django) |  |  | x |  |  |
| Front-end development (HTML, CSS, JS) |  |  |  |  | x |
| Backend development (Server-side logic) |  | x |  |  |  |
| Database management (SQL, MongoDB) | x |  |  |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) |  | x |  |  |  |
| Familiarity with code management software (namely Git) |  |  |  |  | x |
| Error handling and bug tracking |  |  | x |  |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) | x |  |  |  |  |
| Knowledge of audio similarity APIs | x |  |  |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  |  |  | x |  |
| Visual feedback |  |  |  | x |  |
| Interactive elements |  |  |  | x |  |
| Mobile responsiveness |  |  |  | x |  |
| Progress tracking for users (achievements, progress visuals) |  |  |  | x |  |
| Website audio controls | x |  |  |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  |  |  | x |  |
| Resource allocation |  |  | x |  |  |
| Communication and collaboration |  |  |  |  | x |
| Task tracking and progress reporting |  |  |  | x |  |
| Documentation and reporting |  |  |  | x |  |
| Scope management |  |  | x |  |  |
| Flexibility (handling unforeseen challenges) |  |  | x |  |  |

Self-reflection:

1. What areas might I struggle in? Where will I need to learn?
2. What skills do I feel most comfortable with?
3. Identify any potential challenges you might encounter, and how you plan on overcoming them.
4. What are some skills I might need to acquire?

Sapphire:

1. I would need to revisit database and back-end development. I have almost no experience with them as I have chosen to not focus on those areas in university group projects. I have also never worked with audio files or processing. I have no understanding of what would be required for it, so I think there is a potential I could struggle as it is very unknown to me.
2. I feel very comfortable with front-end development (particularly declarative languages) as well as UI design. I’m also quite comfortable learning new coding languages quickly. I’m very comfortable with git and most other project management skills like documentation, task planning and communication.
3. I struggle with scope management and my project’s scope can expand to become unachievable. I will avoid this by not allowing the scope to be extended from our agreed upon sprint 1 value.
4. Whilst I am competent in some web development skills, I don’t have as much experience with flask, so if we use flask I may have to work on something else or learn new things.

Team member: Sam Woodward

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| **Software Development** | | | | | |
| Programming languages (Python, JavaScript, SQL etc) |  |  |  | x |  |
| Web development frameworks (Flask, Django) |  | x |  |  |  |
| Front-end development (HTML, CSS, JS) |  |  | x |  |  |
| Backend development (Server-side logic) |  |  | x |  |  |
| Database management (SQL, MongoDB) |  |  | x |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) |  |  | x |  |  |
| Familiarity with code management software (namely Git) |  |  |  | x |  |
| Error handling and bug tracking |  |  |  | x |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) |  | x |  |  |  |
| Knowledge of audio similarity APIs |  | x |  |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  |  | x |  |  |
| Visual feedback |  |  | x |  |  |
| Interactive elements |  |  | x |  |  |
| Mobile responsiveness |  |  | x |  |  |
| Progress tracking for users (achievements, progress visuals) |  |  | x |  |  |
| Website audio controls |  | x |  |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  | x |  |  |  |
| Resource allocation |  |  | x |  |  |
| Communication and collaboration |  |  | x |  |  |
| Task tracking and progress reporting |  |  | x |  |  |
| Documentation and reporting |  |  |  | x |  |
| Scope management |  |  | x |  |  |
| Flexibility (handling unforeseen challenges) |  |  |  | x |  |

Self-reflection:

1. What areas might I struggle in? Where will I need to learn?
2. What skills do I feel most comfortable with?
3. Identify any potential challenges you might encounter, and how you plan on overcoming them.
4. What are some skills I might need to acquire?

Sam:

1. One area I struggle with is task planning and scheduling, I have already missed a team meeting due to me being at work and not checking Microsoft teams in time. I also do not have much experience with web development environments so this will be an area that I will need to learn.
2. I feel most comfortable with front end development as I have a fair bit of experience, particularly CSS, HTML and JavaScript. I also have a fair bit of experience with Java and Python.
3. The main challenge for me will be scheduling and task planning, I plan to overcome this by staying in constant communication with my team and being diligent about checking messages.
4. I believe I will need to acquire more experience with web development environments.

Team member: Zen Zeps

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| **Software Development** | | | | | |
| Programming languages (Python, JavaScript, SQL etc) |  |  |  | x |  |
| Web development frameworks (Flask, Django) |  | x |  |  |  |
| Front-end development (HTML, CSS, JS) |  | x |  |  |  |
| Backend development (Server-side logic) |  | x |  |  |  |
| Database management (SQL, MongoDB) |  |  | x |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) | x |  |  |  |  |
| Familiarity with code management software (namely Git) |  |  |  | x |  |
| Error handling and bug tracking |  |  | x |  |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) |  |  | x |  |  |
| Knowledge of audio similarity APIs |  |  | x |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  |  |  |  | x |
| Visual feedback |  |  |  | x |  |
| Interactive elements |  | x |  |  |  |
| Mobile responsiveness |  |  | x |  |  |
| Progress tracking for users (achievements, progress visuals) |  |  |  | x |  |
| Website audio controls | x |  |  |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  |  |  |  | x |
| Resource allocation |  |  |  | x |  |
| Communication and collaboration |  |  |  | x |  |
| Task tracking and progress reporting |  |  |  | x |  |
| Documentation and reporting |  |  |  |  | x |
| Scope management |  |  |  | x |  |
| Flexibility (handling unforeseen challenges) |  |  |  | x |  |

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1. What areas might I struggle in? Where will I need to learn?
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Zen:

1. I will need to practice some of my web development skills as they are reasonably out of practice and were not the best to begin with. I will need to spend some time going over Geeks for Geeks and other helpful websites so that I am able to produce quality code for this project.
2. I am most comfortable with Project Management skills. I am usually quite good at predicting challenges in implementation during the sprint planning. I am also good at coming up with easy solutions to problems that do occur. Additionally, I am quite adept at creating realistic requirements that are implementable with the skill set I have. I am also quite good at breaking large tasks down into smaller components so that they become easier to manage.
3. I am unfortunately a little out of practice with my web development skills. I will have to spend some additional time making sure that I am practiced enough in them to be useful to the team.
4. I want to refresh my knowledge on the front end and gain new skills in front end development. Additionally, I have completed very little practical work in back end development and databases, so this is a good opportunity for me to put into practice the theory I have learned from coursework. I would also like to learn a little more about audio processing so that I may build on the small amount of knowledge that I currently possess.

Team member: Adi Budhavaram

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| --- | --- | --- | --- | --- | --- |
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| Programming languages (Python, JavaScript, SQL etc) |  |  | x |  |  |
| Web development frameworks (Flask, Django) | x |  |  |  |  |
| Front-end development (HTML, CSS, JS) |  |  |  | x |  |
| Backend development (Server-side logic) | x |  |  |  |  |
| Database management (SQL, MongoDB) |  |  | x |  |  |
| User Authentication and Security measures (Encryption, access control, user authentication methods) | x |  |  |  |  |
| Familiarity with code management software (namely Git) |  |  | x |  |  |
| Error handling and bug tracking | x |  |  |  |  |
| **Audio Processing** | | | | | |
| Audio data extraction (e.g. familiarity with libraries such as librosa) | x |  |  |  |  |
| Knowledge of audio similarity APIs | x |  |  |  |  |
| **User Experience & Interface Design** | | | | | |
| User-centred design |  |  |  | x |  |
| Visual feedback |  |  |  | x |  |
| Interactive elements |  |  | x |  |  |
| Mobile responsiveness |  |  | x |  |  |
| Progress tracking for users (achievements, progress visuals) |  |  | x |  |  |
| Website audio controls |  |  | x |  |  |
| **Project management** | | | | | |
| Task planning and scheduling |  |  | x |  |  |
| Resource allocation |  | x |  |  |  |
| Communication and collaboration |  |  |  | x |  |
| Task tracking and progress reporting |  |  | x |  |  |
| Documentation and reporting |  |  | x |  |  |
| Scope management |  |  | x |  |  |
| Flexibility (handling unforeseen challenges) |  |  | x |  |  |

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Adi:

1. As highlighted in the skills audit, I struggle with back-end development and frameworks, encryption methods, error/bug handling and audio processing, which I’m either less proficient or unknowledgeable about. I’d look into these areas to get some knowledge about them so I could help my team out in any way possible.
2. I am more comfortable with front-end development, mainly HTML and CSS. I have some experience with Bootstrap and also experience with SQL, mainly DML (Data Manipulation, DDL (Data Definition) and DQL (Data Query).
3. Try not to waste too much time on a single task, as I tend to do that more often than I should. To overcome them, I plan on talking to my team members about it and see if they can offer me some assistance.
4. As I said in what areas I might struggle in, those are a few things I might need to polish up on. Improving on my project management skills and more importantly, getting some knowledge about audio processing and APIs.

**Skills Summary & Acquisition Strategies:**

As illustrated from the self-assessment surveys and personal reflections, there are several skills that are well covered by our team members. These include:

1. Confidence in multiple programming languages
2. Front-end development
3. Web-development frameworks
4. General user interface skills
5. Code management software (Git)
6. Error handling, debugging

However, several skills appear weaker when considering the team’s overall confidence in their abilities, including:

1. Audio processing and comparison knowledge
2. Back-End development and database technologies
3. Certain project management and communication skills

We have several strategies in place to help us acquire these skills.

Firstly, by researching individually - including examining documentation, video explanations, and online resources - we will be able to build (or expand upon) a solid base to help us learn & apply these skills.

Secondly, frequent group meetings will ensure that team members can ask for help and guidance from others who may be more knowledgeable or have a better understanding of a certain topic. Talking with colleagues and peers often makes it easier to understand certain aspects of development and will also lead to a more polished application.

Thirdly, running collaborative coding sessions will enable us to discuss and work together to solve any problems or difficulties that arise when working with these less familiar skills, resources, and technologies.

Finally, we will conduct thorough debugging and testing of our code to ensure that our application of these skills and technologies is correct, and consistently working as intended.