The Chartered Institute for IT

Level 4

BCS L4 Software Developer IfATE Version 1.1

Assessment Method 1
Work-Based Project with Questioning

Work based Project Signoff

Version 0.1
September 2021

Overview

This mapping document is to help facilitate the timely sign off for the intended work based project for Assessment Method 1.

The apprentice should complete the following project mapping to clearly explain how the proposed work based project will meet all the KSB's for Assessment Method 1.

The EPAO will review the mapping document and sign it off. In the case that more detail is needed the EPAO will provide feedback to request further information.

Top tip:

- Please take the time to fully read and understand the assessment plan for this Assessment Method.

We strongly recommend that the mapping document is completed and used. Failure to do so will likely cause delays in the EPAO being able to sign off the proposed work-based project.

Assessment method 1: Project Report with Questioning

Apprentice Details

Name	Cemal Okten
ULN	
Training Provider	
Employer	Yalla Dev LTD

Project Brief

Cost of Living Tool

This project is to develop a web based application that will help people affected by the cost of living crisis. The tool will present key information and resources in an accessible and easy to understand format.

The project will be based upon The Universal Credit Helper, a previous project developed by Yalla for the housing provider Hyde to assist the public with the complex process of applying for Universal Credit. Hyde have now secured further funding for a new project which will be used to develop the new Cost of Living Tool.

This project will have a similar look and feel to the Universal Credit Helper but will improve accessibility and add multi-lingual capabilities. My focus will be to use Google's language API or a similar technology that may be identified through our technical research to add the ability to translate the sites content into many different languages while also adjusting the formatting of the page to suit the reading direction. For example, English is read left-to-right while Arabic is read right-to-left. Additionally if there is time, I aim to modularise this functionality so it can be offered to other Yalla clients and easily integrated into future projects.

Write a short and clear explanation in the Project Mapping column how each KSB below will be met through the proposed project. The EPAO will then review.

Project Checklist Table

This is to cross check the project work completed by the apprentice meets the KSBs required by this assessment method.

Explains the roles and responsibilities of all people working within the software development lifecycle, and how they relate to the project.			
		Project Mapping	**EPAO Feedback**
K2: Roles and responsibilities within the software development lifecycle (who is responsible for what).		I will be working on this project in a team, the following people will be involved: - Product Owner(s): Maggie Houghton (Hyde Housing) - Project Manager: Erica Gasparini - Lead Developer: Ramy Al Shurafa - Designer: Jem Abulhawa - UX: Joe Friel & Beth Scott - Developers: Ramy Al Shurafa, Fadi Omar and Cemal Okten Each person in the team will play a key role in the development lifecycle of the product and I will be involved in all aspects of the project. The project will begin ahead of my gateway window, but I will be focusing on my contribution during the 7 weeks of development which fall between 14th November and 20th January. I will be part of the development team and be focusing on the language translation functionality.	

Outlines how teams work effectively to produce software and how to contribute appropriately.			
		Project Mapping	**EPAO Feedback**
K6: How teams work effectively to produce software and how to contribute appropriately.		I will be working on this project using the Scrum framework, which is an agile methodology. Building the project over a period of 4 development sprints, each sprint lasting one week followed by a sprint review and the ability to show the client the progress of the project. The full project timeline is attached as an appendix to this mapping document. Sprints allow us to break our workload into manageable chunks which focus on the most important user journeys. Agile allows for requirements to change over time as the product grows and evolves. Agile will allow me to constantly iterate, make changes and work with my team in a fluid way. I will use various tools to communicate including messaging and video conferencing apps to ensure the team is up-to-date with the project. Alongside these tools I will also use Git to store, make changes locally and ensure that code is merged into production without conflicts or bugs. Git will also ensure that everyone has an up to date version of the code.	

Outlines and applies the rationale and use of algorithms, logic and data structures.			
		Project Mapping	**EPAO Feedback**
K9: Principles of algorithms, logic and data structures relevant to software development for example: Arrays, Stacks, Queues, Linked Lists, Trees, Graphs, Hash Tables, Sorting Algorithms, Searching Algorithms, Critical sections and race conditions.		I will make use of objects and arrays throughout the project, they are complex data structures which help developers arrange, store and retrieve data. I expect to use objects when developing the language translation features for the product, to store, sort and retrieve different translations on demand. I also expect this data will be stored in a database which will require retrieval in a way which manages race conditions.	
S16: Apply algorithms, logic and data structures.		I will apply logical structure to the code, for example with if statements. Alongside this logic I will also need to structure and organise the data I am storing, here I expect to use a relational database and organise the access to this using clean architecture methodology.	

Reviews methods of software design with reference to functional/technical specifications and applies a justified approach to software development.			
		Project Mapping	**EPAO Feedback**
K11: Software designs and functional/technical specifications.		I will work with senior developers to create a technical specification for the product that outlines the technologies we will use for the front-end, back-end and database. This document will be based heavily on the technical research stage where I plan to research the possible approaches to the translation features for the site. Following the technical specification a more detailed software design for the product will be created, this document will outline the flow and structure for the front-end, back-end and database, for example a detailed database schema that can be used when creating the database and when writing code to access it.	
S11: Apply an appropriate software development approach according to the relevant paradigm (for example object oriented, event driven or procedural).		Javascript is a multi-paradigm language, meaning both functional and object-oriented approaches can be used. I will be using a functional paradigm throughout this project with React on the front-end and Node.js on the back-end. I find functional code easier to read, understand and debug.	

S12: Follow software designs and functional/ technical specifications.	I will refer to the designs created in the earlier stages of the project throughout the development process, if there are changes to the initial design I will adapt my code to suit and document the reasons for the change.	

Creates logical and maintainable code to deliver project outcomes, explaining their choice of approach.		
	Project Mapping	**EPAO Feedback**
S1: Create logical and maintainable code.	I plan to use the DRY (Don't Repeat Yourself) method during the development process by creating and using external libraries of common components that will ensure my code is consistent and can be updated from a single source. I also plan to use objects of common variables that can be imported and used where required. During the project I plan to create documentation of how key features work and how to set up the project locally. This will help future developers understand my code and the choices I made.	

Analyses unit testing results and reviews the outcomes correcting errors.		
	Project Mapping	**EPAO Feedback**
S4: Test code and analyse results to correct errors found using unit testing.	I plan to use the Jest testing framework to test my code. I will write unit tests which will test pieces of my code in isolation, these tests will ensure the code works as expected and also highlight if future changes cause the code to stop working.	

Identifies and creates test scenarios which satisfy the project specification.		
	Project Mapping	**EPAO Feedback**
S6: Identify and create test scenarios.	I plan to write tests based on expected outcomes but also edge-cases which may not occur often but could potentially break the code. I would like to use a test-driven development approach to some of my code. Test-driven development requires that I write the test before writing any code and then tailor the code to ensure all tests eventually pass.	

Applies structured techniques to problem solving to identify and resolve issues and debug basic flaws in code.			
		Project Mapping	**EPAO Feedback**
S7: Apply structured techniques to problem solving, can debug code and can understand the structure of programs to identify and resolve issues.		I will use browser tools such as the console to log out values as I go, making sure they are present and are what I expect. I will debug my code as I go to make sure errors are resolved and tests pass. I will debug in a logical way, working my way through the code logging values and using the browser breakpoint feature to stop execution at certain points. If I am unable to resolve an issue I will use documentation to find a solution or ask a senior developer for assistance.	

Reviews and justifies their contribution to building, managing and deploying code into the relevant environment in accordance with the project specification.			
		Project Mapping	**EPAO Feedback**
S10: Build, manage and deploy code into the relevant environment.		I will deploy the site using Heroku and Amazon web services. Heroku will be used to deploy the database, front-end and back-end, while Amazon web services will be used to deploy assets such as images, video or audio.	

Establishes a logical thinking approach to areas of work which require valid reasoning and/or justified decision making.		
	Project Mapping	**EPAO Feedback**
B2: Applies logical thinking. For example, uses clear and valid reasoning when making decisions related to undertaking work instructions.	When making decisions I will discuss possible options and solutions with my team, research these options and present what I have found, providing a recommendation for the best approach or alternatively a small selection of potential routes. Approaching problems in a methodical and logical manner will ensure that the best decision for the project and team is made.	

Describes how they have maintained a productive, professional and secure working environment throughout the project activity.		
	Project Mapping	**EPAO Feedback**
B3: Maintains a productive, professional, and secure working environment.	I endeavour to use up-to-date software while working on this and all other client projects. When working with external pieces of code I will ensure that the code and any dependencies are up-to-date and do not have known security vulnerabilities. I will have MFA (multiple factor authentication) enabled on all accounts, use strong unique passwords and have an update to date anti virus installed.	