SWEN90009 Project presentation

Presented by Team SC-BlueRing

OUR PROJECT

Ruby

Assessment Platform created by Melbourne Metrics

SC-Blue Ring

Student Competency Team

motivation

Want to transition to high-stakes credentialing

Fariness & Reliability

challenge

How to ensure teachers obtain a consistent understanding of the assessment across different areas

goals

Improving Assessment Consistency

Reducing Educator Workload

Enhancing Efficiency and Accuracy

THE UNIVERSITY OF MELBOURNE

ables

VICTORIA State Government | Education and Training

School Curriculum and Standards Authority

Mentor

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Tutor

Client

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Subteam leader
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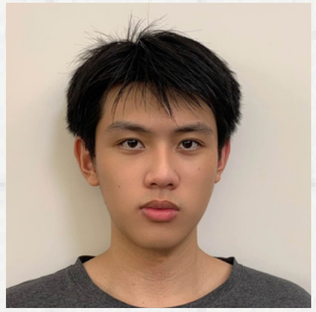
Developer



Aoxiang Xiao
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Heng Chen
Developer

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Github structure coordinator
Developer

Danning Feng
Meeting organizer
Developer

Tori Li
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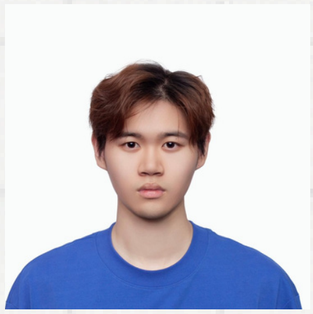
Developer

Hao Guan
Product Owner
Developer



Weihuang Wu
Researcher
Developer

Yutian Fan
Researcher
Developer

Tools

Communication

Task Tracking

Team Meeting

Documentation

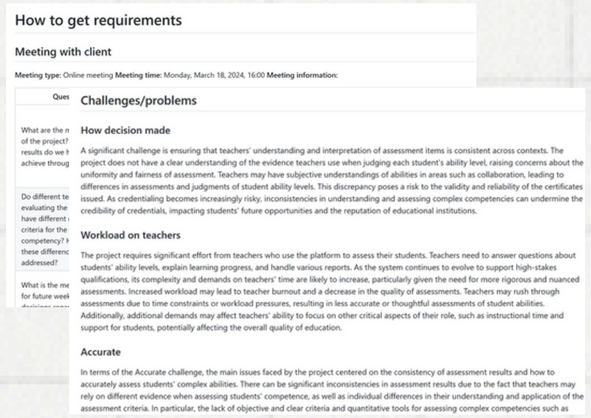
Prototype

User Story

Background → **Requirements Elicitations** → **Motivational Model** → **Persona and Goal Model**

Ruby's Flaws:

- Huge workload
- Lack of uniform evaluation criteria



How to get requirements

Meeting with client

Meeting type: Online meeting **Meeting time:** Monday, March 18, 2024, 16:00 **Meeting information:**

Ques

Challenges/problems

How decision made

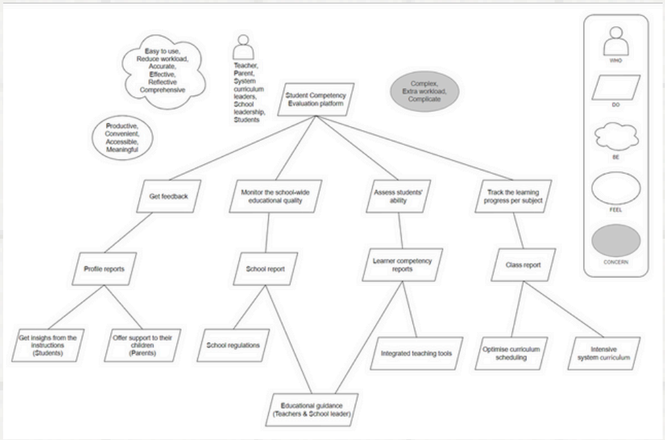
A significant challenge is ensuring that teachers' understanding and interpretation of assessment items is consistent across contexts. The project does not have a clear understanding of the evidence teachers use when judging each student's ability level, raising concerns about the uniformity and fairness of assessment. Teachers may have subjective understandings of abilities in areas such as collaboration, leading to differences in assessments and judgments of student ability levels. This discrepancy poses a risk to the validity and reliability of the certificates issued. As credentialing becomes increasingly risky, inconsistencies in understanding and assessing complex competencies can undermine the credibility of credentials, impacting students' future opportunities and the reputation of educational institutions.

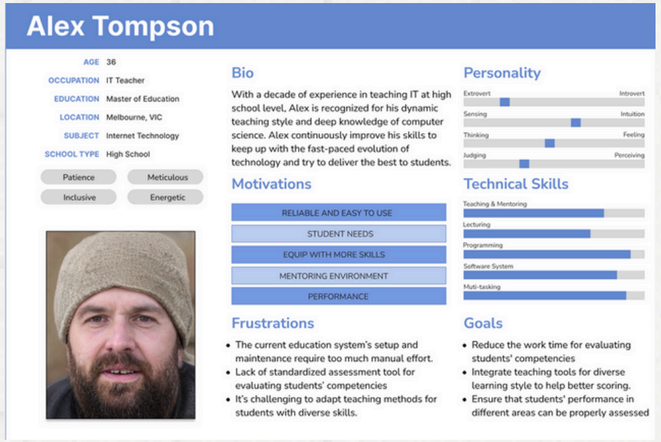
Workload on teachers

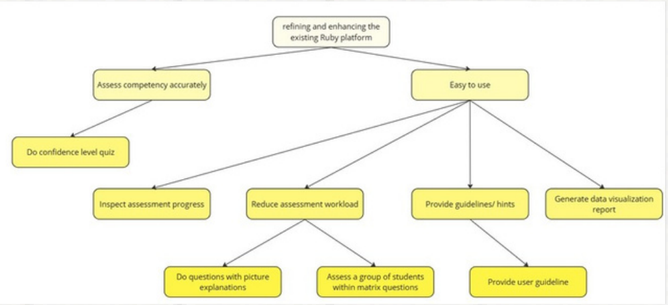
The project requires significant effort from teachers who use the platform to assess their students. Teachers need to answer questions about students' ability levels, explain learning progress, and handle various reports. As the system continues to evolve to support high-stakes qualifications, its complexity and demands on teachers' time are likely to increase, particularly given the need for more rigorous and nuanced assessments. Increased workload may lead to teacher burnout and a decrease in the quality of assessments. Teachers may rush through assessments due to time constraints or workload pressures, resulting in less accurate or thoughtful assessments of student abilities. Additionally, additional demands may affect teachers' ability to focus on other critical aspects of their role, such as instructional time and support for students, potentially affecting the overall quality of education.

Accurate

In terms of the Accurate challenge, the main issues faced by the project centered on the consistency of assessment results and how to accurately assess students' complex abilities. There can be significant inconsistencies in assessment results due to the fact that teachers may rely on different evidence when assessing students' competence, as well as individual differences in their understanding and application of the assessment criteria. In particular, the lack of objective and clear criteria and quantitative tools for assessing complex competencies such as







User Story

User Story → Acceptance Criteria → Acceptance Test → User Story Mapping

User Stories

Important:

This project is focused on refining and enhancing the existing Ruby platform. Some user stories included here may address functionalities that are already implemented in the current system. We include these to ensure that we comprehensively review all features, verifying that they indeed meet the evolving needs of our users. This approach helps us identify whether additional modifications or optimizations are necessary to better serve our clients.

Why Use PERT for Time Estimation? The PERT method facilitates more accurate project completion time predictions by incorporating optimistic **(O)**, most likely **(M)**, and pessimistic **(P)** estimates of task durations. It calculates a weighted average duration using these three estimates with the formula (unit in days):

$$TE=(O+4M+P) / 6$$

When we estimate task durations using the PERT method, we gain a balanced view of how long tasks might take, considering the best, worst, and most likely scenarios. To align these estimates with agile project management practices, we convert them into story points using an **x10** multiplier. This process transforms time estimates into a measure of complexity and effort, providing a more flexible framework for planning.

Priority is determined through discussions. The **MoSCoW** method categorises tasks into must-haves, should-haves, could-haves, and won't-haves, guiding the team on where to focus their efforts for maximum impact.

- MUST HAVE : features that must be delivered or the software will not create the expected value for the client;
- SHOULD HAVE : features that have significant value to the client and should be delivered, but not considered crucial;
- COULD HAVE features that the client considers nice to have but will not have a material impact on value, if not delivered; and
- WON'T HAVE out-of-scope features; useful as next steps for the project as potential improvements for future releases.

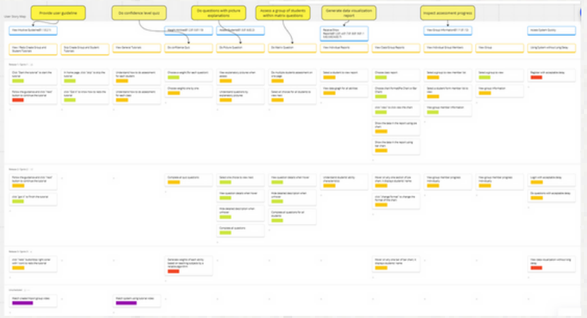
Epic ID	Epic	User Story ID	As a (Role)	I want to (Do something)	So that (Achieve some goals)	Story Points (TimeEst. x10)	Complexity (LOW / MEDIUM / HIGH)	MoSCoW Priority
E1	Functional	E1.1	Teacher	use an intuitive interface with minimal training	I can effortlessly navigate and utilize all features of the student competency evaluation platform	O = 1 M = 2 P = 3 SP = 20	LOW	MUST HAVE According to the client meeting on 18 March, reducing teacher workload is one of the main purposes of enhancing the current Ruby system.

Acceptance Criteria

Epic	User Story ID	User Story	Given	When	Then
Functional	E1.1	As a teacher, I want to use an intuitive interface with minimal training, so that I can effortlessly navigate and utilize all features of the student competency evaluation platform.	There is a clear and intuitive interface and guidance.	I want to start to learn how to use this system.	A clear interface and guidance enables me to quickly grasp how to use the platform without spending a lot of time learning.
	E1.2	As a teacher, I want to receive accurate reports on students' true levels of understanding and performance, so that I can tailor my teaching strategies to meet their individual needs.	There is an interface to review reports on students' true levels of understanding and performance.	I click corresponding button to view a student's understanding and performance report.	A report will display students' true levels of understanding and performance will be shown.
	E1.4	As a teacher, I want to obtain detailed reports on students' academic performance, so that I can provide constructive feedback and suggestions for improving their learning capabilities.	There is an interface to review reports on students' academic performance.	I click corresponding button to view a student's academic performance report.	A report will display students' true levels of academic performance will be shown.
	E1.3	~~As a teacher, I want to have access to reports that assess and reflect students' mental health states, so that~~	As confirmed by the client meeting, this is an unnecessary user story.		

Acceptance Tests

Epic	User Story ID	Acceptance Criteria	Test ID	Acceptance Tests	Critical		Test Result		Comments
					Yes	No	Accept	Reject	
	E 1.1	**Given** that there is a clear and intuitive interface and guidance, **when** I want to start to learn how to use this system, **then** a clear interface and guidance enables me to quickly grasp how to use the platform without spending a lot of time learning.	AT01	After the teacher logs in to the interface, he plans to start his work. At this time, the clear interface and UI design make it clear that he should go to the interface to work.	x				
			AT02	Even if teachers do not know how to use the system, there is a guidance button "i" to give users short instructions to help them quickly get started with all the functions.	x				
			AT03	The guidance details the relevant role of each component, but does not use overly complex language, it is very easy to understand.	x				
	E 1.2	**Given** that there is an interface to review reports on students' true levels of understanding and performance, **when** I click corresponding button to view a student's understanding and performance report, **then** a report will display students' true levels of	AT04	There is a module dedicated to displaying student reports.	x				
			AT05	This report will show the students' understanding					



Prototype & Usability Test

01 →

User story

(high priority)

User Story ID	As a (Role)	I want to (Do something)	So that (Achieve some goals)	Story Points (Time(Ext, x10))	Complexity	MoSCoW Priority
		load quickly	survey efficiently without waiting for long page load times	M = 2 P = 3 SP = 20		It is important for user efficiency and satisfaction but might not be critical compared to other features. It adds significant value to the platform by improving user experience but is not indispensable for the platform's core functionality.
E2.5	Developer	ensure that all student data entered into the platform is securely stored and protected	the privacy and confidentiality of student information are maintained	O = 3 M = 5 P = 7 SP = 50	LOW	SHOULD HAVE According to the meeting on April 18th, data confidentiality and security are necessary for implementation but are not major concerns.
E2.6	Teacher	visualize the students' academic	I can better grasp students' strengths and	O = 2	MEDIUM	MUST HAVE

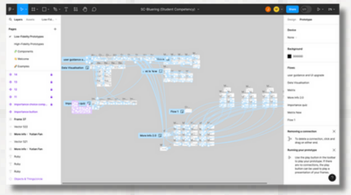
Prototype & Usability Test

01 →

User story (high priority)

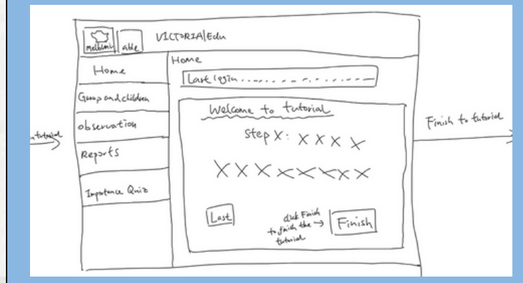
02 →

Low fidelity prototype



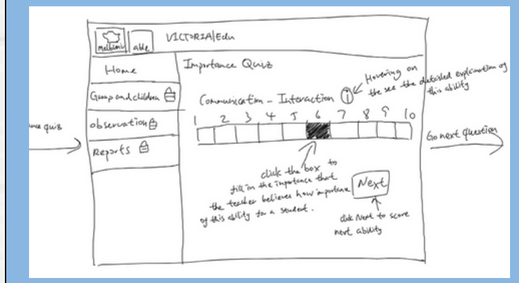
Low Fidelity hand drawing

Prototype



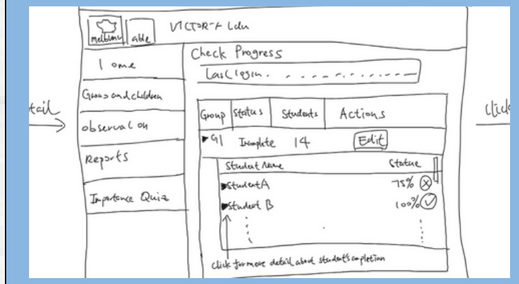
Video Tutorial

Users view tutorial video to understand how to use the system



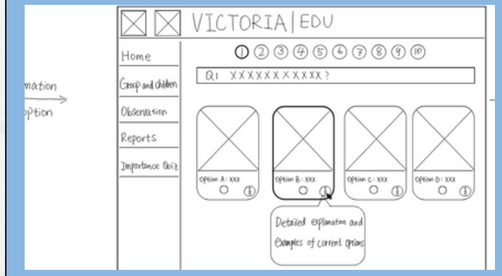
Importance Quiz

Users do quizzes to give weights for each ability according to the teaching subject



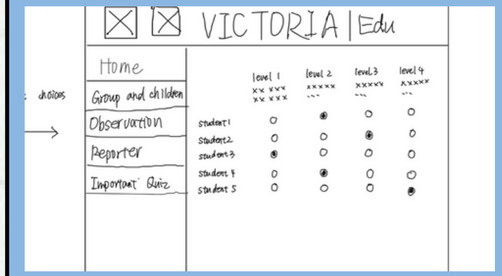
Group Observation

Users view group information and assessment progress



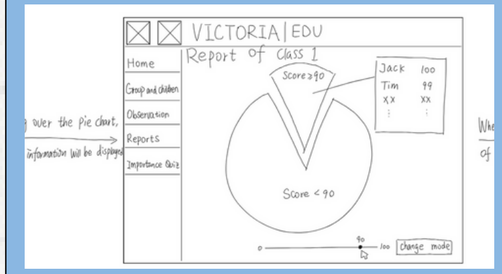
Picture Question

Users do assessment with explanatory pictures and hover to view details



Matrix Question

Users can assess a group students in a single matrix (one page)

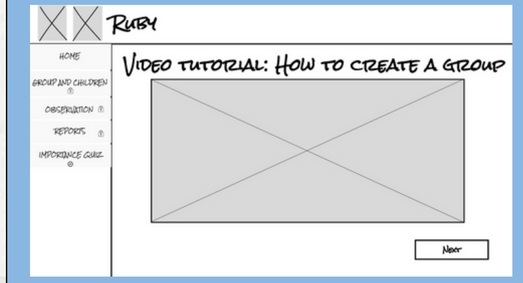


Data Visualization

Users view data visualization and interact to view more details

Low Fidelity Figma

Prototype



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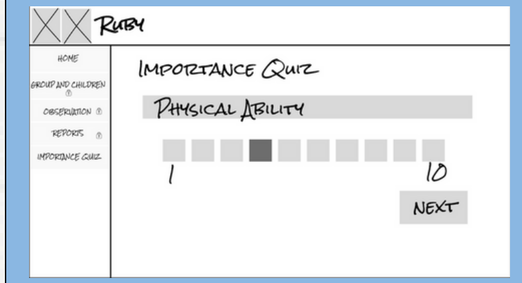

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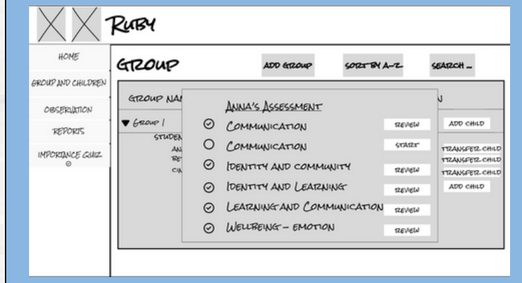

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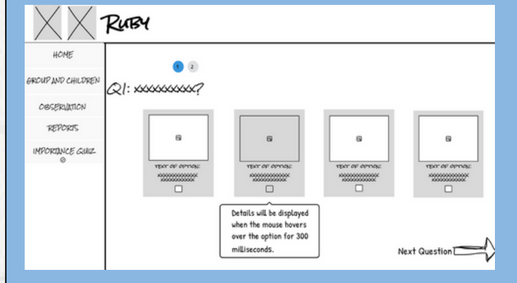
Users view group information and assessment progress



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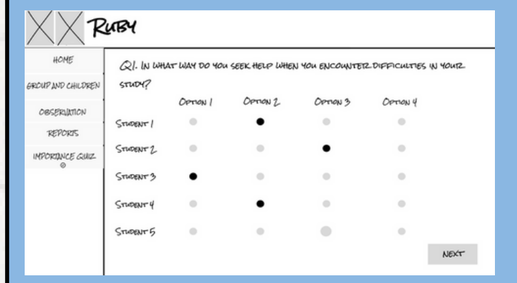

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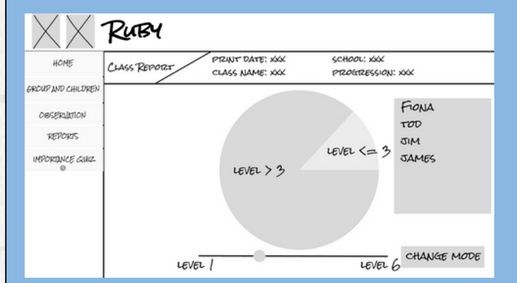

Data Visualization

Users view data visualization and interact to view more details

Prototype & Usability Test

01 → **02** → **03** →

User story (high priority)

Low fidelity prototype

Task/ scenario

User Story ID	As a (Role)	I want to (Do something)	So that (Achieve some goals)	Story Points (Time/Lvl, x10)	Complexity	MoSCoW Priority
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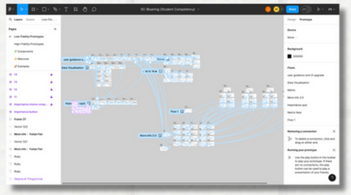
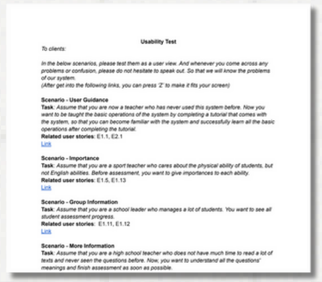




Usability Test

To clients:

In the below scenarios, please test them as a user view. And whenever you come across any problems or confusion, please do not hesitate to speak out. So that we will know the problems of our system.
(After get into the following links, you can press 'Z' to make it fits your screen)

Scenario - User Guidance
Task: *Assume that you are now a teacher who has never used this system before. Now you want to be taught the basic operations of the system by completing a tutorial that comes with the system, so that you can become familiar with the system and successfully learn all the basic operations after completing the tutorial.*
Related user stories: E1.1, E2.1
Link

Scenario - Importance
Task: *Assume that you are a sport teacher who cares about the physical ability of students, but not English abilities. Before assessment, you want to give importances to each ability.*
Related user stories: E1.5, E1.13
Link

Scenario - Group Information
Task: *Assume that you are a school leader who manages a lot of students. You want to see all student assessment progress.*
Related user stories: E1.11, E1.12
Link

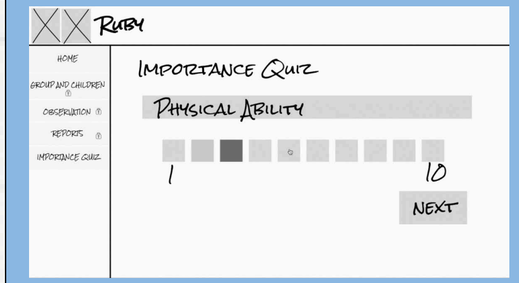
Scenario - More Information
Task: *Assume that you are a high school teacher who does not have much time to read a lot of texts and never seen the questions before. Now, you want to understand all the questions' meanings and finish assessment as soon as possible.*

Usability Test

Prototype

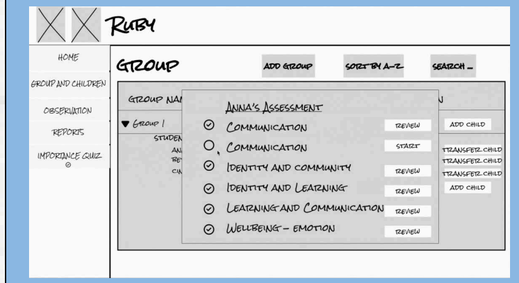
User Guidance

User can get familiar with the system by viewing videos



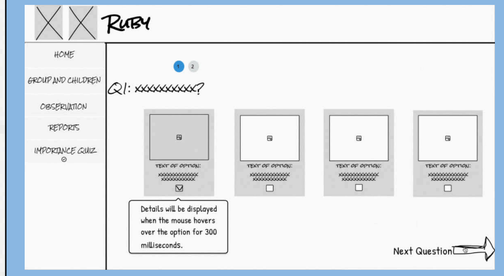
Importance Quiz

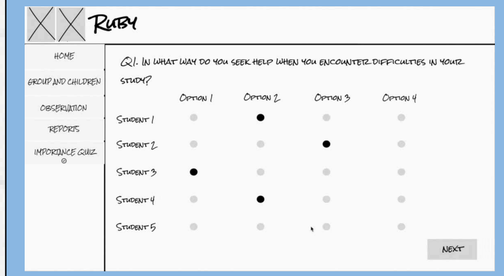
Sport teacher give high weights on physical ability, and low on English ability



Group Information

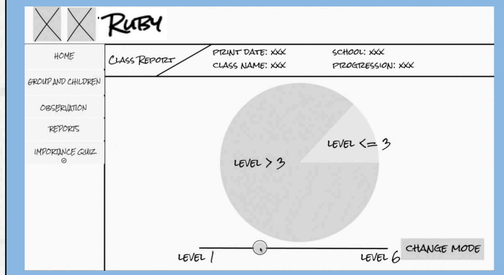
user can view group assessment progress





More Information

User can easily finish assessments and save time



Data Visualization

Users can easily understand students ability and save time

Prototype & Usability Test

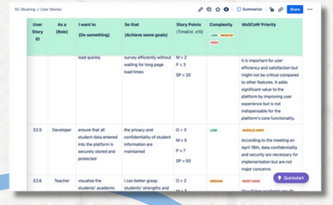
01 → **02** → **03** → **04** →

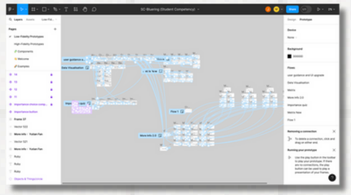
01 User story (high priority)

02 Low fidelity prototype

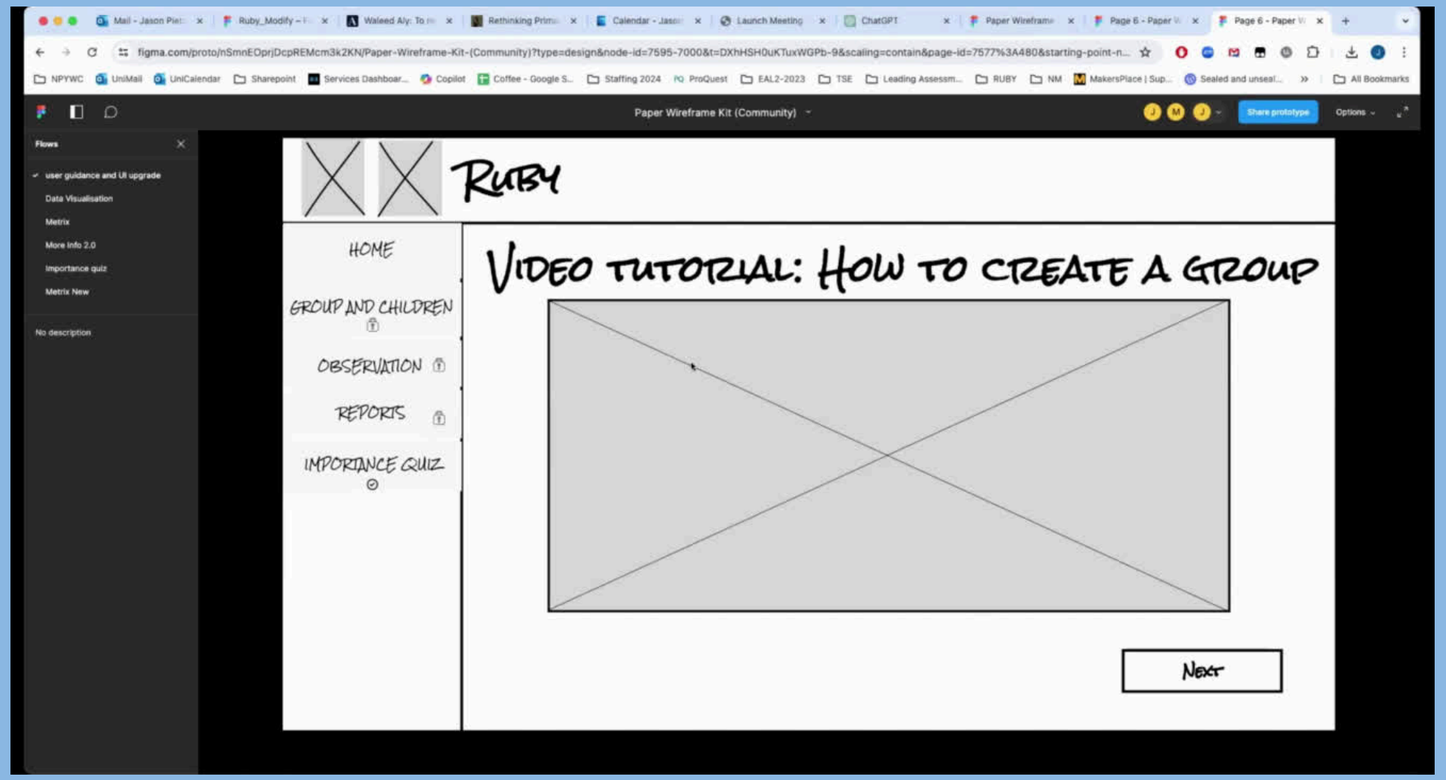
03 Task/ scenario

04 Usability test





Usability Test – record (youtube link)

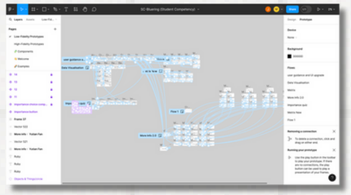


Prototype & Usability Test

01 → **02** → **03** → **04** → **05** →

01 User story (high priority)

02 Low fidelity prototype



03 Task/ scenario

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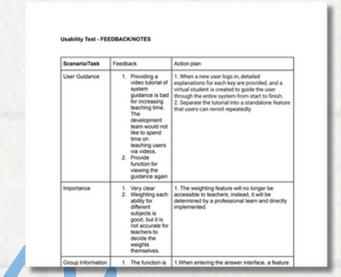
04 Usability test

05 Reflection & actions



Usability Test - FEEDBACKNOTES

Scenario/Task	Feedback	Action plan
User Guidance	1. Providing a video tutorial of system guidance is bad for increasing teaching time. The development team would not like to spend time on teaching users via videos. 2. Provide function for viewing the guidance again	1. When a new user logs in, detailed explanations for each key are provided, and a virtual student is created to guide the user through the entire system from start to finish. 2. Separate the tutorial into a standalone feature that users can revisit repeatedly.
Importance	1. Very clear 2. Weighting each ability for different subjects is good, but if it is set as default for teachers to decide the weights themselves.	1. The weighting feature will no longer be accessible to teachers; instead, it will be determined by a professional team and directly implemented.
Group Information	1. The function is	1.When entering the answer interface, a feature

Feedback

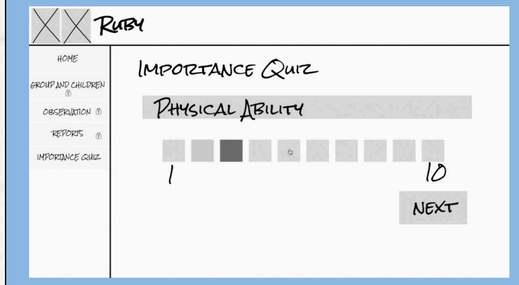
Action

Feedback & Action 1

Prototype

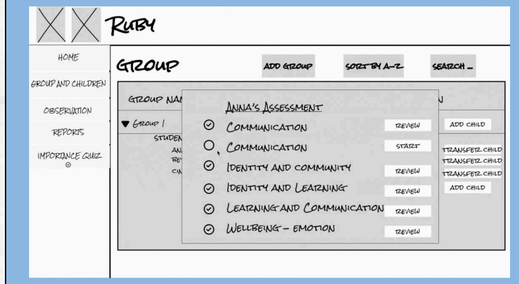
User Guidance

Client do not want to spend too much time on tutoring



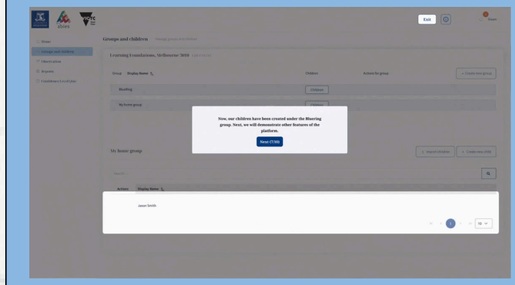
Importance Quiz

Importance weights are not reliable



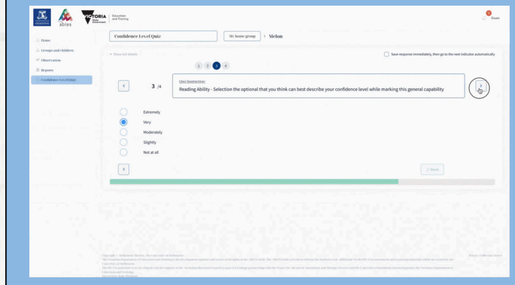
Group Information

The interface is not easy to understand



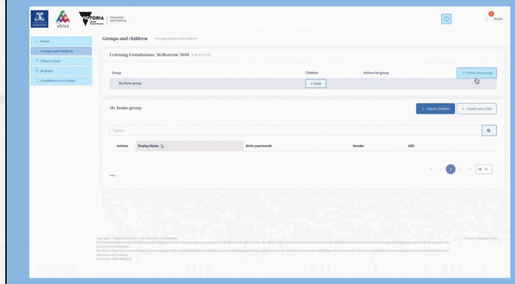
User Guideline

Providing system guideline by highlights instead



Confidence Quiz

Doing confidence quiz which is provided for system further analysis



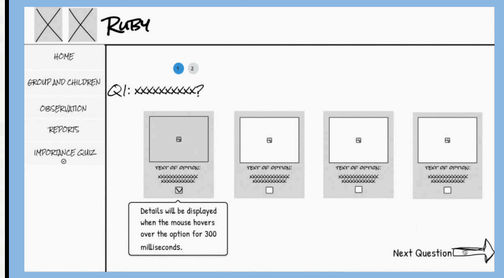
Create Group

Removed complex functions

Feedback & Action 2

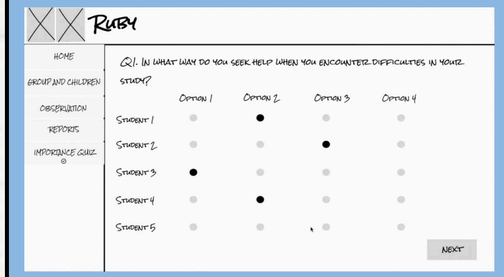
Prototype

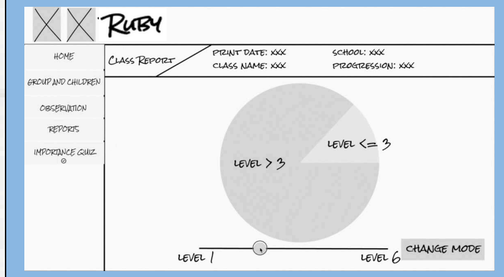
Feedback



More Information

The functions are good, but confused about which student or group is being assessed

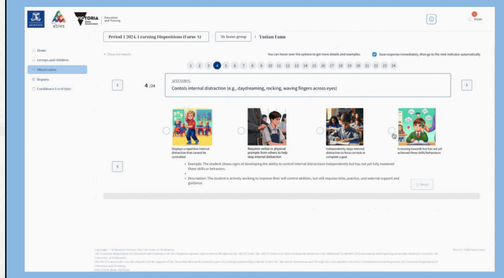




Data Visualization

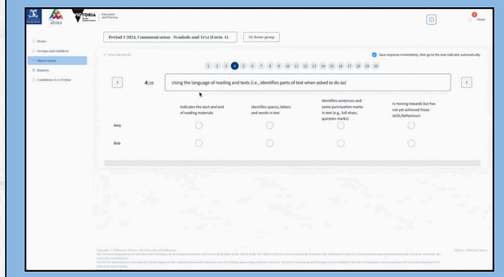
To view the whole pie chart initially.

Action



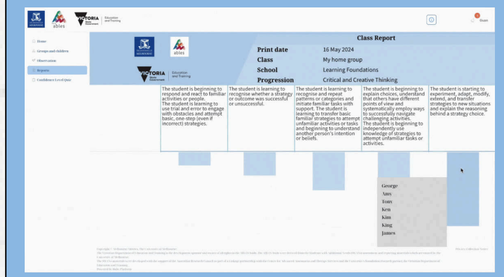
Picture Question

Users select a student to assess, and the name of student is visible during assessment



Matrix Question

Users select a group to assess, and the name of group is visible during assessment



Data Visualization

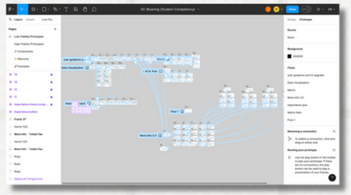
The pie chart shows all range at first

Prototype & Usability Test

01 → **02** → **03** → **04** → **05** → **06**

01 User story (high priority)

02 Low fidelity prototype



03 Task/ scenario

Usability Test

To clients:

In the below scenarios, please test them as a user view. And whenever you come across any problems or confusion, please do not hesitate to speak out. So that we will know the problems of our system.
(After get into the following links, you can press 'Z' to make it fits your screen)

Scenario - User Guidance
Task: *Assume that you are now a teacher who has never used this system before. Now you want to be taught the basic operations of the system by completing a tutorial that comes with the system, so that you can become familiar with the system and successfully learn all the basic operations after completing the tutorial.*
Related user stories: E1.1, E2.1
Link

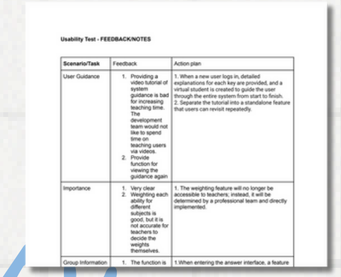
Scenario - Importance
Task: *Assume that you are a sport teacher who cares about the physical ability of students, but not English abilities. Before assessment, you want to give importances to each ability.*
Related user stories: E1.5, E1.13
Link

Scenario - Group Information
Task: *Assume that you are a school leader who manages a lot of students. You want to see all student assessment progress.*
Related user stories: E1.11, E1.12
Link

Scenario - More Information
Task: *Assume that you are a high school teacher who does not have much time to read a lot of texts and never seen the questions before. Now, you want to understand all the questions' meanings and finish assessment as soon as possible.*

04 Usability test

05 Reflection & actions



Usability Test - FEEDBACKNOTES

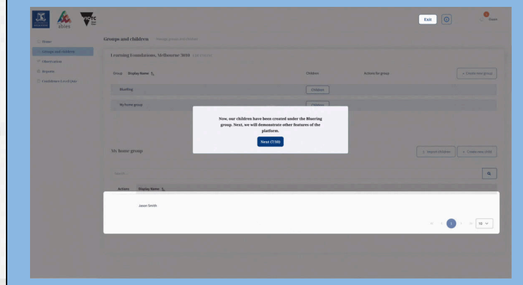
Scenario/Task	Feedback	Action plan
User Guidance	1. Providing a video tutorial of system guidance is bad for increasing teaching time. 2. The development team would not like to spend time on teaching users via videos. 3. Provide function for viewing the guidance again	1. When a new user logs in, detailed explanations for each key are provided, and a virtual student is created to guide the user through the entire system from start to finish. 2. Separate the tutorial into a standalone feature that users can revisit repeatedly.
Importance	1. Very clear 2. Weighting each ability for different subjects is good, but if it is not suitable for teachers to decide the weights themselves.	1. The weighting feature will no longer be accessible to teachers; instead, it will be determined by a professional team and directly implemented.
Group Information	1. The function is	1.When entering the answer interface, a feature

06 High fidelity prototype

Handover

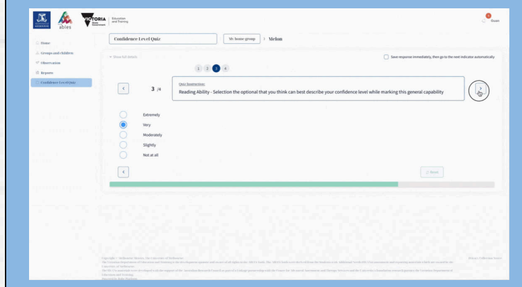
High Fidelity

Prototype



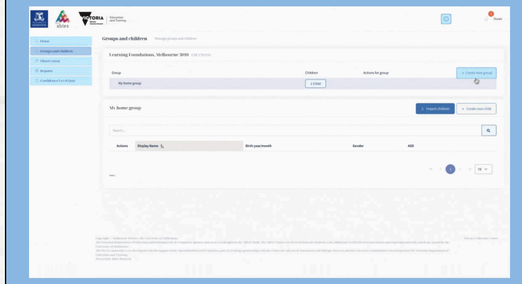
User Guideline

Users click to view guideline step by step



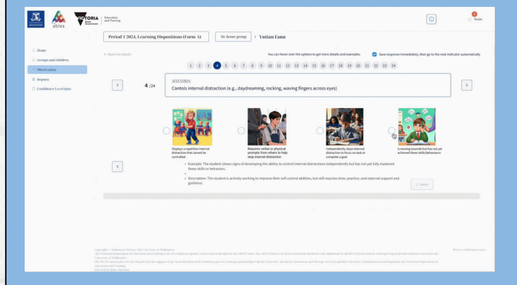
Confidence Quiz

Users do confidence level quiz to show how relevant are the abilities to the teaching subject



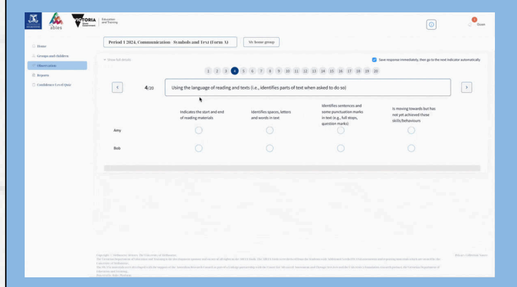
Create Group

Users create group in the group list



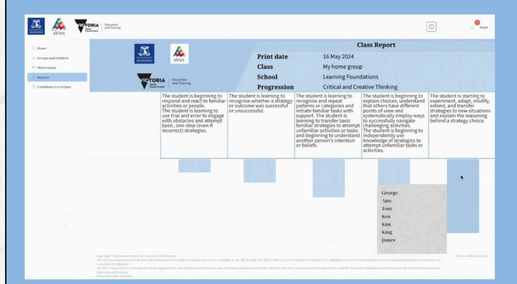
Picture Question and hovering text

Users do assessment with explanatory pictures and hover to view details



Matrix Question

Users select a group and assess them together in one matrix

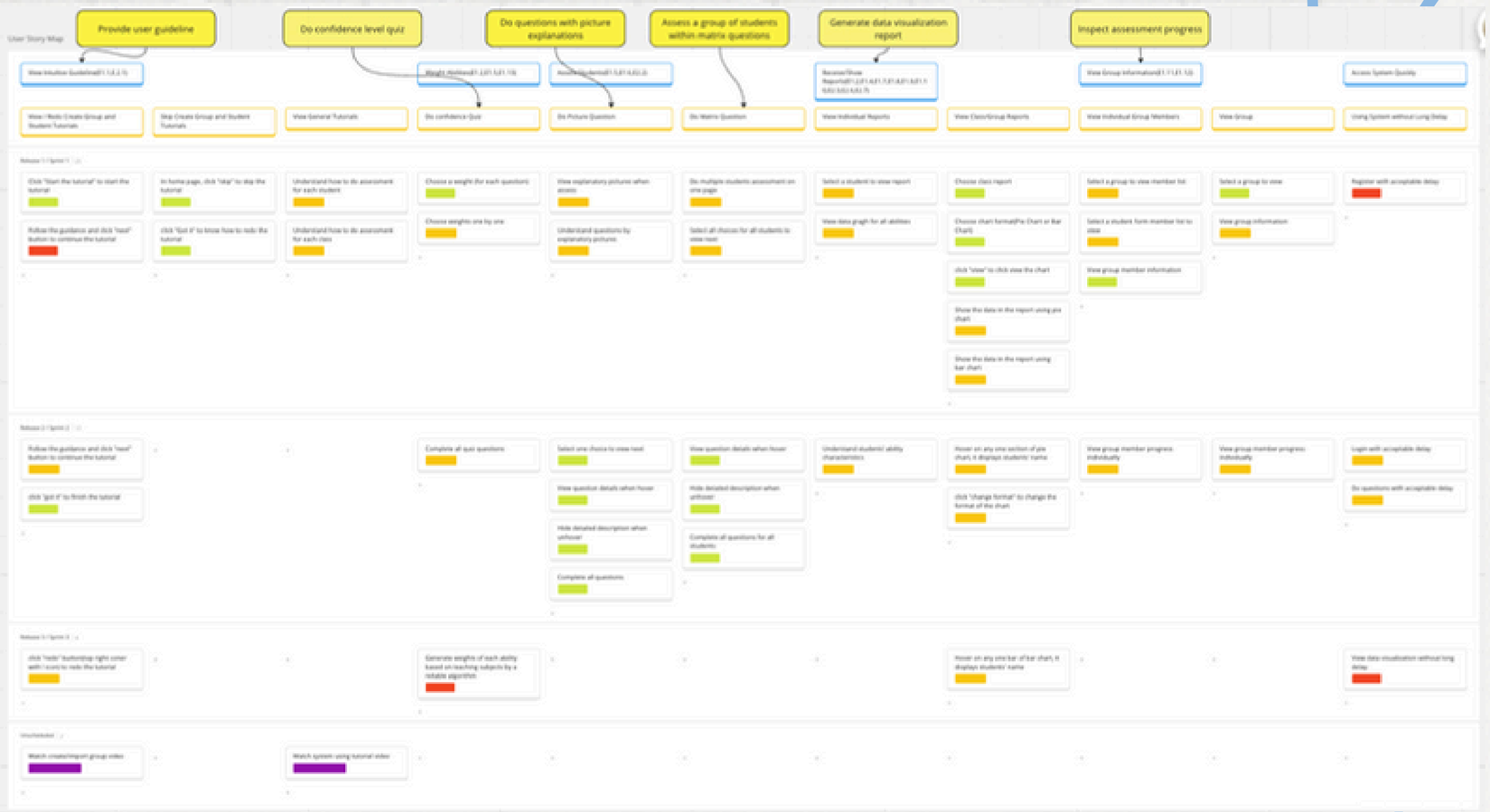


Data Visualization

Users view data visualization and interact to view more details

Handover

Epic ID	Epic	User Story ID	As a (Role)	I want to (Do something)	So that (Achieve some goals)	Story Points (TimeEst. x10)	Complexity LOW MEDIUM HIGH	MoSCoW Priority
E1	Functional	E1.1	Teacher	use an intuitive interface with minimal training	I can effortlessly navigate and utilize all features of the student competency evaluation platform	O = 1 M = 2 P = 3 SP = 20	LOW	MUST HAVE According to the client meeting on 18 March, reducing teacher workload is one of the main purposes of enhancing the current Ruby system.
		E1.2	Teacher	receive accurate reports on students' true levels of understanding and performance	I can tailor my teaching strategies to meet their individual needs	O = 4 M = 5 P = 6 SP = 50	HIGH	MUST HAVE As mentioned by the clients, a more accurate report is very important and necessary.
		~~E1.3~~	~~Teachor~~	~~have access to reports that assess and reflect students' mental health states~~	~~I can offer additional support to those who may be experiencing emotional or psychological stress.~~	~~O = 1~~ ~~M = 2~~ ~~P = 3~~ ~~SP = 20~~	LOW –	WON'T HAVE ~~Assessment and reflection on mental health, a function proposed by the development team, might be implemented in future releases.~~
		E1.4	Teacher	obtain detailed reports on students' academic performance	I can provide constructive feedback and suggestions for improving their learning capabilities	O = 4 M = 5 P = 6 SP = 50	HIGH	WON'T HAVE As mentioned by the clients, academic performance is not a priority for now, but it can be considered for future implementation.
		E1.5	Teacher	evaluate students' competencies from a general ability perspective	I can help them make progress in relevant areas and enhance their overall skills	O = 2 M = 3 P = 4 SP = 30	MEDIUM	COULD HAVE This is an existing feature that the Ruby platform already has; perhaps there is room for improvement.



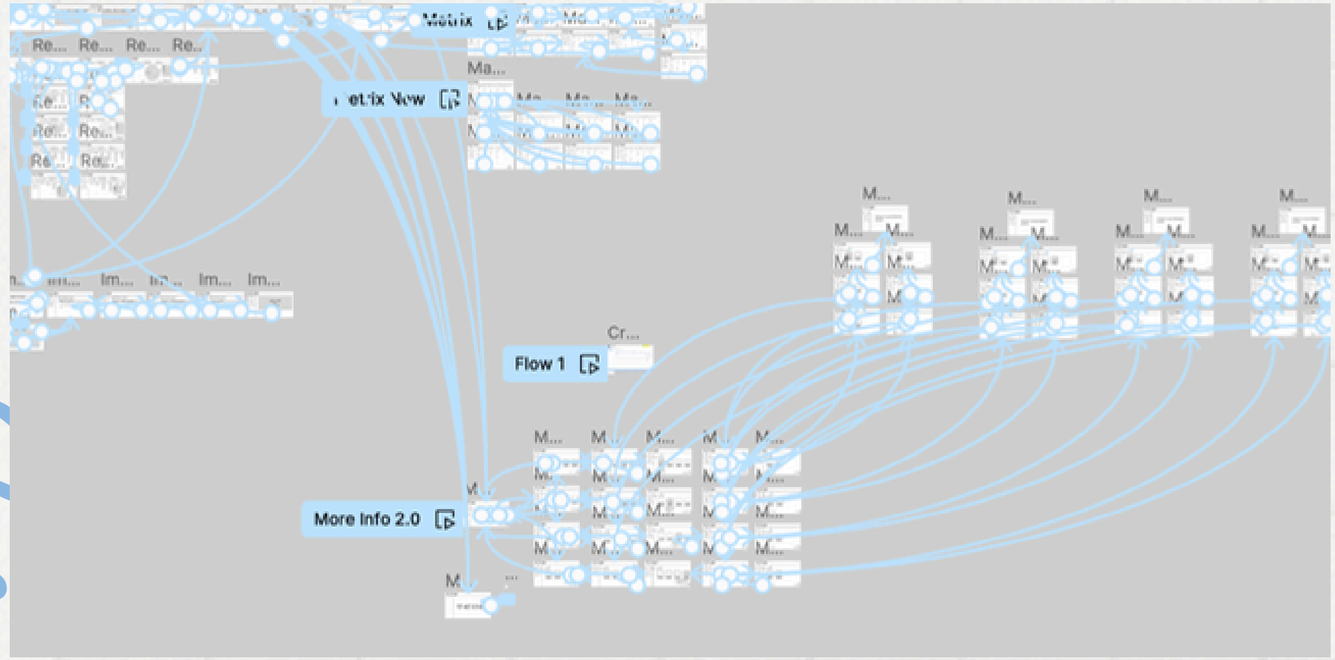
User Story

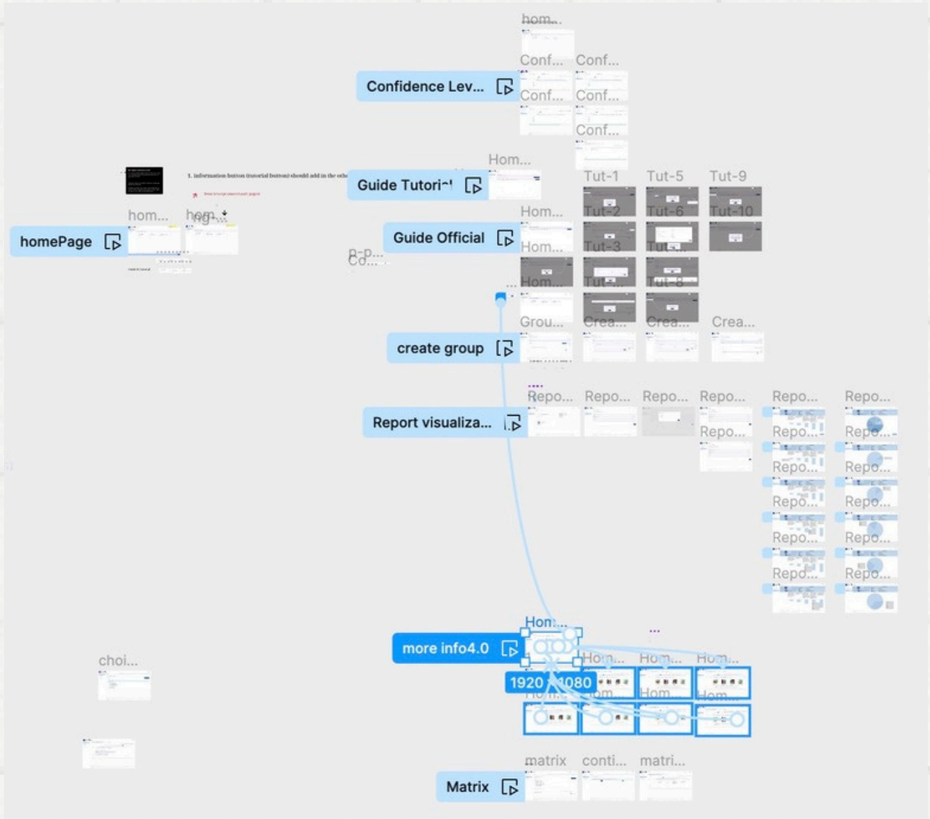
https://ljykkxx.atlassian.net/wiki/spaces/SCBluering/pages/57933829/User+Stories

User Story map

https://miro.com/welcomeonboard/enJlZ0Fxa1NadDRWcHJXN1kyZjhNd2g1OHE4akISYUd4VnNIV014bEN3VkJZZGdxTENJWVVWdU1pU2F6dWpOc3wzNDU4NzYONTYxOTIyNTE4NjkwfDI=?share_link_id=146944207946

Handover





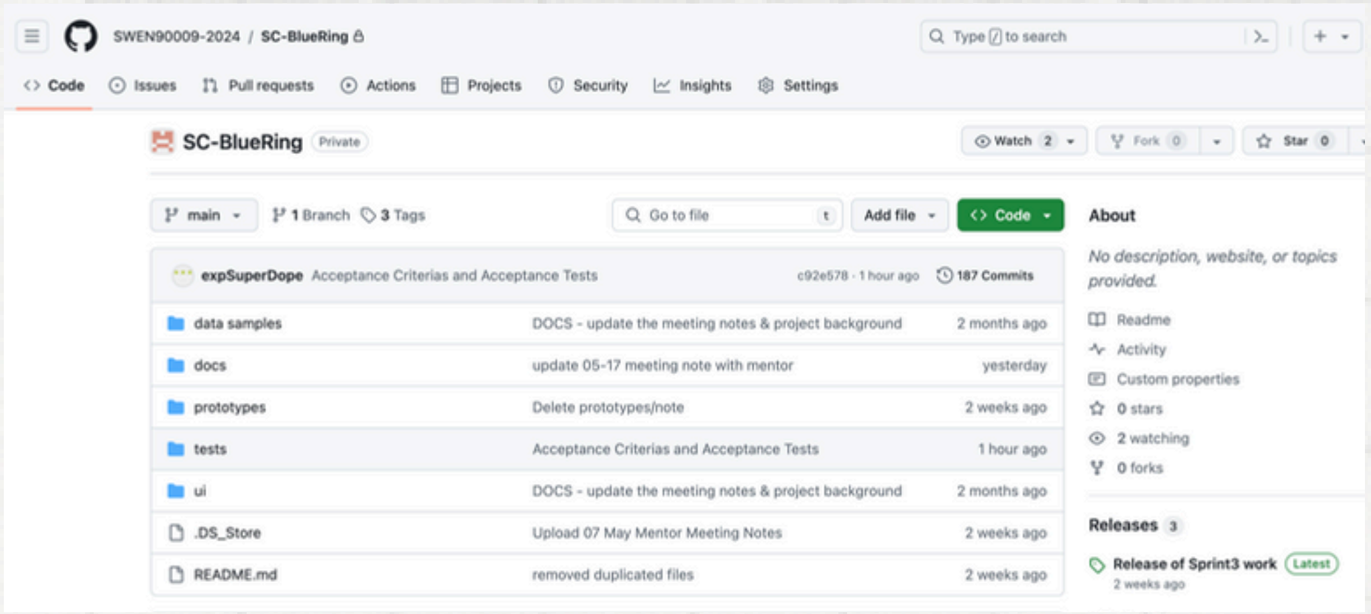
Low-Fidelity prototype

https://www.figma.com/design/nSmnEOprjDcpREMcm3k2KN/SC-Bluering-(Student-Competency)?node-id=7577-480

High-Fidelity prototype

https://www.figma.com/design/nSmnEOprjDcpREMcm3k2KN/SC-Bluering-(Student-Competency)?node-id=5525-1678

Handover



Github

https://github.com/SWEN90009-2024/SC-BlueRing/tree/main

Contact link

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Email: hgguan@student.unimelb.edu.au

Scrum Master: Mingchong Li

Email: mingchongl@student.unimelb.edu.au

Conclusion

Challenges

Clients problem/ idea

Requirement documents

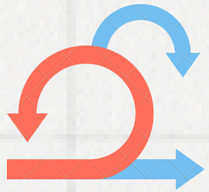
Develop team/ software

Group A

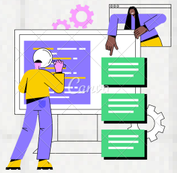
Cooperate

Group B

Solution



Scrum development



Software analysis techniques

Thank you very much!