Logo

Description automatically generated

**Course Name:** Computing with Software Development

**Year/Semester:** Year 4 / Semester 7

**Module Title:** Final Year Project

**Project Title:** Virtual Learning Environment (VLE)

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Feature Log

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# Feature Log Table

## Status Legend

* **Pending**: The feature is scheduled for development but has not started yet.
* **In Progress**: The feature is currently being developed.
* **Complete**: The feature has been fully developed and integrated into the project.
* **Wishlist**: The feature is considered for future development if time permits but is not currently prioritised.

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| --- | --- | --- | --- | --- |
| **ID** | **Name** | **Description** | **Priority** | **Status** |
| F00 | Application Prototype | Basic demonstration of sending and retrieving data. Includes basic input fields in Angular application using ASP.NET Core API that fetches data from database to display in the UI. | High | Complete |
| F01 | User Registration | Allow new users to create accounts. | High | Complete |
| F02 | User Login | Allow registered users to login to their accounts. | High | Complete |
| F03 | User Logout | Allows logged in users to log out. | High | Complete |
| F04 | Module Creation | Allows admin users to create and configure module. | High | Complete |
| F05 | Module Editing | Allows admin users to edit an existing module that they have created. | High | Complete |
| F06 | Module Deletion | Allows admin users to delete an existing module. | High | Complete |
| F07 | Module Enrolment | Allows students/instructors to enrol in modules. | High | Complete |
| F08 | Browse Modules | Allows users to browse/explorer available modules. | High | Complete |
| F09 | Search/Filter | Allows users perform a search to applicable features such as exploring modules, viewing participants list, and viewing grades/feedback. | High | Complete |
| F10 | Module Page Addition | Allows instructors to add a module page which will hold/contain module contents. | High | Complete |
| F11 | Module Page Editing | Allows instructors to edit existing module page. | High | Complete |
| F12 | Module Page Deletion | Allows instructors to delete/remove existing module page. This also performs a cascading deletion of contents, and any files associated with it that was uploaded in the cloud storage. e.g., downloadable lectures and assignment submission files. | High | Complete |
| F13 | Module Content Addition | Allows instructors to add and manage module materials such as uploading lecture files, adding links to external resources, or creating an assignment upload for students to submit assignment work. | High | Complete |
| F14 | Module Content Downloading | Allows users to download uploaded module content materials from the cloud storage. | High | Complete |
| F15 | Module Content Editing | Allows instructors to edit existing module content. | High | Complete |
| F16 | Module Content Deletion | Allows instructors to delete/remove existing module content. This also performs a cascading deletion of contents, and any files associated with it that was uploaded in the cloud storage. e.g., downloadable lectures and assignment submission files. | High | Complete |
| F17 | Assignment Submission | Allows students to submit their assignment work. | High | Complete |
| F18 | Grading/Feedback System | Allows instructors to update assignment grades and provide feedback manually. | High | Complete |
| F19 | Payment (Stripe) | Provides a payment option using Stripe before enrolling users to the module. | High | Complete |
| F20 | UI Styling and UX | Apply styling to user interface and improve user experience. | High | In Progress |
| F21 | Testing | Perform testing such as unit testing and user acceptance testing. | High | Pending |
| F22 | CI/CD Pipeline | Set up pipeline in Azure DevOps to run automated builds, tests, and code analysis. | High | Pending |
| F23 | Deployment and Migration | Deploy/publish application (client, API, and background job) in Azure and migrate database to Azure SQL. | High | Complete |
| F24 | Dashboard | Custom dashboards for specific types of users. Admin displays metrics on modules, instructors display taught and enrolled modules, and students displays enrolled modules only. | Medium | Complete |
| F25 | Background Process (Reminders) | Sends assignment deadline reminders via email. | Medium | Complete |
| F26 | Participant List | Displays the list of participants enrolled in a module with the ability for instructors and admin to download/export the list as CSV file. | Medium | Complete |
| F27 | Import Grades/Feedback | Allows instructors to import a structured CSV or Excel file containing grades and feedback for student assignment submissions. | Medium | Complete |
| F28 | Live Notifications | Allows instructors to send real-time in-app notifications to notify enrolled students of grades and feedback update. | Medium | Complete |
| F29 | Drag & Drop Upload | Allows users to drag and drop files for upload (currently implemented in grade importing for instructors). | Low | Complete |
| F30 | Contact Page | Allows non-admin users to send a message using a contact form that is delivered to the admin’s email. | Low | Complete |
| F31 | Quiz Creation | Allows instructors to create quizzes | Low | Wishlist |
| F32 | Quiz Auto-Grading | Automatically grades multiple choice quizzes after completion. | Low | Wishlist |
| F33 | Chat System | Provides real-time messaging between users. | Low | Wishlist |
| F34 | User Profile | Allows users to create/update their own profile and view user profiles. | Low | Wishlist |
| F35 | Gamification | Implements gamification such as badges and leaderboards. | Low | Wishlist |

# Iterations

## Iteration 1

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| **Iteration 1** |  |
| Date of Milestone | 09/11/2024 |
| Features in Scope | Application Prototype (Angular UI, ASP.NET Core API) |
| Features Implemented | Application Prototype (Angular UI, ASP.NET Core API) |
| Features in Deficit | N/A |
| Iteration Comments & Summary | A simple Angular UI is created with a couple of fields for user input. Basic API (GET and POST) is also created which is used to send data to the database and retrieve it to display in the UI. Database is in local but will be migrated to Azure SQL at later stage of the development. Database schema currently being planned then moving on to next features. |

## Iteration 2

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| **Iteration 2** |  |
| Date of Milestone | 01/12/2024 |
| Features in Scope | User Registration, User Login, User Logout |
| Features Implemented | User Registration, User Login, User Logout |
| Features in Deficit | Module Create/Enrolment |
| Iteration Comments & Summary | User registration, login, and logout implemented. User management and authentication using ASP.NET Identity and JWT token is also used to generate session token if a user is logged in successfully. Simple UI with Bootstrap navigation bar is used for now with appropriate buttons being displayed/hidden based on user state (logged in or out). Angular frontend has a simple home page component with will display relevant content for users e.g., list of enrolled modules for students. Module creation and enrolment was initially planned also but will have to be moved to the next iteration as top priority. |

## Iteration 3

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| **Iteration 3** |  |
| Date of Milestone | 16/12/2024 |
| Features in Scope | Module Creation, Module Enrolment |
| Features Implemented | Module Creation |
| Features in Deficit | Module Enrolment |
| Iteration Comments & Summary | Module creation (backend) feature is almost completed as of writing. Run into authorisation and migration issues but will have the code pushed in the next hour or so. Module enrolment has been delayed once again due to backlog in CAs but will catch up during the break as discussed in the meeting. |

## Iteration 4

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| **Iteration 4** |  |
| Date of Milestone | 16/02/2025 |
| Features in Scope | Module Creation/Editing/Deletion, Module Enrolment, Browse/Explore Modules, Search Modules, Content Addition/Editing/Deletion |
| Features Implemented | Module Creation/Editing/Deletion, Module Enrolment, Browse/Explore Modules, Search Modules |
| Features in Deficit | Content Addition/Downloading/Editing/Deletion |
| Iteration Comments & Summary | Some good amount of work done in the module content addition and downloading feature but will still require performing some manual testing before pushing up to the repository which should be done in the next few days if not tonight. In terms of authentication/authorisation, the initial implementation used the browser local storage to store data such as tokens which was a huge security flaw and has since been upgraded to use HTTP only cookies to authenticate/authorise users. Additional research might be done to identity ways or other technologies to further improve security at a later date. |

## Iteration 5

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| **Iteration 5** |  |
| Date of Milestone | 09/03/2025 |
| Features in Scope | Module Page Addition/Editing/Deletion, Module Content Addition/Editing/Deletion/Download, Assignment Creation/Submission, Grading System and Feedback |
| Features Implemented | Module Page Addition/Editing/Deletion, Module Content Addition/Editing/Deletion/Download, Assignment Creation/Submission |
| Features in Deficit | Grading System and Feedback |
| Iteration Comments & Summary | Majority of core feature implemented with grading system remaining left to do. Completed the cloud storage setup using Azure to store uploaded files (e.g., lecture notes, submitted assignment files) in a cloud storage container. Restructured application layout to follow Brightspace with module pages (e.g., Week 1, Week 2) displayed as a side bar menu containing module contents (e.g., downloadable lecture files, share point links). Implemented cascading deletion to remove child components when deleting parent components (e.g., deleting a module page will delete all its associated contents from the azure cloud storage as well as the metadata in the database). Styling is planned to be improved following the completion of the grading system before moving into implementing advanced features. |

## Iteration 6

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| **Iteration 6** |  |
| Date of Milestone | 30/03/2025 |
| Features in Scope | Grading System and Feedback, Payment, Background Process, UI Styling and UX |
| Features Implemented | Grading System and Feedback, Payment, UI Styling and UX |
| Features in Deficit | Background Process |
| Iteration Comments & Summary | Grading system and feedback which was in deficit has now been completed. Added payment system using Stripe and is tested to run successfully on local device. Minor UX improvement by adding loading icon to address page flickering due to some delays when retrieving data from the backend. Also improved overall user interface theme and design to achieve professional look and feel and is still work in progress. Finally, the background process has been put in deficit for now and will try to finish it up by this week. |

## Iteration 7

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| **Iteration 7** |  |
| Date of Milestone | 13/04/2025 |
| Features in Scope | Background Process, User Dashboards, User Profile |
| Features Implemented | Background Process, User Dashboards |
| Features in Deficit | User Profile |
| Iteration Comments & Summary | The background process has been completed with one recurring job for the mean time which is to notify students via email who has not submitted their assignments one day before the set deadline. The user dashboards are mostly complete with the admin dashboard still in progress. At the moment I am just ensuring that the analytics are correct. The user profile was considered to be implemented but will have to be moved to be worked on this week instead. This also includes some small features to be included such as student list, importing grades from an Excel file, and further UI/UX improvements. |