

Welcome to our CA2, we hope you enjoy  
correcting our project and we wish you a  
happy 2021!

# Web Application Development

CA2

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## Introduction

The team started the assignment with the idea of using CA1 as a template, but the idea to work towards an app that benefited the user in a social way surfaced. The group agreed on an app that showed the user which pubs were wheelchair friendly after dismissing the idea of an app which showed the user what pubs were not wheelchair friendly.

## JSON

Having initially understood little about the requirements of the CA, research began on the first task – JSON. JSON seemed like the logical area to begin with as we started with XML in the previous CA and it was a clear requirement, unlike the other tasks. JSON was found to be very similar to XML but lighter. Just like XML, JSON required only one .json file but has much less data types, also, elements in JSON did not need to be closed, only declared, meaning less weight. Overall, JSON was found to be understandably popular due to its versatility, speed and weight but more work was required to implement JSON than XML.

### *Advantages*

- **Speed:** there is much less code to execute when compared to XML meaning the response is executed faster
- **Compatibility:** applications made with JSON don't require much effort to make it available on all browsers
- **Great tool for sharing data:** it is the best tool for sharing data of any type or size because JSON stores the data in arrays making transfer easier

### *Disadvantages*

- **Error handling:** There is no error handling for JSON like XML does in NetBeans
- **Security:** JSON is not fully secure making it prone to dangerous attacks if used with an untrusted browser.

## PHP

Having done CA1 presentation on Symfony – a PHP framework and server-side technology, the group agreed to implement PHP as part of the second task. The idea to use Symfony to benefit the CA had arisen but did not materialize. Symfony was downloaded and installed but it seemed too complex to implement in time for the CA due date. Most of the PHP code was emulated from code used in class or from online tutorials. PHP first appeared in the index page and the link to JSON was made. PHP was found to be another popular but complex programming language and our first taste of server-side programming.

## *Advantages*

- **Flexibility:** it can be used on any text editor such as Notepad ++, NetBeans, etc., and it can be run on Windows, Linux and Mac OSX.
- **Popularity:** it is a widely used language making it great for a CV and means more colleagues for support if you run into any issues.
- **Easy to learn:** it has a gentle learning curve due to its straightforwardness, particularly if you are familiar with C.

## *Disadvantages*

- **Security:** it is not as secure as some other server-side scripting languages due to the fact it is open source.
- **Poor error handling:** PHP lacks debugging tools, which are needed for spotting errors giving the user more unnecessary work.
- **Suitability:** it is not suitable for giant content-based web applications

## CRUD

After linking JSON to PHP, the requirements of the CA began to become clearer – a database that could be added to, edited, displayed and removed from (CRUD) was our next objective. The concept of CRUD was found to be a common introductory lesson in database and web application development and something the group came across already this semester in Object Orientated Programming. The PHP CRUD code learned from the tutorials was borrowed from alongside code found online. Generally, the CRUD aspect to the project was enjoyed as it proved a step up in our web development skills.

## MyPhpAdmin

XAMPP and myPhpAdmin technologies were used to retrieve our JSON data and enter it into a MySQL database. We could then create queries to manipulate the JSON data which the group believed addressed more of the second task of manipulating structured data using a server-side framework.

## *Advantages*

- **Can be used remotely:** myPhpAdmin can be used on another device from a web browser which the workbench version cannot
- **Popularity:** myPhpAdmin is commonly used in hosting environments

## *Disadvantages*

- **Restrictions:** myPhpAdmin cannot be used to for all and any databases, only MySQL and Maria DB
- **Design & Speed:** visualization and speed of myPhpAdmin is not as good as workbench

## AWS Cloud9

The AWS Cloud9 educate version was the integrated development environment used. The group was familiar with AWS Cloud9 from CA1. AWS Cloud9 was found to be useful for collaborating and sharing code, an aspect of coding which was new to the group. Particularly, the feature of being able to edit code with team members in real time was impressive. The only negative aspect of AWS Cloud9 found was the speed at which it ran.

### *Advantages*

- **Real time editing:** a nice feature is that you can see team-members add code in real time, preventing errors and increasing efficiency
- **Design:** intuitive interface for beginners which is easy to learn
- **Installation:** AWS Cloud9 does not require installation unlike NetBeans or Notepad++

### *Disadvantages*

- **Accounts:** AWS Cloud9 requires the user to create an account, and if you are using AWS Cloud9 educate you will need to wait a couple of days for the account to be verified
- **Speed:** AWS Cloud9 can take some time to load up from the moment of signing in – approximately 1 minute

## Conclusion

Each member in the group played a part and communicated effectively throughout the project. The group learned how to code in JSON and PHP, furthered knowledge in AWS Cloud9 and became familiar with XAMPP and myPhpAdmin. Overall, the group enjoyed the project although aspects of the project were found to be difficult.

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