COLLEGE OF ARTS, TECHNOLOGY AND ENVIRONMENT
ACADEMIC YEAR 2023/24

Assessment Brief

Submission and feedback dates

Submission deadline: Before 14:00 on 02 May 2024

is eligible for 48-hour late submission window

Marks and Feedback due on: Within 20 working days from the 48-hour late submission deadline

N.B. all times are 24-hour clock, current local time (at time of submission) in the UK

Submission details

Module title and code: Web Development and Databases Development

Assessment type: Project

Assessment title: Design and development of a website

Assessment weighting: 100% of total module mark

Size or length of assessment: Please see deliverables for specific details

Table of Contents

Module learning outcomes assessed by this task:

1. *Demonstrate the ability to select and use web development techniques and concepts to develop dynamic and responsive websites (MO1)*

2. Design and develop static web sites to solve simple problems (MO2)

3. Identify and assess web security issues in a website (MO3)

4. Demonstrate a basic understanding of legal, ethical, social and professional requirements when designing a web application (MO4)

5. Design and develop data management solutions for a web application (MO5)

Completing your assessment

1. What am I required to do on this assessment?

The assessment requires you to analyse, design and implement a website based on the following case study. You may use any editor of your choice to write the code but you are not allowed to use web development tools such as WYSIWYG editors, without express permission of the module leader. You are allowed to use HTML, CSS, JavaScript, MySQL and Python Flask.

You are allowed to use a front-end framework at your own risk, but for back-end Python Flask must be used. All the Python programs must use version Python3.7 or above. If needed, your tutors may schedule a meeting for website demo and ask questions about your project. You must upload deliverables including the website code, DB dump, understanding and explanation of design decisions through project demonstration video recording before the submission deadline to claim any marks.

This is an **individual** assessment. You have to analyse the following case study, design and implement a realistic website. More details about how to pass this assessment are covered in the later parts of this assessment brief.

Case Study: World Hotels (WH) Booking System

The WH is a successful chain of hotels across UK cities and is very popular among tourists. WH is looking for an IT solution for their room booking with the objective to make it convenient for customers to book rooms online as well as generate different reports.

More specifically the IT solution should incorporate two perspectives:

End user perspective:

1. Go to WH website and see different destinations/hotels
2. Search destination details (city, dates, number of rooms, room types, etc.)
3. Get filtered hotels, prices in user selected currency
4. Select the suitable room option and continue with booking by signing up/login and generating and downloading booking receipt OR repeat step 1.

End user features include: Register/Login/Logout/password update; create, view, update, cancel booking;

Admin user perspective and features include:

1. Admin should be able to Login/Logout and update password for admin as well as other users on the system
2. Admin should be able to perform following tasks: Adding/updating/removing hotels or prices, currencies, exchange rates, constraints and end user details
3. Admin should be able to check and set status (booked, available) of a room
4. Admin should be able to generate admin reports e.g., monthly sales, sales for each hotel, top customers, hotels making profit, hotels in loss, etc.

WH has specific requirements and constraints as detailed below.

Table 1 shows cities where customers can book hotel rooms, hotel capacity and room prices for peak and off-peak seasons. Peak season rates are applicable only for months April to August (inclusive) and November - December (inclusive).

Table 1: Cities, capacity and rates

Cities	**Capacity i.e. # of Rooms**	**Rate (GBP) for Standard Room per night**	
		Peak Season (April – August; November - December)	**Off-peak Season**
Aberdeen	90	140	70
Belfast	80	130	70
Birmingham	110	150	75
Bristol	100	140	70
Cardiff	90	130	70
Edinburgh	120	160	80
Glasgow	140	150	75
London	160	200	100
Manchester	150	180	90
New Castle	90	120	70
Norwich	90	130	70
Nottingham	110	130	70
Oxford	90	180	90
Plymouth	80	180	90
Swansea	70	130	70
Bournemouth	90	130	70
Kent	100	140	80

Check-in date should be used to check whether it is peak-season or off-peak season.

Each room has specific features such as Wifi, mini-bar, TV, breakfast etc.

Booking process should be easy to follow and generate a booking receipt after payment. Booking can be made up to 3 months in advance. There is a unique booking ID for each booking and should be displayed and printed on receipt. Booking a room in advance will provide discount on the total booking price as per the following table:

Number of days in advance booking	**Discount % on total booking price**
Between 80 and 90 days	30%
Between 60 and 79 days	20%
Between 45 and 59 days	10%
Under 45 days	No discount

Advanced booking discount should be checked and applied from the check-in date.

Booking cancellation before 60 days of booking date does not incur cancellation charges. Booking cancellation between 30 and 60 days of booking date will incur charges up to 50% of booking price. Within 30 days of booking date 100% of booking price will be charged. You must implement handling of cancellation charges and manage it properly in your database.

Each hotel has 3 types of rooms: 1. Standard room; 2. Double room; 3. Family room. Each hotel has 30% standard room; 50% double rooms and 20% Family rooms. A standard room can have 1 guest only. A double room is 20% more price of a Standard room and can have 2 guests max. For second guest extra 10% of a Standard room price will also be charged. Family room is 50% more price of a Standard room and can accommodate a family of maximum 4 guests.

A customer can book for maximum 30 days stay. If more than 30 days stay is required then customer will need to make separate bookings.

You should also consider other suitable non-functional requirements (e.g., security) necessary for the WH online booking system. Be creative.

Note: You are NOT required to provide a payment mechanism for your website, though you may simulate this. **Hint:** Think about PayPal payment buttons.

More specifically there are following elements and %age of marks allocation:

Element 1: 15% - Normalised database: You should design and implement database of the selected case study in 3rd Normal Form. You should provide a normalized ERD and you should explain your design choices from an Un-normalised form to 1NF; from 1NF to 2NF and from 2NF to 3NF. You may include your explanation in a document or as part of the Element 4.

Element 2: 15% - Responsive web design and look & feel: Your website front-end should have nice look and feel and must be responsive for different screen-sizes.

Element 3: 30% Website business logic and user system: Your website should fulfil case study requirements and generate the required outputs.

Element 4: 20% Quality of understating, explanation and Website Demo: In order to show that your design and implementation elements (covered in elements 1 to 3) really work, you are expected to provide a demo recording of your website. In your recording, the demo should be supported with explanation of design choices, for example Front-end, Security aspects, Normalised DB design with project specific examples and LESP aspects applied in your website. For high quality explanation and demo, you may use images or text on slides.

Element 5: Progress reviews signing-off (20%): You're expected to discuss your project progress with your tutors during practical sessions. There will be up to three progress sign-off opportunities for each student – spread across two semesters. In semester 1, the main focus will be on Front-end i.e. **HTML/CSS** and **database design and implementation** i.e. Relational model and MySQL (until week 12 of teaching). In semester 2, the focus will be on **Python Flask for business logic** and **any other topic not covered in the other sign-offs** (until week 22 of teaching). **You must attend your timetabled practical session to get your progress review signed-off. Work sent via email will not be entertained.** Sign-off weeks and marking criteria will be announced via Blackboard announcements.

Submission

You must use the Blackboard electronic submission system to submit your work. You have to upload complete package individually as a compress ZIP file. Electronically submitted deliverables include:

1. **For Element 1:** Project Database design i.e., ERD and normalisation process through supporting explanation. Also, include project database (e.g. MySQL or MongoDB) dump that includes SQL statements.
2. **For Element 2 and Element 3:** A web system based on the above case study specifications, with source code in ZIP file (using e.g., 7Zip). This should contain all the files and folders for the full working website. All program files must have **student ID and student name** who has written the code. Please do not include python distribution folder in your ZIP file.
3. **For Element 4:** You must create and submit a project demonstration and explanation recording (audio and video) i.e., screen-recording (**up to 8 minutes maximum**). The recording should show working features of your website and explain the underlying code. You should also explain your understanding of design choices and how you applied LESP aspects. Also, very briefly list what is not working or not completed.

You may choose any software for creating the recording e.g., OBS, Screencast-o-matic, etc. **Acceptable recording file types are: .avi, .mp4**. Use your recording time wisely.

4. Provide a text file with instructions on how to run your website e.g., index script/webpage and user passwords which you used for your demo video recording.

2. Where should I start?

Read the assessment task carefully, discuss with other students and if there is any ambiguity then clarify it by talking to your lab tutors. Your lab tutors will play role of representative of WH. If you have questions about this assignment or if you would like to clarify requirements, then please discuss with your lab tutors during your practical lab sessions or post your queries on Discussion Board on Blackboard._

Apply weekly learning on your project website. Your learning material including practical examples and exercises should provide you good starting point. You can start with a basic layout (wireframe), write HTML and CSS. Here is an indicative list of weekly milestones that you may adapt:

- Week 1 and 2: Coursework is released and you have read and understood your project brief.
- Week 3 and 4: You have clarified any questions with your tutors and have started planning your coursework.
- Week 5 to 7: You have started to design front end e.g., sitemap, static pages, static contents, logos, privacy statements, CSS style rules, media queries.
- Week 7 and 9: You have started to design database model.
- Week 9 and 10: You have completed data model and normalized it.
- Week 11 and 12: SQL queries are written which can then be used in python script to manipulate data using Python.
- Week 13, 14: You have started to implement your server side script using Flask. You have transformed your static website to a flask website.
- Week 15, 16: You have started designing server-side end points i.e. forms, data transfer, flow of information.
- Week 16, 17, 18: You have completed the core business logic/functionality and have started to work on client-side scripting for dynamic interaction and client-side modification.
- Week 18-19, 20: You have started to put together your slides and also have started to implement security aspects.
- Remaining weeks: Your project is complete and you have started to review and refine your website. Make sure upload the website and required deliverables

Prepare and get progress reviews signed-off: Whilst you'll be working on your practical exercises, your tutor will allocate some time during practical sessions and sign-off will be on first-come-first-served basis. You should upload your work on Blackboard through progress review sign-off submission link before you get your work signed-off as this will allow your tutor to assign a mark. Each progress sign-off will be awarded maximum 10 marks. Do not worry if you missed one sign-off as **marks for the two best sign-offs will be selected.** These sign-offs are to motivate you to apply your weekly learning and not leave the assignment work until very last day of submission. In addition, **this is your opportunity to get verbal feedback on your project progress from your tutors**. Please remember your tutors will not do your assignment for you; their feedback will be on whether or not you are making reasonable progress and signpost you to the relevant learning material or resources. Please make sure you have completed draft of the work to get it signed-off**. You will be allowed only one sign-off for each progress review.** There are many advantages of taking part in progress-reviews:

- You will be able to work on your project and complete something on weekly basis
- You will get formative feedback and know what to improve before you submit final website
- You will get marks which will help you to get over 40% pass mark requirement

3. What do I need to do to pass?

You would need to gain at least 40% marks to pass this assessment. Please refer to the marking criteria to see details of marks for both parts of this assessment.

To pass the module you need to demonstrate that learning outcomes have been achieved. For example, you'll struggle to gain pass marks without implementing the server-side business logic and generating dynamic webpages. Therefore, try to cover each element of the assignment.

You are expected to submit full website. You should submit all source code (e.g., website project folder from htdocs folder or /var/www folder or flask app folder) plus relevant Database dump. Your database should be normalised and don't forget to provide ERD with details how did you get to 3NF. Your website should have nice look and feel and it should be responsive (i.e. uses media queries and breakpoints). Your website should include both static and dynamic webpages as appropriate. The booking process should dynamically load data from database and should be logical and easy to follow. Your website should have a user system which means your website should allow users to sign up and login/logout. The user system is linked with website features e.g., all users signed up via website should be 'Standard' users and have same privileges e.g., confirm bookings, retrieve records, cancel bookings, update user data, etc. Similarly, the website should also have an admin user to perform admin tasks e.g., generate reports such as monthly bookings or showing comparison of bookings for all hotels, adding new entries e.g., new hotels, delete or retrieve or update hotels or room options or booking data. You should explicitly explain and implement any additional security related features for the website and the underlying database.

You are also expected to provide project explanation and demo recorded video (i.e. screen recording with audio). In this video you'll talk through your design choices and explain various aspects of your project and demonstrate functionality/features of your website by running the website in a web browser. The video will help us to see it is your work, what is working and what is not working as markers may not be able to recreate the development environment that exists on your computer. Also, with the help of the video you can get your point(s) across (e.g., DB Normalisation process, LESP, self-evaluation) and this can help you to gain good marks. Please be concise and provide examples in your recording. Please be mindful of selecting appropriate working scenarios for the demonstration.

Don't leave project work to last few weeks. Try to work on it on weekly basis and make sure to submit your work before submission deadline.

In addition to above, you should make best use of progress reviews to get formative feedback as well as a mark that will help you to pass the module.

4. How do I achieve high marks in this assessment?

To gain higher marks you would need to make sure you attempt all aspect of the assessment. Further, the quality and the correct level of details covered in the completed work will result in higher marks. This will be possible by engaging in the module activities and progress reviews. Make sure all the deliverables are submitted in the correct format.

5. How does the learning and teaching relate to the assessment?

Working on this project will help you to develop effective and systematic web development, web and data security, data management and programming skills. First half of the semester 1 will cover HTML (contents and structure) and CSS (style and presentation) which is essential for developing a static website. Second half of the semester 1 will focus on conceptual and logical data modelling and database design where you'll also learn how to structure, store and manage data in MySQL? This will help you to design WH normalised database model and generate SQL scripts. We'll also learn how programmatically (i.e., by using Python) data can be managed in MySQL. This will help you to write server-side scripts to dynamically manage data on server-side. The first half of the semester 2 will focus on server-side scripting by using Python Flask and how to develop dynamic websites. This will help you to transform your static WH website into more dynamic website where data is used from underlying MySQL database and web pages are dynamically generated and rendered on client side. The second half of the semester 2 will concentrate on learning how to secure and test a software system? What are LESP issues when designing and developing websites? And finally, you will learn client-side scripting using JavaScript that will help you to bring dynamic aspects on client side e.g., AJAX approach, in your website project.

Your lab tutor will play role of representative of the WH. Please do not send emails to your tutors about the assignment. If you have questions about this assignment or if you would like to clarify requirements, then please discuss with your lab tutors during your practical lab sessions or post it on the Discussion Board on the Blackboard pages and use the forum under the title “**Website project**”.

The above indicates that engaging in the module and taking progress reviews will help you to learn and apply web development and databases concepts on your website project.

6. What additional resources may help me complete this assessment?

- Your main source will be learning material on the Blackboard. You will be referred to topic specific external resources in lecture slides.
- In addition, UWE library study skills pages can be useful i.e., https://www.uwe.ac.uk/study/study-support/study-skills
- Your practical sessions to discuss your project progress and gain formative feedback
- Blackboard discussion board on module page can be used to post queries for your lab tutors or discuss specific topics with other students

7. What do I do if I am concerned about completing this assessment?

UWE Bristol offer a range of Assessment Support Options that you can explore through this link, and both Academic Support and Wellbeing Support are available.

For further information, please see the Academic Survival Guide.

8. How do I avoid an Assessment Offence on this module? [2]

Use the support above if you feel unable to submit your own work for this module.

The most common assessment offence in this assessment can be:

- Avoid copying or using code from other sources without acknowledging or complying to usage conditions
- Avoid using others work and claiming it as your own

Marks and Feedback

Your assessment will be marked according to the following marking criteria. You can use these to evaluate your own work before you submit.

Detailed summative written feedback will be provided via blackboard once you have submitted your complete project. There will be opportunities for you to get formative verbal feedbacks during progress reviews in your practical sessions.

Element 1 (15)	0-4	5-7	8-11	12-15		
Normalised Database	-Little or no DB design provided; -System uses DB but no DB design provided OR -DB design is provided and covers some scope of the case study but misses details; -There is no explanation of normalisation process and OR DB design is not normalised.	-Entities defined and DB design (e.g., ERD/UML diagram) covers partial scope of the case study; -DB design is in at least 1NF; -Little of no explanation of normalisation process is covered;	-Entities defined with attributes in DB design (e.g., ERD/UML diagram) and cover the most of the scope of the case study to a reasonable standard; -There is reasonable explanation of normalisation process with suitable examples; - DB design is at least in 2NF; -Implementation is partially mapped on to the design	-DB design (e.g., ERD/UML diagram) with attributes and relationships are correct and cover full scope of the case study to a good standard; -There is good explanation of design decisions that led to DB design in 3NF; -There is reasonable explanation of normalisation process with good examples; -Implementation is fully mapped on to design.		
Element 2 (15)	**0-4**	**5-7**	**8-11**	**12-15**		
Responsive Design and Look & Feel	-No or very little use of CSS for look and feel or web pages; -Some basic CSS for look and feel but	-Website is partially responsive design; -Website is Viewable on two different screen sizes;	-Fully responsive design and implemented to a reasonable standard; -Website is viewable on two different screen sizes;	-There is insightful thinking for designing the mobile-first design. -Fully responsive design and implemented to a good standard;		

	website is not responsive.	-Look & feel of the website is fine	-Nice look and feel (intuitive) of the website.	-Website is viewable on three different screen sizes; -Nice look and feel (intuitive) of the website.		
Element 3 (30)	**0-4**	**5-7**	**8-11**	**12-15**	**16-25**	**26-30**
Website business logic (~20), user system (~10)	-No or very little server-side business logic implemented but most of the features are missing or malfunctioning; -Mostly static pages are implemented; -No dynamic data is loaded and/or presented on the website. -No user system and/or security measures designed and/or implemented.	-Some server-side business logic implemented (up to 30%) but most features are missing or malfunctioning; -Both static and dynamic pages are implemented by loading data from a DB and are relevant to case study requirements; -No user system and/or security measures designed and/or implemented.	-Most server-side business logic implemented (up to 50%) to a reasonable standard with some minor errors; -Both static and dynamic pages are implemented by loading data from a DB and are relevant to case study requirements. -No user system and/or security measures designed or implemented	-There is insightful thinking in designing and implementing server side logic. -Most server-side business logic is implemented (up to 70%) to a good standard without errors; -Both static and dynamic pages are implemented by loading data from a DB and are relevant to case study requirements. - Some security measures are implemented e.g., SQL Injection; - DB security and new additional security features implemented and explained to a reasonable standard e.g., XSS, Hashing etc.	-There is insightful thinking in designing and implementing server side logic. -Up to 80% server-side business logic is implemented to a good standard; -Both static and dynamic pages are implemented by loading data from a DB and are relevant to case study requirements. -A basic standard user system is designed and implemented and provides superficial sense of secure access to website features.	-There is insightful thinking in designing and implementing server sid logic. -All server-side business logic is implemented to a good standard; -Both static and dynamic pages are implemented by loading data from a DB and are relevant to case study requirement -User system is designed and implemented to a reasonable standard (e.g standard and admin users) and provides secure access to authorized features;

				- There is an attempt to implement a very basic user system	- End user and Admin features are implemented to a satisfactory standard.	- End user and Admin features are implemented to a good standard.
Element 4 (20)	**0-4**	**5-7**	**8-11**	**12-15**	**16-20**	
Quality of understanding, explanation and Website Demo	- There is no demo recording - No or very basic demo that lacks coherence of arguments and demo is not well planned; -Lacks good quality of examples in the demo; -No or very basic understanding of LESP but without explanation of how it is applied on the Website project	-Reasonable understanding and explanation of design choices; -Demo covers some scope of the project requirements; - There are minor demo errors e.g., Text is less legible and/or quality of diagrams is often poor OR demo shows system failure; -Though examples are provided but could be well planned to provide sense of which requirements have been fulfilled and which are not completed; -Allocated time could be better managed;	-Reasonable understanding and explanation of design choices but examples could be included; -Demo covers most of the scope of the project tasks and requirements; - There are no demo errors; -Satisfactory examples are provided during demo to show all features and provide good sense of which requirements have been fulfilled and which are not completed;-Allocated time was used well; - LESP discussed briefly and some project related examples are provided.	-Good understanding and explanation of design decisions and good examples are included. - Well planned demo that covers full scope of the project within allocated time; - There are no demo errors; -Good examples are provided during demo to show all features and it provides good sense of which requirements have been fulfilled and which are not completed; -Allocated time was used well; - LESP discussed with good project examples; - Brief self-evaluation of the project features is reasonable	-There is insightful thinking in planning and designing website and well explained with suitable examples. - Demo is error-free, well planned and shows the project's strengths and weaknesses; - Demo covers full scope of the project within allocated time;-Good self evaluation - Very good examples are provided for demo to show all features and provide good sense of which requirements have been fulfilled and which are not completed;	

Element 5: Progress Sign-offs have total **20 marks**. Each sign-off will reward up to **10** marks but detailed marking criteria for each progress review will be provided closer to each progress review sign-off.

In line with UWE Bristol's Assessment Content Limit Policy (formerly the Word Count Policy), word count includes all text, including (but not limited to): the main body of text (including headings), all citations (both in and out of brackets), text boxes, tables and graphs, figures and diagrams, quotes, lists.

UWE Bristol's UWE's Assessment Offences Policy requires that you submit work that is entirely your own and reflects your own learning, so it is important to:

- Ensure you reference all sources used, using the UWE Harvard system and the guidance available on UWE's Study Skills referencing pages.
- Avoid copying and pasting any work into this assessment, including your own previous assessments, work from other students or internet sources
- Develop your own style, arguments and wording, so avoid copying sources and changing individual words but keeping, essentially, the same sentences and/or structures from other sources
- Never give your work to others who may copy it
- If an individual assessment, develop your own work and preparation, and do not allow anyone to make amends on your work (including proof-readers, who may highlight issues but not edit the work) and

When submitting your work, you will be required to confirm that the work is your own, and text-matching software and other methods are routinely used to check submissions against other submissions to the university and internet sources. Details of what constitutes plagiarism and how to avoid it can be found on UWE's Study Skills pages about avoiding plagiarism.

If you fail this assessment then you will need to take resit. The resit assessment is also a project: design and development of a website, but some requirements will be updated and the assessment criteria will be slightly adapted. You do not need to attend for resit as all the learning material will be available from Blackboard and you will need to submit your resit project via Blackboard submission system.