

L 5 - Changemakers: Creativity and Value Creation (ACCA5033) (SEM 3)

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Innovation

09 June 2026 14:59

Innovation in Topic 1 is presented as a force that shapes everyday life and influences how society develops. The material shows that people constantly interact with innovations designed to improve daily living, demonstrating that innovation includes both major breakthroughs and smaller changes that affect how individuals work, communicate and solve problems. [1]

Hans Rosling's global health and wealth animation reinforces this idea by showing how countries progressed from low life expectancy and poverty in 1810 to improved conditions through industrialisation, sanitation, electrification and medical advances.[2] His visualisation highlights how innovation drives long term improvement while also revealing gaps created by unequal access. By the modern era many nations had caught up, which Rosling describes as evidence of global convergence.

The video materials also show how modern innovation is accelerating. Examples include genome editing, machine intelligence, breakthrough materials, intelligent robots, self-driving cars, bioprinting, three-dimensional printing and implantable mobile devices.[3] These developments challenge traditional ideas of what it means to be human and demonstrate how creativity continues to push boundaries. The deck content emphasises that creativity is an innate human ability and a mindset that can be developed, supporting the idea that innovation creates new value rather than repeating existing ideas.

The emotional aspect of creativity is also highlighted through Sadler's interpretation of Descartes' six passions: wonder, desire, love, hatred, joy and sadness. These emotions influence how individuals approach problems and generate ideas, helping explain why people pursue new concepts and how creativity supports innovation. [4]

The selected innovations of binary, electrics and modern medicine illustrate how foundational breakthroughs enable further development. These examples show how innovation builds over time and continues to shape society. Overall, the Topic 1 materials present innovation as a constant and influential force supported by creativity, which enables individuals and organisations to generate new ideas that create meaningful value.

Ideation

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The student explored several project ideas that relate to applied computing, creativity and innovation. These ideas were developed by reviewing the example project list and considering how digital tools can support workplace needs. One idea involved carrying out a usability evaluation of an existing council system to identify improvements that could make daily tasks more efficient and more accessible for staff.

A second idea focused on creating an accessibility focused web resource designed to support users with specific needs by presenting information in a clear and inclusive format. This concept would demonstrate how digital tools can reduce barriers and ensure that essential information is available to all users.

The final idea was an AI Welsh language learning assistant. This concept stood out because it aligns with the student's interest in Welsh language development and supports organisational goals related to improving Welsh language competency.[5] It also provides an opportunity to demonstrate creativity and innovation through artificial intelligence and natural language processing. After reviewing all options, the student selected this idea as the most suitable for the assignment.

Title

AI Welsh Language Learning Assistant

Aim

To design a proof of concept AI assistant that helps council staff improve their Welsh language skills through personalised learning and accessible digital support.

SMART Objectives

- To identify key Welsh language competency requirements within the council and map them to learning features within the assistant.
- To create a basic conversational prototype that can respond to simple Welsh phrases and provide corrective feedback.
- To design three example learning modules for vocabulary, sentence structure and workplace phrases.
- To gather usability feedback from at least three colleagues.
- To explain how the assistant could be expanded into a full organisational tool.

Description

The assistant is intended to support staff who want to improve their Welsh language skills in a simple way, using artificial intelligence to provide personalised practice and corrective feedback.

Research

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The student identified several specific courses and sources that will support the development of the AI Welsh language learning assistant. The first course[6] is *Introduction to Natural Language Processing* from Microsoft Learn, which explains how language models interpret text and generate responses. A second course is the Microsoft Learn path *AI Concepts*, which introduces core artificial intelligence principles that will support the design and development of the assistant. A third course is the *UX Design* pathway[7] on LinkedIn Learning, which provides practical guidance on creating clear, accessible and user-friendly interfaces.

The student will also use the council's Welsh Language Levels resource, which outlines the skills expected at each stage and helps the student align learning content with real workplace requirements. Together, these resources provide the technical, design and linguistic knowledge needed to achieve the project's aim and objectives.

Q1: Project Scope

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Proposed Solution

The proposed solution is to create a proof-of-concept AI-powered Welsh language learning assistant, delivered as a simple web or mobile application. The aim is to support Welsh language development within the council, where learning and using Welsh is an organisational priority. The app will focus on conversational Welsh practice and vocabulary building, tailored to the council's Welsh language competency levels (Pre-Entry, Entry, Foundation). Users will be able to engage in short, level-appropriate conversations with the AI, and access small vocabulary lists relevant to workplace communication. The intended end users are council staff who are developing their Welsh skills, with fellow apprentices acting as pilot testers to provide early feedback. This prototype is not intended to be a full production system but a demonstration of how AI could be implemented into workplace learning to support Welsh language development.

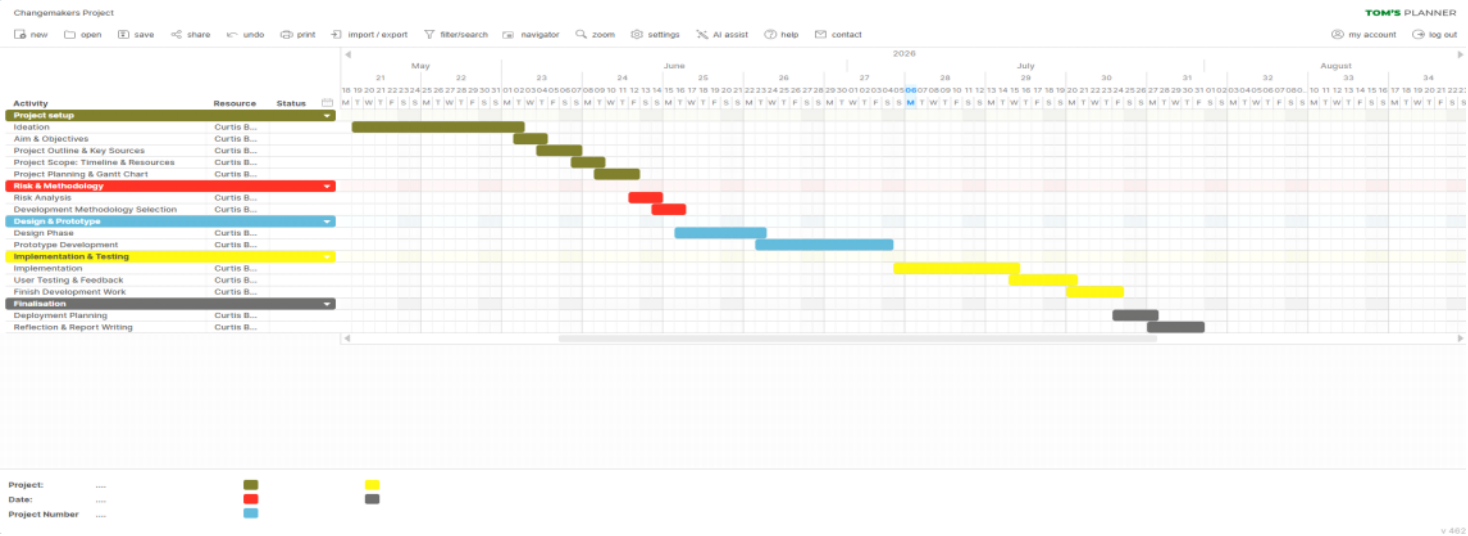
Required Resources / Technologies

To implement this project, I will mainly need a standard laptop or PC, internet access, and free online AI tools. The prototype will be created using simple, beginner-friendly development tools, and I will choose the exact software during the research phase as part of my skill development. I will use existing AI services to generate Welsh text and support conversational practice, along with basic web-app building tools or AI-assisted coding platforms to help create the interface. Welsh language resources, including the council's Welsh Language Competency Framework, will guide the content and level design. Fellow apprentices will act as pilot testers, and all work will be documented in OneNote throughout the project.

Project Stage & key tasks	Start Date & End Date
Ideation	19/05/2026 – 02/06/2026
Aim and Objectives	02/06/2026 – 04/06/2026
Project outline: description & Key sources	04/06/2026 – 07/06/2026
Project scope: timeline & resources	07/06/2026 – 09/06/2026
Project Planning: Task schedule & Gantt chart	09/06/2026 – 12/06/2026
Risk Analysis	12/06/2026 – 14/06/2026
Development methodology selection	14/06/2026 – 16/06/2026
Design phase	16/06/2026 – 23/06/2026
Prototype Development	23/06/2026 – 05/07/2026
Implementation	05/07/2026 – 15/07/2026
User Testing & feedback	15/07/2026 – 20/07/2026
Finish development work	20/07/2026 – 24/07/2026
Deployment planning	24/07/2026 – 27/07/2026
Reflection and Report writing	27/07/2026 – 31/07/2026

Q2: Gantt Chart

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[8]The Gantt chart for this project was created using Tom’s Planner and provides a clear visual timeline of all project stages from May to July 2026. It shows each activity, its duration, and how tasks overlap across the development process. The chart is divided into five colourcoded sections: Project Setup, Risk & Methodology, Design & Prototype, Implementation & Testing, and Finalisation. Each task is assigned to the project owner, ensuring accountability and clarity throughout the schedule.

The Project Setup phase includes ideation, defining the aim and objectives, outlining key sources, and documenting the project scope. These tasks take place across late May and early June and establish the foundation for the rest of the project. The Risk & Methodology section follows, covering risk analysis and selecting an appropriate development methodology. This ensures that potential challenges are identified early and that the project follows a structured approach.

The Design & Prototype phase spans mid-June to early July and includes the design work and initial prototype development. This is where the AI Welsh language assistant begins to take shape, with early functionality and interface elements being created. The Implementation & Testing phase runs through July and includes implementing the prototype features, conducting user testing with apprentices, gathering feedback, and completing development work.

Finally, the chart shows the Finalisation phase, which includes deployment planning and the reflection and report-writing stage. This ensures the project is properly evaluated and documented. Overall, the Gantt chart provides a structured visual representation of the project timeline, showing how each stage contributes to the development of the AI Welsh language learning assistant.

Q3: Risks and Mitigation

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[9]The project may encounter several risks that could affect progress and the quality of the final prototype. Time management is a significant challenge, as balancing university work, employment and project tasks may lead to missed deadlines or rushed work. This risk will be reduced by using structured planning tools such as a Gantt chart and a Jira board to track tasks, break work into smaller chunks and set weekly goals. Technical skill gaps may also slow development, particularly when learning new AI tools or web-app builders. To mitigate this, the project will rely on beginner-friendly tools, maintain a small and manageable scope and use online tutorials to support learning. Free AI tools may impose usage limits or restricted features, which could reduce functionality or block progress. This will be addressed by using multiple free AI services, planning around tool limits and saving outputs offline when possible.

Data quality issues may arise due to limited or inconsistent Welsh language datasets, potentially resulting in inaccurate AI responses. This risk will be managed by using trusted organisational sources such as the council's Welsh Language Competency Framework and manually reviewing sample outputs. Scope creep is another potential challenge, where adding too many features could make the project unmanageable. This will be prevented by focusing strictly on core features: simple conversations and basic vocabulary practice. Testing availability may also be limited if apprentices or staff are unable to participate, so the project will prepare short test tasks, allow asynchronous feedback and test with classmates if necessary. Technical issues such as software bugs, broken APIs or internet problems could disrupt development; these will be mitigated by keeping backups, testing early, using stable tools and avoiding overly complex features. Finally, motivation and workload stress may impact productivity. Using Jira to track progress, setting realistic goals and working in short sessions will help maintain steady progress throughout the project.

Risk	Description	Outcome	Mitigation
Time Management Issues	Balancing university, work, and project tasks may cause delays.	Missed deadlines, rushed work, reduced quality.	Use a Gantt chart and Jira board to track tasks; break work into small chunks; set weekly goals.
Technical Skill Gaps	Learning new tools (AI services, web app builders) may take longer than expected.	Slow progress, incomplete features.	Choose beginner-friendly tools; keep scope small; focus on a simple prototype; use online tutorials.
AI Tool Limitations	Free AI tools may have usage limits or restricted features.	Reduced functionality or blocked progress.	Use multiple free AI services; plan around limits; store outputs offline when possible.
Data Quality Issues	Welsh language datasets may be limited or inconsistent.	Poor AI responses or inaccurate Welsh.	Use trusted sources (e.g., council Welsh framework); manually review sample outputs.
Scope Creep	Trying to add too many features beyond the prototype.	Project becomes unmanageable.	Stick to core features only: simple conversations + vocabulary; follow the project scope.
Testing Availability	Apprentices or staff may not be available for testing.	Limited feedback; weaker evaluation.	Prepare short, simple test tasks; allow asynchronous feedback; test with classmates if needed.
Technical Issues	Software bugs, broken APIs, or internet issues.	Delays or inability to demonstrate the prototype.	Keep backups; test early; use stable tools; avoid over-complex features.

Motivation / Workload Stress	Balancing work, uni, and life may affect motivation.	Reduced productivity; rushed final work.	Use Jira to track progress; set realistic goals; work in short sessions; ask for support if needed.
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Q1: Development Method

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For this project, the Agile SCRUM development method will be used, as it is well-suited to small software prototypes and supports iterative improvement. SCRUM enables the work to be divided into short development cycles, known as sprints, which helps manage workload alongside university and employment commitments. Each sprint focuses on a small, achievable goal, such as creating the initial conversational interface, building vocabulary lists, or testing Welsh language responses.

SCRUM is appropriate for this project because the AI Welsh language assistant is expected to evolve as new tools are explored and early feedback is gathered. Rather than attempting to build the full system at once, the prototype can be developed incrementally, allowing issues—such as inaccurate Welsh output or interface challenges—to be identified early. This reduces technical risk and supports steady, manageable progress.

Tools such as Jira complement the SCRUM method by organising tasks into “To Do,” “In Progress,” and “Done,” providing a clear visual overview of project activity. This structure helps maintain focus, prevents tasks from becoming overwhelming, and supports regular reflection at the end of each sprint. Overall, SCRUM offers flexibility, structure, and continuous improvement, making it a suitable development method for an AI-based learning prototype.

Q2: Design Work

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1.1 Presentation / Design Requirements

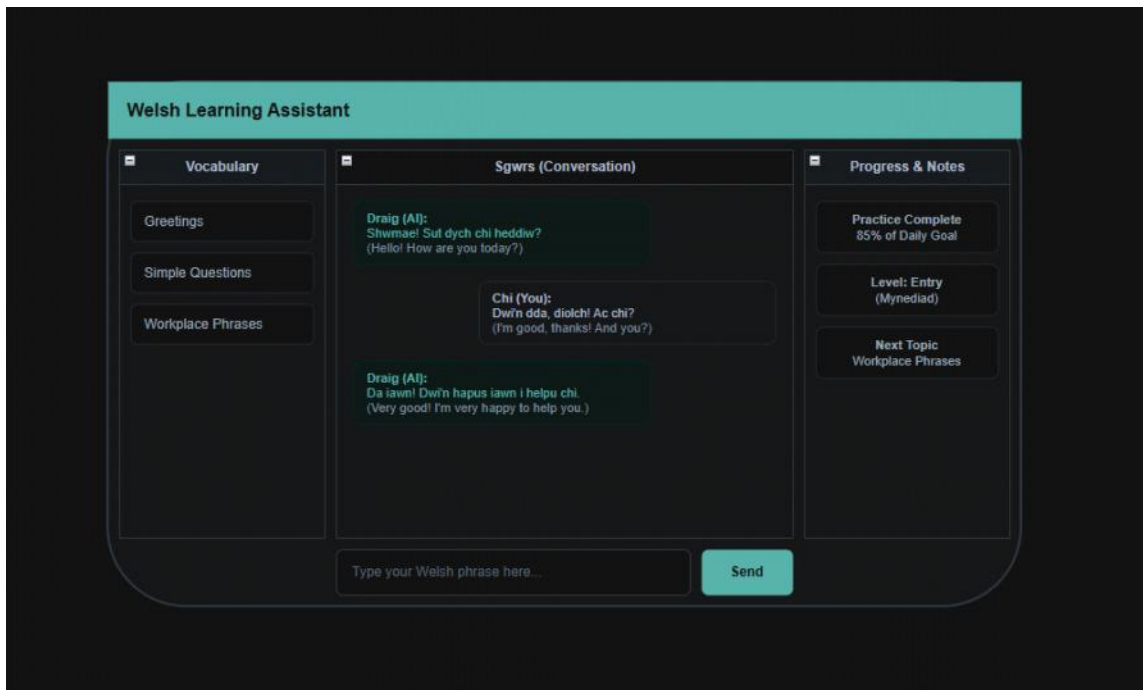
Requirement ID	Requirement Statement	Priority	Comments
PR001	Interface must be simple and beginner-friendly for Welsh learners.	Must	Supports accessibility for staff with low digital confidence.
PR002	Clear fonts and readable text must be used throughout the interface.	Must	Matches council accessibility expectations.
PR003	Layout should include conversation window, input box, and vocabulary panel.	Must	Core UI structure for the prototype.
PR004	Colour scheme should remain minimal and non-distracting.	Want	Enhances usability but not essential.

1.2 Logic / Functional Requirements

Requirement ID	Requirement Statement	Priority	Comments
FR001	System must allow users to practise short Welsh conversations.	Must	Based on Welsh competency levels.
FR002	Assistant must generate Welsh responses using an AI model.	Must	Core functionality.
FR003	System must provide workplace-relevant vocabulary lists.	Must	Supports learning outcomes.
FR004	System must accept typed input and return corrections or definitions.	Must	Essential for interaction.
FR005	System should simulate basic progress messages.	Want	Enhances engagement.

1.3 Data Requirements

Requirement ID	Requirement Statement	Priority	Comments
DR001	System must use trusted Welsh language sources.	Must	Ensures accuracy.
DR002	AI outputs should be stored temporarily for testing.	Want	Helps with evaluation.
DR003	System must handle unexpected or incorrect input safely.	Must	Reliability requirement.



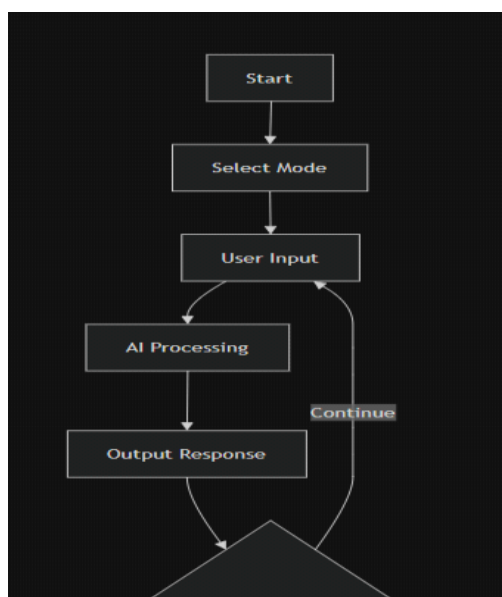
Wireframe Description (Q2 – Design Artefact 1)

Wireframe Overview This wireframe represents the planned interface for the AI Welsh Language Learning Assistant. It is a low-fidelity design created using Draw.io and focuses on layout and structure rather than styling. The design aligns with the Presentation Tier requirements by providing a simple, accessible interface suitable for beginner Welsh learners. [11]

Wireframe Description

- **Header:** Displays the project title *Welsh Learning Assistant*.
- **Vocabulary Panel (Left):** Provides quick access to key categories such as Greetings, Simple Questions, and Workplace Phrases.
- **Conversation Window (Centre):** Shows example dialogue between the AI (“Draig”) and the user (“Chi”), demonstrating how Welsh phrases and English translations will appear.
- **Progress & Notes Panel (Right):** Displays learning progress, daily goal completion, current level, and the next topic.
- **Input Field & Send Button (Bottom):** Allows users to type Welsh phrases and submit them to the assistant.

This wireframe provides a clear visual representation of the core interface and supports the functional and non-functional requirements defined earlier.

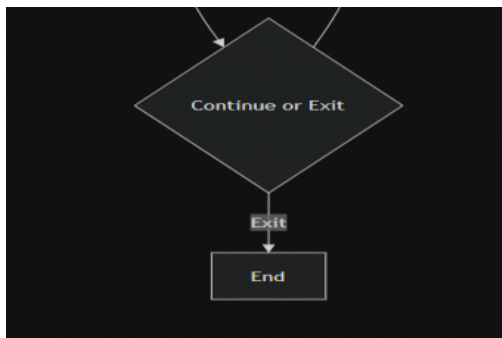


Flowchart Description (Q2 – Design Artefact 2)

The flowchart illustrates the logical sequence of how the AI Welsh Language Learning Assistant operates. It aligns with the Logic Tier of the requirement specification by showing how user actions trigger system processes and how the assistant responds. The diagram presents a clear, step-by-step flow of interaction, ensuring the logic behind the system is easy to understand. [12]

- **Start** — The user begins the session.
- **Select Mode** — The user chooses between *Conversation* or *Vocabulary* mode.
- **User Input** — The user enters a Welsh phrase or selects a vocabulary item.
- **AI Processing** — The assistant analyses the input and generates an appropriate Welsh response, correction, or definition.
- **Output Response** — The system displays the AI’s reply back to the user.
- **Continue or Exit** — The user decides whether to continue practising or end the session.
- If **Continue**, the flow loops back to *User Input*.
- If **Exit**, the session ends.

This flowchart provides a clear visual representation of the system’s logic and



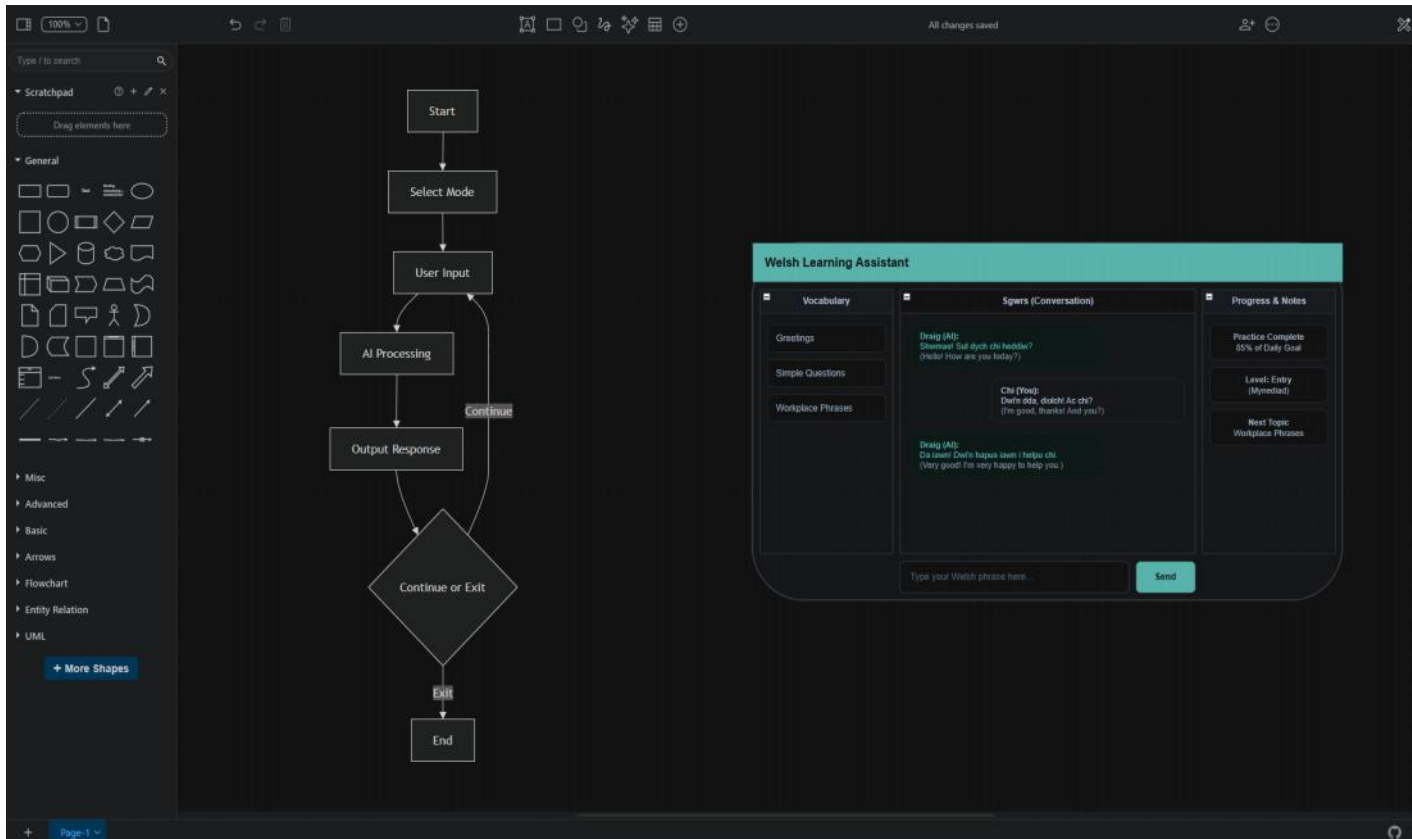
- If **Continue**, the flow loops back to *User Input*.
- If **Exit**, the session ends.

This flowchart provides a clear visual representation of the system's logic and supports the functional requirements identified earlier in the assignment.

Q3 – Development (Early Implementation)

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An early prototype has been created using Draw.io, based directly on the wireframe and flowchart from Task 2. The interface layout (Vocabulary, Conversation, Progress & Notes, and Input Field) has been arranged in a working structure, and the system logic has been mapped using the flowchart. The screenshot below shows both the interface and the logic being implemented together, demonstrating clear progress from design to early development.



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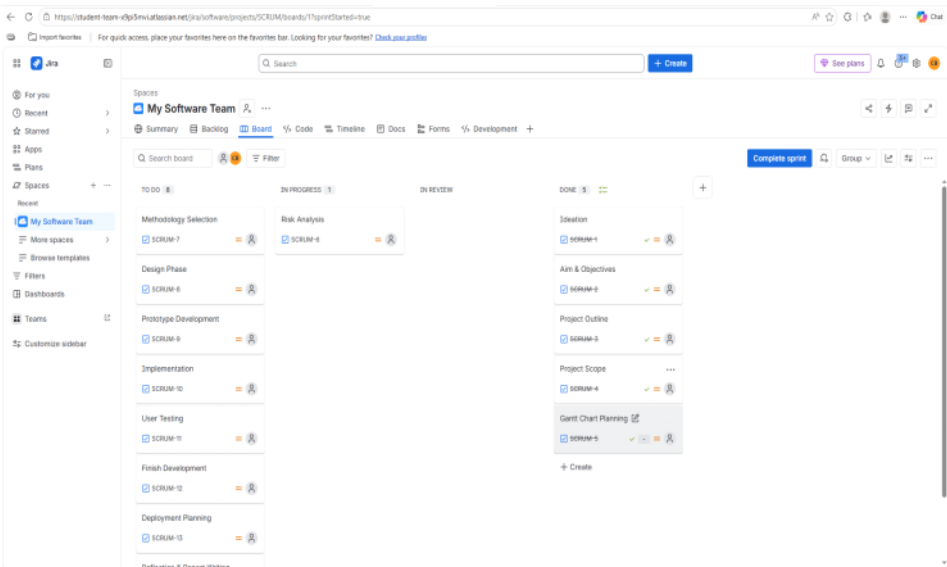
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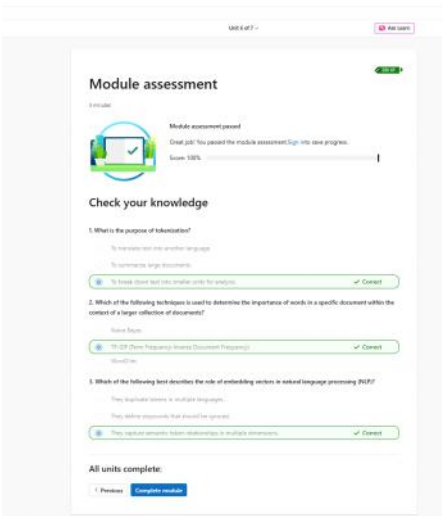
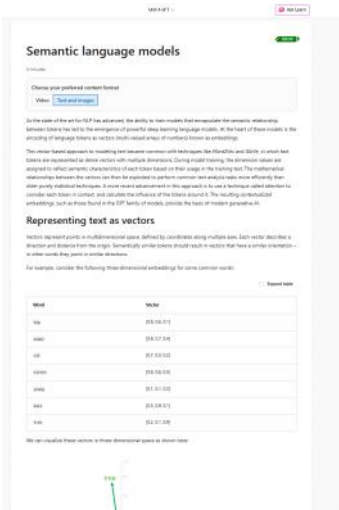
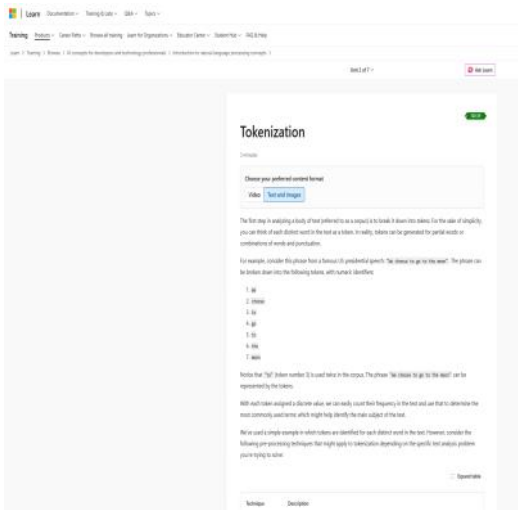
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Appendices

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Appendix: Project Management Evidence This appendix contains supplementary artefacts used throughout the project, including Jira board activity, workflow progression, and task tracking. These items demonstrate practical engagement with project-management tools and support the development decisions made in Tasks 1–3.



Appendix: CPD Evidence This appendix includes proof of my engagement with a certified online learning module related to natural language processing. The screenshots demonstrate completion of the course, including assessment results and key learning activities. This CPD activity supports the development of my project by strengthening my understanding of AI concepts relevant to the assignment.