Section 1: Project Scope

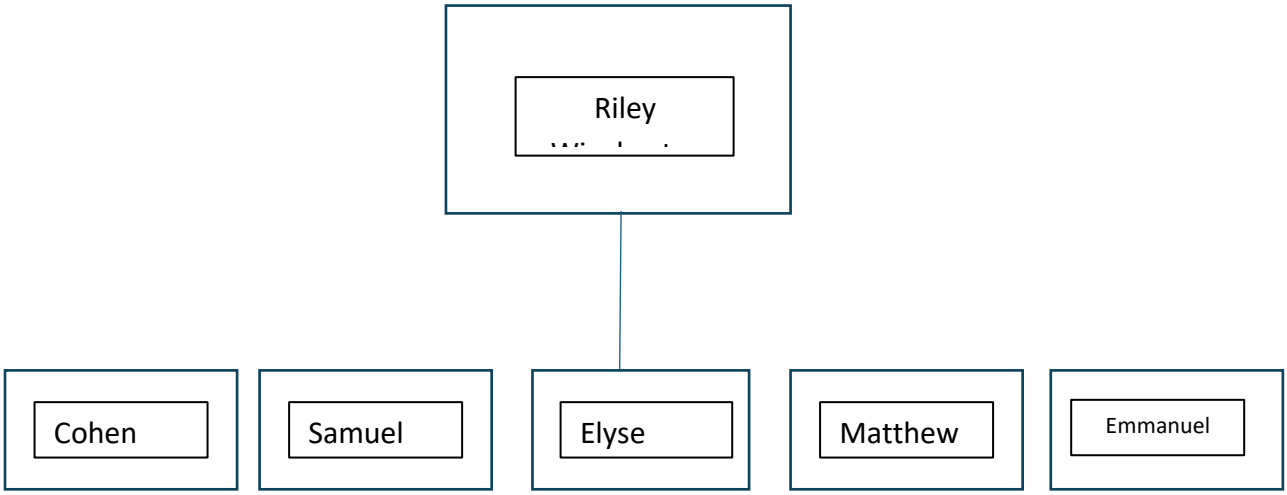
The scope of this Software Development Plan will feature 7 key sections that will be included in the development process of the Mi'kmaq Language App

- Section 2 will be the project schedule, highlighting the development process our team will utilize during this period
- Section 3 will be a representation of the team organization
- Section 4 is a technical description of the development/software
- Section 5 will have proposed standards, procedures, techniques and tools used during the development process
- Section 7 is a configuration management plan, detailing the methods used for organizing and storing different versions/releases of software and documentation
- Section 8 will list the names of all the documentation, including the source code
- Section 14 is a risk management plan outlining potential specific and general risks that can occur during the development process, their probability, impact, and mitigation strategy

Section 2: Project Schedule

Link to Jira Account:
https://id.atlassian.com/login?continue=https%3A%2F%2Fwww.atlassian.com%2Fgateway%2Fapi%2Fstart%2Fauthredirect

Section 3: Team Organization



Section 4: Technical Description

This software system is designed to run an educational game to teach 4 and 5 year olds the Mi'kmaq language.

The goal of the game is to match a given word with the unique image it describes.

The software system display consists of a dedication to Angie, a dictionary, a button to access the dictionary, a drop-down menu, and the game board.

The dictionary is like a cheat sheet for the game, since it can be opened while playing the game. It is a list of every word (both active and inactive) available matched with the image it describes, along with the option to hear an audio recording of the word.

The drop-down menu lists the seven months from September to March, written in Mi'kmaq. The month selected decides which of the twenty-one words are active.

Each month activates three specific words. Words activated by the previous months stay active.

September has only 3 active words, October activates three more words to make six active words, November activates three more words to make nine words, and so on until March where all twenty-one words are active. Since the drop-down menu controls which words are active, using it while playing the game should restart the game.

The game board contains a given word, a button to hear an audio recording of the word, a three-by-three grid of images, and a draggable image of a bear paw.

The number of rounds in one gameplay is equal to the number of active words in the selected month. Each word is used for only one round.

Each image in the grid appears only once in that grid, and matches an active word. If the selected month has fewer than nine active words the remaining panels are made inactive.

Section 5: Proposed Standards, Procedures, Techniques and Tools

- **Standards -** We will not conform to any standard as this program will not be certified
- **Procedures/Techniques** - Automated Testing
- **Tools -** React, Jira, Stand-ups, Tailwind, Cypress
- **Development Process -** Agile SCRUM
- Non-Essential Software

Section 7: Configuration Management Plan

For this project, Git will be used as a version control system for source code and documentation management. After establishing a stable main branch, the development will be done on individual task branches. The repository will be hosted on GitHub for team access and backups.

Section 8: Documentation Plan

- Software Development Plan

- Software Requirements Specification
- Top Level Software Design
- Software Validation Test Procedure
- Source Code

Section 14: Risk Management Plan

Elyse Louis
Generic Risk 1:
Name: A team member's laptop or device crashes and needs to be repaired, causing delays.
Probability: (30%) If one or two team members out of six experience a malfunction with their device.
Impact: Substantial, because that person is likely reliant on their device to work and will have to either wait for repairs to be made or until they can find a replacement. This would delay the amount of time it would take for them to complete their tasks for the team's work.
Mitigation:

- Eliminate: keep the device well-maintained, handle the device with care, take action early if something seems wrong, keep work on a hard drive or USB, have a plan for possible malfunctions.
- Reduce impact: make arrangements for a backup device or location where one is available

Generic Risk 2:
Name: No team member wants to take on a specific required task.
Probability: (20%) If a point comes where one of the requirements is one nobody is willing to take on.
Impact: Moderate, as it may cause slight delays while an agreement is made, but the team leader can ultimately decide. There could also be a delay if the reason for the disagreement was because the task is challenging.
Mitigation:

- Eliminate: The team leader can initially divide the tasks among the members, the team members can communicate about what tasks they will be unable to do because of time or skill.
- Reduce impact: More than one team member can work on the task or help each other

Specific Risk 1:
Name: The final draft of the design of the app turns out to be too advanced for 4-5 year olds.
Probability: (10%) The group would likely have an idea of what the interface of the app should look like.
Impact: Substantial, especially if it is the final draft because more significant changes would be needed to make it more child-friendly.
Mitigation:

- Eliminate: the team/team leader can make a detailed plan about the design and look of the app before the group starts working on it, the team can test the app throughout development and take note of what may be difficult to use as a 4-5 year old.
- Reduce impact: The team leader can get feedback from the client/instructor on details that need to be changed to relay to the group, the team can divide tasks among themselves to ensure the parts of the app that need to be changed are done in a timely manner.

Specific Risk 2:
Name: The team is unable to draw/find/create suitable pictures for the game aspect of the app or the dictionary.

Probability: (30%) If team members don't have much experience using AI generated pictures or drawing a series of specific actions.
Impact: Moderate, because although specific images are required, they could be drawn with little artistic ability since they just need to be good enough to be understood by children. The instructor is also available for help if pictures are hard to come by. This could cause minor time delays.
Mitigation:

- Eliminate: A team member could dedicate time to generating AI images, team members can designate someone or an amount of time to draw pictures that will be needed.
- Reduce impact: Team members can begin looking for and gathering images early in the project

Emmanuel Adeyemi

Generic Risk 1:

Name: Team members experience burnout due to school and project demands

Probability: (40%): If the project timeline is tight and team members are overworked, the likelihood of burnout increases.

Impact: High, as burnout can lead to decreased productivity, increased mistakes, and potential turnover, slightly impacting project timelines and team morale.

Mitigation:

- **Eliminate:** Establish clear project timelines and expectations to prevent overloading team members. Encourage a healthy work-life balance.
- **Reduce impact:** Implement regular check-ins to assess workload and well-being and allow for flexible deadlines where feasible to accommodate individual circumstances.

Generic Risk 2:
Name: Communication breakdown within the team.
Probability: (20%) If team members are not regularly aligned or if remote communication tools are ineffective, miscommunication may occur.
Impact: Moderate, as misunderstandings can lead to mistakes in project deliverables and may require rework, potentially delaying progress.
Mitigation:

- **Eliminate:** Establish regular team meetings and set clear communication protocols to ensure everyone is on the same page.
- **Reduce impact:** Utilize collaboration tools (Slack, Trello, Jira) for transparent communication and document sharing, allowing for quick resolution of misunderstandings.

Specific Risk 1:
Name: The team may face challenges in ensuring the app is accessible for children with learning disabilities.
Probability: (20%) If team members lack knowledge of accessibility standards and best practices, they might overlook critical features.

Impact: High, as failure to meet accessibility standards could exclude a significant user base, leading to negative feedback and reputational damage.
Mitigation:

- **Eliminate:** Allocate resources for training on accessibility guidelines for all team members involved in the design and development.
- **Reduce impact:** Involve accessibility experts or advocates during the development process to review the app and provide feedback on usability for all children.

Specific Risk 2:

Name: The team may struggle to implement a user-friendly interface for the app.
Probability: (40%) If team members lack experience in UI/UX design, this could lead to usability issues.
Impact: High, as a poor interface could frustrate users, resulting in low engagement and retention. Initial feedback from testing may reveal significant areas for improvement, causing major time delays.
Mitigation:

- **Eliminate:** Assign a dedicated UI/UX designer to the project or consider outsourcing this aspect to ensure professional quality.
- **Reduce impact:** Conduct user testing sessions early and frequently to identify pain points, allowing for iterative improvements.

Matthew Audas

Generic Risk 1:
Name: Conflict between team members
Probability: (50%) If two or more team members have differences in opinions, it can cause delays if not dealt with properly
Impact: Moderate – High, as the conflict could be about something minimal or it could be about the way everything is run.
Mitigation:

- **Eliminate:** Come to a consensus with all team members and be strict about the rules and guidelines that are mutually agreed upon
- **Reduce impact:** Deal with the disagreement as soon as it arises

Generic Risk 2:
Name: Lack of feedback between team members
Probability: (10%) If certain members of the team aren't getting feedback, they might be unable to improve their performance causing slowdowns.
Impact: Moderate, as slowdowns can occur causing pressure to be put on other team members.
Mitigation:

- **Eliminate:** Give feedback if someone is feeling uncertain about work that they have worked on

- **Reduce impact:** Better communication during the weekly meetings could help in reducing the chances of this

Specific Risk 1:
Name: The app isn't engaging enough for kids to use it
Probability: (30%) If the app isn't fun for the children to use then they might be more reluctant to using it over other alternatives
Impact: High, as this could cause the app to be not used by the clients
Mitigation:

- **Eliminate:** Make the app engaging by using things that would be appealing and appropriate for children of the targeted age range
- **Reduce impact:** Expose the program to children of the target age group during the development process

Specific Risk 2:
Name: The app could be overwhelming for the target group
Probability: (20%) If the app has too many options on the screen at once it could become overwhelming for children and can cause confusion
Impact: High, as this could cause children that use the app to become overwhelmed and cause a decline in learning
Mitigation:

- **Eliminate:** Keeping the user interface simple and clear.
- **Reduce impact:** Working on the organization within the app to avoid clustering.

Riley Winchester

Generic Risk 1:
Name: Delays Caused by Unrealistic deadlines
Probability: (40%) If it is underestimated how long one or more tasks may take to do, there is a chance that the deadlines could end up being unrealistically aggressive.
Impact: Substantial, this could lead to tasks that are required for further development being delayed, possibly causing the whole team to be held back and halting development.
Mitigation:

- **Eliminate:** Ensuring extra time is accounted for when deciding how much time to allot for each task and having extra padding time to account for possible delays.
- **Reduce Impact:** Communicating blockers during stand-ups can allow other team members to step in and provide advice or assistance.

Generic Risk 2:
Name: Scope creep due to adding extra features

Probability: (30%) As the semester progresses and developers become more comfortable with the software, they may notice possibly beneficial changes that can build up and impede the completion of required changes.
Impact: Moderate, as it can cause slight delays while developers get refocused
Mitigation:

- **Eliminate:** Have strict guidelines around what the required changes are, and deadlines set to ensure they are being accomplished regularly on time. Go over new ideas as a team and determine if they are feasible.
- **Reduce Impact:** Use stand-ups and project management tools like Jira to help developers stay focused on the necessary tasks.

Specific Risk 1:
Name: Difficulties in implementing responsive design
Probability: (40%) It's possible that some team members have worked with responsive design before
Impact: Moderate, as it could cause slight delays as the team member corrects their implementation
Mitigation:

- **Eliminate:** Review tailwind CSS documentation for responsive design ahead of time, and make sure to implement during development
- **Reduce Impact:** Make sure to test frequently on mobile devices, so any mistakes can be caught and fixed early

Specific Risk 2:
Name: Overlapping deadlines and midterm dates causing delays
Probability: (75%) Team Members may have task deadlines that fall very close to midterm dates for other courses, which could significantly decrease the amount of time they have for the project
Impact: Significant, as if the team member does not have enough time to complete their tasks the project could fall behind until they have completed their exams/etc.
Mitigation:

- **Eliminate:** Consider midterm dates and important deadlines for other courses when planning project deadlines.
- **Reduce Impact:** Team members should communicate if they're having difficulty accomplishing their tasks on time, so that collaboration to shift deadlines or accomplish tasks on time can happen

Cohen Creighton
General risk #1 - Power outage due to weather

- **Probability** - (40%) it's hurricane season
- **Impact** - Moderate, power outages could lead to delays in production considering there might not be a secure internet connection
- **Mitigation** - save work often, find a public working area that will have power (and internet)

General risk #2 - Insufficient Testing

- **Probability** - (20%) there is always a chance not everything might be tested

- **Impact** - Substantial, client will not be getting a fully tested program, thus potentially having bugs and unresolved issues (not finished product)
- **Mitigation** - Vigilance on testing, possibly automating testing, communication

Specific risk #1 - Delays due to team having low experience with javascript

- **Probability** - (30%) possible for more than one person on the team to not be accustomed to javascript
- **Impact** - Moderate/Substantial, depends on the usage & ability of team member to learn and apply themself on javascript
- **Mitigation** - read and practice javascript to make sure there is a foundation, communicate with team members

Specific risk #2 - Team member drops course

- **Probability** - (5-10%) unless something happens, everyone wants to stay in the course
- **Impact** - Severe, losing a whole member of the team would be hard considering it would add a major workload to the remaining members, thus possibly creating delays
- **Mitigation** - Communication about whether something like this would happen beforehand, extra time set aside beforehand to compensate for it

Sam Kohler

Generic Risk 1:
Name: One or more team members choose not to contribute to the group effort.
Probability: (10%) We are a team of six, there could is one in any group.
Impact: Substantial - Team members not completing work or submitting shoddy work will lead to delays.
Mitigation:

- **Eliminate:** Let inactive members continue to do poorly so they will eventually drop the course.
- **Reduce:** Tell inactive members they are doing a poor job so they can shape up.

Generic Risk 2:
Name: A saboteur gains access to a team member's device to delete progress on a task.
Probability: (5%) A team member could have a petty enemy and weak passwords.
Mitigation:

- **Eliminate:** Regularly save backups of all work on an external hard drive.
- **Reduce:** Use two step verification on accounts.

Specific Risk 1:
Name: Audio recording of a word does not match how the word is actually pronounced.
Probability: (25%) None of us speak Mi'kmaq language, so it will go unnoticed.
Mitigation:

- **Eliminate:** Confirm with client that the pronunciation is correct
- **Reduce:** Learn Mi'kmaq language so we can tell if there is a mistake

Specific Risk 2:
Name: Bright colours required for app are too bright for kids.
Probability: (25%) Adults can tolerate offences to the senses better than kids can, which is why children hospitals only use light colours. Colours too bright will go unnoticed.
Mitigation:

- **Eliminate:** Have children judge the choice of colours.
- **Reduce:** Be careful to use lighter colours.