# University of Salford MANCHESTER

# Assessment Information/Brief 2022-23

| | |
|---|---|
| **Module title** | **Client Server Systems** |
| **CRN** | 50249 |
| **Level** | 5 |
| **Assessment title** | **Assignment 1** |
| **Submission deadline date and time** | **26/12/2022 by 4pm**<br> You should not change your work after your submission deadline. |

**How to submit**  **Please read this carefully**.

1. A compressed .**zip** folder **must be submitted** to Blackboard in the Assessments area containing the complete folders and all files associated with your solution to the assessment task – there is a typical submission limit of 50MB – you should not need to exceed that.
2. A Word or .pdf document which contains all your main project code including the .php and .phtml files presented neatly and readable in the following way:

   a. Front page with full name, university ID and title (Client Server systems Assignment 1)
   b. Model files
   c. Controller files and associated View files
   d. Any CSS files you have created (not Bootstrap files)
   e. Clear screenshot of the main database table records.

   For this assignment we would expect around 6 model files and 4 controller/view pairs. This is just a guide.

   f. a copy of the Assessment Criteria and Marking Scheme grid (see later) with your self-assessment of your performance for each requirement – use the yellow <mark>highlighter tool</mark> like this in Word to highlight what you have completed. This should be included in your Blackboard submission and on your website with the URL on the website e.g. /clientserver/AssessmentCriteria.docx and a link accessible from the homepage. Also you should bring a hard copy of this in VIVA date.

3. There will be  viva dates and time post on blackboard you should attend and present your work in allocated time. **Time will not be changed , not**

## Assessment task details and instructions

Your task overall for the module is to develop a data-driven online system called "**Borrow my charger**" aimed at allowing home owners with an electric vehicle (EV) charging point to offer it out for paid usage by other EV owners to charge their car. Imagine a home with a driveway and a charge point and by agreement another EV owner could park their car on the driveway and charge it.

You must build the system using PHP, MySQL and HTML/CSS. The work will be split over both Trimester 1 and 2. The first trimester focuses on core architecture and data storage. The second trimester will add JavaScript and mapping so users can search for and locate charge stations.

Noteworthy details to gain high marks in Trimester 1 include:

- The core PHP architecture **needs** to follow an **Object Oriented, Model-View-Controller** (MVC) Design Pattern approach. This is covered in the lectures and workshops and you practice it by following the workshop material closely. **You are not allowed to use jQuery or a high level PHP framework.** You need to use and adapt the MVC templates that you use in the workshops and this is **very important!**

- The system must be live and running on the university web and database servers. Typically the same system as used in the L4 Web Dev & HCI module. The system will be marked from the live version. Therefore **if your work cannot be found you will get 0%.**

- There should be two types of users. 1) a home owner offering their charge point. Home owners will only have one charge point associated with their account. 2) a charge point user.

- The website must allow users to sign up and login. As a **minimum** for users, each record needs to include: User ID, an email address (as username), a real name, a password, and if they are a home owner an associated charge point that is being offered for rent. All passwords must be appropriately encrypted in the database.

- A charge point record will need location (street address and latitude/longitude) and charge cost (price per kWh) and needs to be associated by foreign key with a home owner type 1) user.

- For testing and **marking** you must have **two specific test** accounts with these exact details:

| Home (charge point) owner | Rental user |
|---|---|
| • User ID (auto generated in the DB)<br>• Username: lee@lee.com<br>• Name: Lee Griffiths<br>• Password: 123456<br><br>With a charge point record:<br><br>• 5 The Cresent, Salford, M5 4WT<br>• Lat: 53.483710, Lng: -2.270110<br>• Price (for charging) £0.25 / kWh | • User ID (auto generated in the DB)<br>• Username: user@user.com<br>• Name: User Lee Griffiths<br>• Password: 123456 |

- There will be a need use the geolocation data (latitude/longitude) for the work in Trimester 2 which involves maps (e.g. Google maps) so think about how you will include this information in a charge point record and store dummy information for now.

- The website's main home page (must be named **index.php**) should start with a login/registration page.

- Authenticated (logged in) website users should be able to list all charge points and be able to search for a charge point based on parameters like postcode and address and cost and the search should be sophisticated **enough to narrow down results** including ordering of the results. Splitting the list into pages with suitable page navigation will get the highest marks.

- Listings and Search results should be displayed using HTML with CSS (the use of Bootstrap or Materialize frameworks is encouraged). **You are not allowed to use jQuery** because **1) you won't need to for what is required** and **2) in Trimester 2 you will need to develop raw JavaScript** in your solution and you are marked on your ability to develop and implement well designed JavaScript code.

- Once a user has found a suitable charge point they should be able fill the form which has a particular date and time and for how long and/or how many kWh they wish to consume. This should be in the form of a contact form and you can use a HTML calendar control for date selection, but you do not have to implement actual email submission system.

- You will need to revise your L4 Databases SQL work as the solution will contain multiple database tables and use **foreign keys** to link together at least users and charge points in the most effective and efficient way.

- Your site must be designed and built to handle 1000s of users both home owners and EV charge users and you need to demonstrate the system's ability to handle this amount of data by creating a large test data set (1000s of users and their

records). You can generate test/mock data with a tool like **www.mockaroo.com**

- You must consider security and performance at every step and design the user experience for multiple platforms and abilities.  For example, security should consider filtering malicious code from any text that users can enter, including SQL injection .Performance should minimise page weight including media associated with an item description (e.g. processing uploaded images to reduce their dimensions and file size).

You are free to use *phpMyAdmin* or *MySQL Workbench (or any suitable tool)* to administer the database

**Assignment 2 of this module (in Trimester 2 – January to May) will require you to focus on some aspects of your Assignment 1 system and refining them by making use of more advanced dynamic client server technologies to improve the user experience (UX) e.g. dynamic searches and real-time interaction, geolocation, imaging as appropriate all using AJAX techniques – details to follow.**

| | |
|---|---|
| **Assessment Criteria** | See "**Marking Scheme**" on the next page (page 5) as well as "**Grade Descriptors**" at the end of this document (pages 8-10). |
| | You should look at the assessment criteria to find out what we are specifically looking at during the assessment. |

# Marking scheme

| Mark range % | 100-80% | 79-60% | 59-40% | 39-20% | 19-0% |
|---|---|---|---|---|---|
| Assessment Criteria | "A system ready to deliver to go live" | "A usable system with useful features" | "A minimum viable system" | "Basic data/items listings" | "Non-functioning system" |
| Well designed OO code using MVC Design Pattern, installed on university servers (20 Marks) | Considerable amount of OO code (including inheritance) demonstrating correct use of MVC, classes/properties and methods used with appropriate names, using PDO to access the database. Excellently commented code. Submitted code presented organised, neatly and readable and excellently commented. Demonstrable performance enhancements. | Reasonable amount of OO code demonstrating correct use of MVC, classes/properties and methods, using PDO to access the database. Well commented code. Implementation of performance enhancements. Submitted code presented organised, neatly and readable and well commented. | Small amount of OO code demonstrating correct general use of MVC, classes/properties and methods, using PDO to access the database. Some code comments. Consideration of performance. Code submitted and organised. | Small amount of code , not OO, demonstrating limited understanding of MVC, classes/properties and methods, or database access. Basic code comments. Code submitted. | Very little code demonstrating no real understanding of MVC, classes/properties and methods, or database access. Little or no code comments. **Significant amounts of copied code, poorly presented.** |
| Database | Installed and running on the university web server and using university database server. | | Install on the university server but might have some issues running. | **Not** Installed on the university web server and and/or not using university database server. | |
| Ability to create self-registration, records and login (20 Marks) | Users can register themselves and login successfully using encryption for their passwords. Anti-spam feature used. Some form of session used to maintain state. Malicious code filtering on items. Driven by excellent, logical OO design. Excellently commented code. Test accounts working. | Users can register themselves and login successfully using encryption for their passwords. Some form of session used to maintain state. Validation on input fields. Driven by good, logical OO design. Well commented code. Test accounts working. | Users can register themselves and login successfully. Some form of session used to maintain state. Basic OO implementation. Some code comments.Test accounts working. | Registration and login not fully implemented/working correctly. Test accounts **not** fully working. Basic code comments. | Registration and login not implemented, or not working. No test accounts or not working correctly. **Significant amounts of copied code, poorly presented.** |
| Ability to display information from records stored in the database (20 Marks) | Rental users can retrieve and display user details appropriate to their role, including images. Sophisticated, responsive layout using CSS/Bootstrap. Includes paging and web scraping protection. Demonstration of system with large number of realistic records/users. Driven by excellent, logical OO design. Excellently commented code. | Rental users can retrieve and display user details appropriate to their role, including images. Good responsive layout using CSS/Bootstrap. Demonstration of system with large number of records/users. Driven by good, logical OO design. Well commented code. | Rental users can retrieve some item details. Basic cellular listing layout using tables or divs with some formatting evident. Attempting display of individual items. Basic OO implementation. Some code comments. | Rental users can retrieve some item details. Simple table or list of text data, Basic code comments. | Users cannot retrieve or display details from the database. Little or no code comments. **Significant amounts of copied code, poorly presented.** |
| Ability to search for charge points (20 Marks) | Comprehensive, interactive faceted search to narrow down output to less than 10 results using all charge point parameters. Complex SQL statements. Driven by excellent, logical OO design. Excellently commented code. | Free text search facility with 2 or 3 extra filters **combined** into the search. Good OO implementation. Well commented code. | Free text search facility working but basic. Some filters implemented, but may have issue. Basic OO implementation. Some code comments. | Basic text search facility may have issues. Basic code comments. | Some search/filters partly implemented or no implementation. Little or no code comments. **Significant amounts of copied code, poorly presented.** |
| Ability to create/edit charge point (home owner). (20 Marks) | Home owner users can add, view and edit their "charge point". User profile images included. Driven by excellent, logical OO design. Excellently commented code. | Home owner users can add, view their "charge point". User profile image included. Good OO implementation. Well commented code. | Attempt at "charge point" creation and viewing for the home owner user. Not sophisticated/some issues present. A Basic OO implementation. Some code comments. | Basic "charge point" feature, possibly from manually entered data in the DB but has issues.. Basic code comments. | Little or no implementation. Little or no code comments. **Significant amounts of copied code, poorly presented.** |

| | |
|---|---|
| | **Assessed intended learning outcomes**<br>On successful completion of this assessment, you will be able to: |
| **Knowledge and Understanding** | 1. assess a range of server-side programming technologies and the programming languages that support these technologies, and discuss the circumstances when each is used;<br>2. assess a range of client-side programming technologies and the programming languages that support these technologies, and discuss the circumstances when each is used; |
| **Practical, Professional or Subject Specific Skills** | 1. design, create, test and demonstrate software implementing a data-driven web application, programming in industry standard scripting languages and connecting to industry standard database packages;<br>2. identify security risks in a web application, and follow good practice guidelines to minimise these;<br>Transferable Skills and other Attributes<br>3. work within legal constraints, such as data protection, accessibility and copyright. |
| **Employability Skills developed / demonstrated** | **Communication NO**<br>**Critical Thinking and Problem Solving YES**<br>**Data Literacy YES**<br>**Digital Literacy YES**<br>**Industry Awareness YES**<br>**Innovation and Creativity YES**<br>**Proactive Leadership NO**<br>**Reflection and Life-Long Learning YES**<br>**Self-management and Organisation YES**<br>**Team Working NO** |
| **Feedback arrangements** | Your work for this assignment will be marked from the live system online and the document containing your code. Feedback, and marks will be provided via Blackboard. |
| **Academic Integrity and Referencing** | Students are expected to learn and demonstrate skills associated with good academic conduct (academic integrity). Good academic conduct includes the use of clear and correct referencing of source materials. Here is a link to where you can find out more about the skills which students need:<br>Academic integrity & referencing<br>Referencing<br><br>**Academic Misconduct is an action which may give you an unfair advantage in your academic work. This includes plagiarism, asking someone else to write your assessment for you or taking notes into an exam. The University takes all forms of academic misconduct seriously.** |

| | |
|---|---|
| **Assessment Information and Support** | **Support for this Assessment**<br>You can obtain support for this assessment by attending all timetabled sessions and working through all published material on Blackboard. You can ask for help in timetabled workshop sessions and **MS Teams** chat with the module leader. During busy parts of the teaching period **MS Teams** replies may take up to 3 working days and *you must have excellent attendance in timetabled sessions for questions to be answered via MS Teams*<br><br>You can find more information about understanding your assessment brief and assessment tips for success here.<br><br>**Assessment Rules and Processes**<br>You can find information about assessment rules and processes in Blackboard in the Assessment Support module.<br><br>**Develop your Academic and Digital Skills**<br><br>Find resources to help you develop your skills here.<br><br>**Concerns about Studies or Progress**<br>If you have any concerns about your studies, contact your Academic Progress Review Tutor/Personal Tutor or your Student Progression Administrator (SPA).<br><br>**askUS Services**<br>The University offers a range of support services for students through askUS including Disability and Learner Support, Wellbeing and Counselling Services.<br><br>**Personal Mitigating Circumstances (PMCs)**<br>If personal mitigating circumstances (e.g. illness or other personal circumstances) may have affected your ability to complete this assessment, you can find more information about the Personal Mitigating Circumstances Procedure here. Independent advice is available from the Students' Union Advice Centre about this process. Click here for an appointment to speak to an adviser or email advicecentre-ussu@salford.ac.uk. |
| **In Year Retrieval Scheme** | Your assessment is **not** eligible for in year retrieval. |
| **Reassessment** | If you fail your assessment, and are eligible for reassessment, you will need to resubmit on or before the resit deadline in summer 2023 – typically the end of July. For students with accepted personal mitigating circumstances for absence/non submission, this will be your replacement assessment attempt.<br><br>Reassessment details will be announced on Blackboard after June when the normal teaching period ends. |

We know that having to undergo a reassessment can be challenging however support is available. Have a look at all the sources of support outlined earlier in this brief and refer to the [Personal Effectiveness](#) resources.

## Grade Descriptors

**Extremely poor (0-9).**

Totally inadequate demonstration of required knowledge.

Not able to apply the practical and analytical skills from their programmes.

No appropriate design methodology.

No demonstration of analysis evaluation or synthesis.

No evidence of the ability to self-manage a significant piece of work and critical self-evaluation of the process.

Little academic value; presentation is extremely poor; work has no structure or clarity; extremely poor use of language; no references; no attempt to provide evidence of sources used.

**Very Poor (10-19).**

Virtually no relevant knowledge demonstrated.

Fails to adequately apply the practical and analytical skills from their programme.

Very poor use of design methodology.

No meaningful analysis or evaluation or synthesis.

Unable to self-manage a significant piece of work and to identify appropriate issues for critical self-evaluation of the process for reflection.

Academic arguments presented are inappropriate or very poorly linked; presentation is very poor; work has little discernible structure or clarity; very poor use of language; lack of ability to source adequate material; very poor referencing.

**Poor (20-29).**

Inconsistent or inaccurate knowledge.

Limited and inappropriate and inaccurate application of the practical and analytical skills from their programme.

Poor use of methodology.

Descriptive, occasional attempts to analysis or evaluate material but lacks critical approach to evaluation or synthesis.

Identifies issues for reflection but lacks evidence of reflective processes.

Some but inconsistent ability to self-manage a significant piece of work or critical self-evaluation of the process.

Confusion or weakness in academic argument; presentation is poor; work is disorganised and lacks clarity; poor use of language; poor use of reference material; inappropriate or out dated sources with numerous referencing errors.

**Unsatisfactory (30-39).**

Limited evidence of knowledge.

Inappropriate application of the practical and analytical skills from their programme.

Unsatisfactory design methodology.

Mainly descriptive evidence of analysis, inconsistent critical approach, little evaluation or synthesis.

Follows processes of reflection but fails to demonstrate insight; lacks coherence in the self-management of a significant piece of work.

Presentation is unsatisfactory; work is limited in terms of structure, coherence or clarity; limitations in academic style; unsatisfactory referencing with errors; limited ability to support content with relevant sources.


**Adequate (40-49).**

Basic knowledge with occasional inaccuracies.

Appropriate yet basic application of the practical and analytical skills from their programme.

Superficial depth or limited breadth, but an overall adequate identification of design methodology.

Critical analysis evident, with some evaluation and synthesis, although limited evidence of reflection.

Some evidence of an ability to self-manage a significant piece of work and critical self-evaluation of the process.

Some appropriate academic argument although not well applied and lacking in clarity; presentation of work is adequate in terms of structure, coherence, clarity and academic style; some inconsistencies; some grammar and syntax errors which detract from the content; narrow range of sources; referencing in presented work is adequate with some inconsistencies or inaccuracies; over utilises secondary sources; references used are inappropriate in terms of currency.


**Fair (50-59).**

Mostly accurate knowledge with satisfactory depth and breadth of knowledge.

Solid application of the practical and analytical skills from their programme

Fair use of design methodology.

Sound critical analysis and evaluation or synthesis.

Demonstrates basic ability of synthesise information in order to formulate appropriate questions and conclusions; reflective process is utilised, with insight demonstrating planning for future practice; shows the ability to self-manage a significant piece of work and critical self-evaluation of the process.

Relevant academic argument; presentation of work is fair in terms of structure coherence, clarity and academic style; some inconsistencies in grammar and syntax; fair range of sources identified with appropriate referencing and few inaccuracies; appropriate use of primary and secondary sources.


**Good (60-69).**

Consistently relevant accurate knowledge with good depth and breadth.

Clear and relevant application of the practical and analytical skills from their programme.

Good use of design methodology.

Clear, in depth critical analysis, evaluation and academic argument with synthesis of different ideas and perspectives.

Utilises reflection to develop self and practice; aware of the influence of varied perspectives and time frames; demonstrates an ability to self-manage a significant piece of work and critical self-evaluation of the process.

Presentation of work is well organised with good use of language to express ideas or argument; very few inconsistencies in grammar and syntax good; good range of sources; well referenced with very few inaccuracies; good use of primary and secondary sources.


**Very Good (70-79).**

Comprehensive knowledge demonstrating very good depth and breadth.

Clear insight into links between the practical and analytical skills from their programme.

Strong use of design methodology.

Very good analysis and synthesis of material with evidence of critical and independent thought.

Demonstrates ability to transfer knowledge between different contexts appropriately; balanced and mature approach to reflection used to enhance practice and performance; clear ability to self-manage a significant piece of work and critical self-evaluation of the process.

Assessment Information/Brief

Presentation is of a very good standard, demonstrating a scholarly style. Very good grammar and syntax. Clear evidence of referencing to a wide range of primary and secondary sources which are used effectively in supporting the work.


**Excellent (80-89).**

Excellent depth of knowledge in a variety of contexts.

Coherent and systematic application of the practical and analytical skills from their programme.

Excellent use of design methodology.

Excellent critical analysis and synthesis.

Integrates the complexity of a range of knowledge and excellent understanding of its relevance; confident in their ability to self-manage a significant piece of work and critical self-evaluation of the process

Arguments handled skilfully with imaginative interpretation of material; presentation is excellent, well-structured and logical; demonstrates a scholarly style; excellent grammar and syntax.


**Outstanding (90-100).**

Outstanding knowledge.

Exceptional application of the practical and analytical skills from their programme.

Excellent professional execution of design methodology.

Outstanding critical analysis and synthesis.

Excels in self-managing a significant piece of work and critical self-evaluation of the process show an aptitude to formulate new questions, ideas or challenges.

Incorporates evidence of original thinking; presentation is outstanding demonstrating a fluent academic style.