Core Project - Mark Scheme (Software, DevOps, Testing)

Programming/Software Development	1		2		3		4		5	
	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description
Designs, codes and verifies simple programs/scripts.	Software is missing functionality in major areas for the MVP (Could be a CRUD application)	Software is generally very poor and doesn't meet MVP status, or there is nothing submitted.	Software functionality is working in areas but is not a fully working product.	Some areas of the program work but often breaks and/or has big errors in the code.	Software is functional in all necessary areas (MVP) but still has small bugs and/or errors.	The application meets MVP status as a CRUD application but still has areas some errors and bugs in certain areas.	Software is functional in all major areas but still has small bugs and/or errors.	Application meets CRUD MVP status and has erros and bugs that are harder to detect or trigger.	Software is fully functional in all relevant areas.	Software completely functional as an MVP and has no errors in the code, and even builds further functionality than required.
Tests, documents, amends and refactors simple programs/scripts.	No tests implemented and documented designs were not implemented. Best practices not adhered to in the project.	Best practice generally ignored, no tests or documentation included.	Tests were beginning to be implemented, parts of the project adhered to best practices but not consistently throughout the software.	No information was exposed within the code or by the code, documentation is very basic.	Software has been tested in the most important areas, (judged by test coverage) with basic functions being tested. Best practices were adhered to for most areas of the project.	No passwords, DB files, secrets, or unnecessary files were leaked or exposed.	Software has been tested in most relevant areas; best practices were consistently adhered to throughout the project.	No passwords, DB files, secrets, or unnecessary files were leaked or exposed. Code has been refactored and best practice has been followed where possible.	Software has been tested in all areas, with best practices and refactoring adhered to and implemented throughout the project.	No passwords, DB files, secrets, or unnecessary files were leaked or exposed. Code has been refactored multiple times and best practice has been followed where possible.
Applies agreed standards and tools, to achieve a well-engineered result.	Tools and workflows discussed in software documentation around design, however not implemented.	No designs, tools or workflows discussed were implemented into submission.	Tools and workflows are referred to within the project, but the implementation is minimal.	Minimal usage of standards and tools discussed within MVP.	Tools and workflows discussed in documentation are implemented throughout the project at an acceptable level, but more exploration could have occurred.	MVP was written in provided tech stack.	Tools and workflows discussed in documentation are implemented throughout the project at a high level.	High level of understanding of tech documented in README. use of advanced tech (Jenkins plugins)	All best practices, tools and workflows taught are used successfully to a high level from design to final product.	Feature branch model adhered to, no unnecessary files or credentials in code.

Software Design	1		2		3		4		5	
	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description
Creates and documents detailed designs for simple software applications or components applying agreed modelling techniques, standards, patterns, and tools.	No Designs provided for the application.	No ERD or other designs provided for the app.	Simple designs provided but not adhering to agreed standards and patterns.	ERD provided but contains mistakes or is not up to the standard required to realistically implement from.	1 simple design provided meeting the agreed standards and patterns.	ERD provided and generally reads well, contains minimal to no errors.	More extensive Designs provided on both a system level and component level.	ERD provided and generally reads well, contains minimal to no errors. User stories for app also submitted.	Evolution of designs evident as the project progressed in all aspects.	ERD provided and generally reads well, contains minimal to no errors. User stories for app also submitted. Showcased evolution of ideas from base design to final designs.
Creates and documents the development and/or deployment of an application, applying agreed standards and tools.	No README.md present for the application that has been built.	No README for the aplication on Git.	Documentation exists but does not follow a clear and coherent structure.	README present but lacks detail and any cohesive structure (i.e. headings, formatting).	Structured README.md with relevant content.	Good readme file with detail and structure. App adheres to agreed standards (app structure, technologies, etc.)	In-depth README.md that explores the application to a high level.	Readme file is very well detailed and structured. App adheres to agreed standards (app structure, technologies, etc.)	Further analysis -- licensing -- contributors -- acknowledgements - versioning	Readme contains all other flags mentioned.

Systems Integration and Build	1		2		3		4		5	
	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description
Produces software builds from software source code.	Build server was not installed and no builds of the software produced at all.	Jenkins not used in the project, no builds created.	Build server was not installed, however a software build was produced successfully from a repository.	Jenkins installs and builds attempted but not working, but a software build could be built from the repo.	A Build server had been installed and used basically to produce a software build.	Jenkins runs a job and successfully builds and tests app.	A Build server has been installed and used to produce a software build after a push to the code repository.	Jenkins runs a job and successfully builds and tests app. Webhook implemented to poll repo.	Build server installed and successfully built software after a push with artefact produced for successful builds. Use of a configuration file to make build jobs portable between build servers.	Jenkins runs a job and successfully builds and tests app, producing test reports and implementing build instructions in a shell script. Webhook implemented to poll repo.
Conducts tests as defined in an integration test specification, records the details of any failures.	No tests have been written and no reports about the application have been produced.	No tests have been written or ran, no reports.	Tests don't integrate with other aspects of the application.	Unit tests are present, but do not integrate with the database.	Tests have been written that test that that application can access other systems that it is connected too, for instance a database.	Unit tests written for all CRUD functionality. Documentation is present but sparse.	Instructions on how to run integration tests OR reports contains integration tests	Unit tests written for all CRUD functionality. Documentation is at a good level.	Instructions on how to run integration tests AND reports contains integration tests	Unit tests written for all CRUD functionality. Documentation is at a very good level.
Identifies and reports issues and risks.	No risks recorded or monitored.	No risks regarding the app discussed.	Some Risks acknowledged but not formally followed up.	Some risks around development and testing mentioned but no real analysis.	A simple Risk analysis has been performed, however does not follow a Matrix.	A basic risk assessment has been conducted with results discussed.	A more formal Risk assessment process has been followed using the Risk Assessment Matrix.	A risk assessment has been conducted and followed using some form of Risk Assessment matrix.	A formal risk assessment process followed and updated; analysis performed at end of project.	A risk assessment has been conducted and followed using some form of Risk Assessment matrix. Based on results, changes were made to the solution and discussed at a good level.

Testing	1		2		3		4		5	
	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description	General marking guidance	Description
Designs test cases and creates test scripts and supporting data.	No tests written and 0% code coverage reached.	No testing has taken place within the project.	Only a few tests written, no results have been acknowledged.	Testing has taken place but coverage does not meet 75%.	An acceptable level of test coverage met, utilising an acceptable range of tests.	75% test coverage achieved.	A good level of test coverage met, utilising a good range of tests.	85% test coverage achieved.	A great level of test coverage met, utilising a broad range of tests.	95% test coverage achieved.
Analyses and reports test activities and results.	No analysis of what was tested vs what wasn't tested and why. No summary to overall results of testing.	Testing considerations and results ignored.	Some analysis as to what was tested. Rough details on the testing results.	Testing mentioned in passing but no reports for test results produced.	Some analysis as to what was tested and why. Summary of overall results is present but isn't in much detail.	Testing discussed and reports produced for results.	Analysis as to what was tested, what was out of scope and the reasons behind these decisions. Summary of overall results is present.	Testing discussed and reports produced for results. Basic analysis of test reports has been conducted.	Analysis as to what should be tested and what is out of scoped is discussed in detail. Summary of overall results present with in-depth reports.	Testing discussed and reports produced for results. Extensive analysis of test reports has been conducted.