

Completion Report - Andrew Mulleady

Student ID: 13381081

A. Skills attained at 1st of june:

MongoDB database knowledge - Learned to work with schemaless data structures, and how to store data through objects and arrays. Querying data and performing transactions on this data. MEAN stack app - Built a CRUD app with the mean stack, this was a todo app which allowed users to create todos, read, update and delete items from the list. Worked with nodeJs to setup a server that could handle DB queries with a mongoDB backend.

Java - Learned how to work with array lists and linked Lists, interfaces, generics and inheritance. How to access methods/constructors through the use of getters & setters. Used industry design patterns and unit tests, to create efficient code that could escalate easily to an increase in scope.

Enterprise Java, worked with servlets and combined SQL queries with java to make a shop form. I gained experience using JBoss creating Java Server Pages, using servlets and JPQL(Java Programming Query Language) and learned about multi-threading, generics, networking and client/server programming.

SQL - Learned how to write complex SQL queries on a dataset, this involved joining multiple tables together, through the use of inner joins and chaining SELECT queries together. Created forms with Access, using inputs in text boxes and creating triggers when the button is selected.

Server side programming with nodejs, using http get, put, update and delete requests, setting up a server file in my industry project to handle data requests from the view to the DB. Learned how to persist data to DB and update, delete and read this data from MongoDB or Firebase.

Google maps js - Worked with google maps javascript to create a map interface in the application to allow users to view a shop location and their location through geolocation.

Ionic framework- Is a hybrid architecture with components and native plugins that allows for the building of responsive apps, both as a ios or Android application or as a Pwa on the web. The ecosystem of an ionic app is built off an angular application.

Angular framework - Using services and providers with a firebase backend to transport data from a realtime db to the html view.

Algorithmics and Logical Methods - Taught me about sorting and searching algorithms that may come in handy in applications we use, it also taught me how to break down a problem into manageable chunks, to draw out the problem and explore logical solutions.

Typescript - Is javascript with an oop slant, this allowed me to develop my OOP design principles and practise this in my own project.

OOP/design patterns - Learned how to implement the strategy, adapter, composite, flyweight, singleton and Observer design patterns.

Software Development/Engineering - Learned about the methodologies used in the IT industry today, how to conceptualise the data flow of a application system using DFD's. Learned in this module, how to adopt to an individual companies approach to IT development.

B. Skills attained from summer project.

- Summer project involved redesigning the project, by creating a new development environment with Ionic and Firebase.

Firebase DB - Is Google's dbaaS entry to the cloud market, Using realtime db to store data in the cloud, it also has storage capabilities which I used to store images. Implementing these features into my ionic app was a valuable learning process, and firebase is convenient to use in personal projects. I also used transactions in firebase to enact real time computations on variables in my app, such as adding a new purchase will increase the loyalty points amount and redeeming a product will reduce -100 points from the total. Profile page has update functionality, to update user information, add loyalty cards to create a new card to your list. There is google maps functionality incorporated.

Hosting apps on the web, hosted the ionic app on the google cloud servers so the app could be accessed by any device around the world. Used firebase to create a build process and packaged the app into a public www folder, this was then hosted on the firebase cloud server. Learned how to officially build ionic applications in a safe manner by going through this process.

Authentication - Used authentication and built in firebase functions to quickly set up unique user accounts and security around data creation, through Github and Google, email/password logins - Enabled google authentication by using firebase server functionality and calling the googleAuth method, similarly with Github login, and created email and password login. This allowed for the creation of unique profiles in my application. Users could then log on to the app and have their own personalised view.

Angular Animations - Used angular animations to create subtle animations to enhance the users UI experience and to alert users of new information being loaded into the page. This involved learning about triggers and state variables.

Ionic Components/Native Plugins

Used filter and search bar functionality, to filter an array of items based on text entered.

Using ngIf on components to increase the flexibility of the app. Increased ionic framework knowledge through use of **Ionic native Cordova plugins;**

Used plugins such as: QR barcode scanner - Reads barcodes and launches a search for the item on an index, camera - to access the native camera on a mobile device, take a picture and display this on screen, Geolocation and local notifications plugin.

Enhanced knowledge of Angular ng components. Increased knowledge of two-way data binding and string interpolation. For example, using the ternary operator to create more dynamic code.

The correct use of ngIf to determine which content should be shown, e.g. in my industry project I have a button which shows 'recent Purchases', on click this will show recent purchases data.

When clicked the button will change colour to red and the text will read 'Hide'.

Using ngFor to display an array of information, let array of arrays - is used to cycle through an array data structure in the html to populate the item for the length property.

C. Mini Career plan (12-36 months).

Permanent Tsb 24 month programme.

Will involve learning the environment currently used by permanent Tsb, as of now I know they have a predominantly Microsoft .Net environment. Over the course of the next 24 months immediately after the succession of this course I will be focused mainly on learning and developing with permanent tsb, learning their systems and providing new functionality and products to customers. Getting involved with their training programmes at permanent Tsb and learning to code in a highly securitised industry setting.

Continue to develop my skills by developing full stack applications, from the view page to the server and the DB.

Mainly decided to focus my personal development in Angular and Ionic as the two frameworks compliment each other nicely, they are similar in their architecture. Continuing to learn about Event Emitters, providers, services and building more components will be my main focus. Angular framework is what I will use for web development and Ionic for PWAs and native mobile apps. Working within these environments with Typescript is beneficial as there is a lot of community support and development time can be significantly reduced.

This will involve a continuation of developing server side programming knowledge and skills, examples may include;

Scenarios such as working with and manipulating data through transactions on DB elements.

This will involve the use of Observables and Promises and practising these in more complex scenarios.

Certification

I plan on achieving google certification through their web development online exam or through their android online exam, this certification will be a welcomed addition to the skills gained throughout this course. It will also act as another validator that the skills I have acquired through this course are in fact tangible and as a consequence my skills are measurable which will make me more promising to future employers.

Where possible I also plan on attending seminars and talks to keep up with current and changing future trends, to ensure that I keep my skills fresh and relevant for the IT industry, in line with consumer demand.

After I gain some experience in the industry, I may return to third level education to gain a masters in a specified field within IT.

Overall, the career plan is to continue developing my programming skills, by reading blogs/books/online materials, following tutorials and working on my own personal projects to practice what I learn. By going through this iterative process of continually learning, I will become more proficient in the areas noted and develop in new areas that are beneficial to my current skill set.