

Coursework 3: Single Page Web Application

1. Summary

Version: 1.0

Individual project

Weighting: 20% of overall mark

Deadline for project proposal: 16:00 Friday 4th March 2022 (end of Week 20)

Deadline for final submission: 16:00 Friday 1st April 2022 (end of Week 24)

2. Key Points

- You select a single page web application that you want to build!
- It cannot be an e-commerce website or a client-side JavaScript game.
- It could be a website for social networking, photo sharing, file sharing, online game playing, email, document editing, recipe sharing, etc. Come up with your own ideas!
- The website should not take money from the users.
- **The front end of the website must have a single HTML page.** JavaScript will change parts of the page in response to user input.
- The front end must be written in HTML, CSS and JavaScript. You cannot write an app.
- You must use JavaScript running on Node.js on the server. No marks are available for functionality that is implemented in PHP.
- The front end of the website must communicate with the back end using AJAX or WebSockets.
- After the single HTML page has loaded only JSON formatted data can be exchanged between client and server.
- Most third party libraries and frameworks are fine – for example, Vue, Angular, React, Bootstrap, etc. It is not fine to use a third party library or framework that does most of the work for you. You should discuss a third party library or framework with your laboratory tutor before using it in your project.
- You must use a SQL database to store data for the website. You cannot use a NoSQL database, such as MongoDB. MySQL/MariaDB are the recommended databases. If you want to use a different SQL database you should discuss it with your laboratory teacher.
- Cross-browser compatibility is not required – you only need to demonstrate your website on a single browser.
- The final submission of your project will only receive a mark if your submission includes a video demonstration.

3. What Needs to be Submitted:

3.1 Project Proposal (Deadline: 16:00 Friday 4th March 2022)

Submit a short document that contains:

- Brief description of the proposed website.
- Diagram showing the database design.
- Wireframe sketches of the website or screenshots of early prototypes.

We will use the project proposal to give you feedback about your idea and help you realize it in the time available. You can reuse material from the project proposal in the final project submission.

Submit a Word or PDF version of the project proposal using the link in the Coursework 3 section of the course website. **Your proposal must be in Word or PDF format.**

The project proposal will be marked online. It is worth 10% of the mark for Coursework 3.

3.2 Final Submission (Deadline: 16:00 Friday 1st April 2022)

Submit a zip file that contains:

1. *Project report*. This must be in Word or PDF format. It should contain:
 - Brief description of project.
 - Screenshots of the front end of the website.
 - Diagram of final database design.
2. *Website code*. HTML, CSS, JavaScript and images for the front and back end of the website.
3. *Database dump*. Dump of the database and data using mysqldump or a similar tool. No marks will be awarded for a copy of the raw database files – your dump must be readable in a text editor. The dump must include the commands to create the database (CREATE TABLE, etc.) as well as the data.
4. *Video demonstration*. Video demonstrations are mandatory for the final submission. I strongly recommend that you watch the talk on recording video demonstrations on the course website.

Upload the zip file using the link in the Coursework 3 section of the course website.

The final submission of Coursework 3 will only receive a mark if you include a video demonstration.

The final submission is worth 90% of the mark for Coursework 3.

4. Technology

The functionality of this website is up to you.

It must be implemented using the following technology:

- The front end must be written in HTML, CSS and JavaScript. You cannot use JavaFX or write an app.
- The front end must consist of a *single HTML page*. JavaScript will be used to change the contents of this page.
- The single HTML page can be sent from the server *once* when the website loads. *Once the single page has loaded no HTML can be sent between client and server.*
- The server-side functionality must be implemented using JavaScript running on Node.js.
- JavaScript on the front end must communicate with the back end using AJAX or WebSockets.
- Client and server JavaScript must exchange data in JSON format.
- Data must be stored in a SQL database. You cannot use a NoSQL database, such as MongoDB. MySQL and MariaDB are the recommended databases; other SQL databases are also allowed.

Marks will only be awarded for websites that follow these rules.

5. Formative Feedback

Formative assessments do not directly contribute to the overall module mark but they do provide an important opportunity to receive feedback on your learning. They provide an opportunity to evaluate and reflect on your understanding of what you have learnt. They also help your tutors identify what further support and guidance can be given to improve your grade.

We are happy to give you feedback about Coursework 3 in the labs and can give feedback about drafts of Coursework 3 that are sent to us more than one week prior to the deadline.

6. Late Submission

We are very unlikely to give extensions to coursework and very unlikely to accept excuses. So we strongly recommend that you hand coursework in on time.

Contact the module leader before the deadline if you run into problems. **Zero marks will be awarded for coursework that is received more than six hours after the deadline.**

7. Extenuating Circumstances

If you have personal problems that interfere with your studies, you can apply for extra time to complete coursework without a mark penalty. You have to provide appropriate documentary evidence. More information here: <https://unihub.mdx.ac.uk/your-study/assessment-and-regulations/extenuating-circumstances>.

You must let the module leader know if you have been granted an extension.

8. Plagiarism

Plagiarism is a serious academic offence. Students that submit identical projects will be reported to the university. If they are found guilty, they will have to resubmit their work, their marks could be capped or they could fail the module.

We recognize that there is often a blurry line between copying and collaboration. People work together and help each other to solve problems and apply the solutions to their own projects. We strongly encourage this kind of collaboration. But it is not acceptable for students to collaborate on a project which they submit as individual work. To penalize this, the mark for near-identical projects will be divided between the projects. So suppose a project gets a mark of 60% and near-identical versions are handed in by 3 people. Each person will get 20%, instead of 60%. This only applies to the marks for the parts of the project that are identical.

We are not going to police this and make detailed investigations. So if you allow your project to be copied, you will be as liable for plagiarism as the person who submits it as their own work. Both the original and the copy will receive zero or reduced marks.

Links to the relevant University regulations and additional support resources can be found here:

- Academic Integrity Awareness Course: <https://mdx.mrooms.net/mod/lesson/view.php?id=877307>. (You will have to log into to MyUniHub and then MyLearning to access the course)
- Section F: Infringement of Assessment Regulations/Academic Misconduct: <https://www.mdx.ac.uk/about-us/policies/university-regulations>.
- Referencing & Plagiarism: Suspected of plagiarism?: <http://libguides.mdx.ac.uk/c.php?g=322119&p=2155601>.
- Referencing and avoiding plagiarism: <http://unihub.mdx.ac.uk/your-study/learning-enhancement-team/online-resources/referencing-and-avoiding-plagiarism>.

The MDXSU Advice Service offers free and independent support face-to-face in making an appeal, complaint or responding to any allegations of academic or non-academic misconduct. <https://www.mdxsu.com/advice>.

9. Assessment Methods

9.1 Project Proposal

We will read your project proposal and give you feedback online and in the labs.

9.2 Final Submission

We will look at the code, read your report and view up to 5 minutes of your video demonstration. Your video demonstrations should not be significantly longer than 5 minutes. **Zero marks will be awarded for a final submission of Coursework 3 without a video demonstration.** I strongly recommend that you watch the talk on recording video demonstrations on the course website.

The project will be given a mark out of 100. This will be scaled down to a mark between 0 and 20 that corresponds to 20% of the overall mark for the module.

10. Assessment Criteria

Feature	Deadline	Marks
Project proposal. A short description of the project that includes wireframes of the design or screenshots of an early prototype.	16:00 4/3/22	2 marks. Description of functionality of website. 2 marks. Database design. 2 marks. Wireframes or screenshots of website. 4 marks. Proposal quality. Is it clearly written? Do the wireframes clearly show the website design?
Front end. A single HTML page implemented in HTML, CSS and JavaScript. No marks are available for websites with multiple pages.	16:00 1/4/22	10 marks. Attractiveness and usability. Is the front end well designed and attractive? Has thought been given to usability?
Data storage. Stores data for the website in SQL database. No marks are available for storage with a NoSQL database, such as MongoDB.	16:00 1/4/22	5 marks. Data is successfully stored and retrieved to/from a SQL database. 5 marks. These marks are for the complexity of the data storage and retrieval. For example, use of multiple tables that have foreign key relationships.
Server-side functionality with Node.js. JavaScript running on Node.js should be used for all of the website's server-side functionality. No marks are available for server-side scripts written in PHP or for functionality that requires multiple HTML pages or the sending of HTML data after the page has loaded.	16:00 1/4/22	7 marks. Successful use of JavaScript running on Node.js to deliver functionality of website. 8 marks. JSON formatted data exchanged between client and server using AJAX or WebSockets (4 marks server to client; 4 marks client to server).
Complexity of website functionality. Higher marks will be given for more complex projects. For example, a fully-featured social networking site or photo-sharing site would receive high marks for complexity.	16:00 1/4/22	25 marks. A website that has a substantial amount of functionality implemented using JavaScript/Node.js will get a high mark for complexity. Some of the complexity can be implemented by client-side JavaScript.

No marks are available for server-side scripts written in PHP or for functionality that requires multiple HTML pages or the sending of HTML data after the page has loaded.		
JavaScript code quality. For example, comments, layout, organization into folders, etc. Marks will be deducted for unused files and for commented-out code.	16:00 1/4/22	5 marks. JavaScript code quality.
Testing. The results of the tests must be documented in your project report. You must test your website code and this code must pass the tests. Marks will be halved for failed tests.	16:00 1/4/22	5 marks. HTML and CSS validation. Full marks will be awarded for complete coverage of the website. 5 marks. Front-end functional testing using Selenium (1 mark per test). 5 marks. JavaScript unit tests (1 mark per test).
Database dump. Dump of the database and data using mysqldump or a similar tool. No marks will be awarded for a copy of the raw database files – your dump must be readable in a text editor. The dump must include commands that create the database structure (CREATE TABLE, etc.) and commands that add the data (INSERT, etc.).	16:00 1/4/22	2.5 marks. Dump contains commands that create the database structure (tables, foreign key relationships, etc.) 2.5 marks. Dump contains commands that insert data.
Project report. Brief description of the project and screenshots of the final front end of the website. Do not include screenshots of code, the command line or Dreamweaver, NetBeans, etc.	16:00 1/4/22	1.5 marks. Screenshot(s) of all of the website's page(s). 1.5 marks. Diagram showing database design. This must match the final database. 2 marks. Content of report. Does it clearly describe the project?