5COSC021W Coursework 2 - GROUP template 2022_23

- Use this template to structure the GROUP element of coursework 2. Ensure that the correct information is in each white box. The advice for each box is basic guidance to help you focus your answer.

- YOU MUST USE THIS TEMPLATE FOR THE GROUP WORK OF COURSEWORK 2. **All members of the group must submit the group template. If you don't submit the group template you will not receive any marks for this part of the coursework**

- The current size of the boxes is not indicating how much you should write; change their size as you need.

- When you save the file, put your name and registration number in the file name, eg **'5COSC003W_cwk2_group_Kelly_Garret_12345678.doc'.**

- **Sections in the template that don't have any text will receive no marks. The code files are used to ensure that what is written in the template is supported with what was implemented. However, code files only will not receive any marks and will not be used as submission of part of the template. Similarly, templates submission without the submission of code files will receive no marks.**

- A reminder of plagiarism: If you use bits of another's group report in yours or if you give your report to another group to use this will be an academic offence called 'collusion'.

- In order for the tutors to be able to assess your work you must ensure the following for your software submission:

  - Submit a zipped project folder of the **COMPLETE** working project (i.e. the parts of each group member incorporated in one program, not just your part). If you have not been able to incorporate your part with that of the group, then submit only your part – it should be able to run though by itself. The folder should include all the necessary files (including databases) to run as a project on Django and SQLite.
  - Make sure that the submitted project will run using the software provided by the University. Contact your tutor if you have any problems with this.
  - Make sure that the project folder should contain all files necessary to run the program e.g. databases etc.
  - Make sure that file I/O code does not use absolute file paths.
  - Make sure that the submission contains all usernames and passwords necessary to test the program.
  - Include a link to a video describing the work – each team can produce one video, but all submissions must include the link to that video. If your work is not integrated with that of the group, you can upload your own video of your work.

  Log in: admin@gmail.com
  Password: admin
  Log in: user@gmail.com
  Password: user

  Video: https://youtu.be/lEWtP1trgGI

  We used as well jazzmin Django: pip install -U django-jazzmin

Surname	Samuel

Forename	Cucicea
Registration No:	W1873364
By submitting this coursework you agree to the following:	
I confirm that I understand what plagiarism is and have read and understood the section on Assessment Offences in the Essential Information for Students. The work that I have submitted is entirely my own. Any work from other authors is duly referenced and acknowledged.	I confirm
List here the team name and the other members of your group	**Team D – (Dwag)** -Ahsan Ziad -Samuel Cucicea -Velislav Penev -Md Mehedi Hasan Midul

1. Code functionality – Database implementation (10 marks)

Which group members worked on this:

Indicate the name(s) of the section leader(s), as well as all contributors, in writing the text in this template. Note the type of contribution (eg writing a part, providing feedback, reviewing final version).

Group members that have neither led nor contributed will not receive any marks for this section.

- Samuel Cucicea - imported the database information and made various changes to make it functional and used the built-in admin function to manage the database.
- Ahsan Ziad -Added products to the database and fixed all the last-minute errors.
- Pavel Strelcovs -created views and templates to render data retrieved from the database on visible to users.
- Velislav Penev – instantiated product model and product instance for the data and solved a lot of recurring issues.
- Md Mehedi Hasan Midul -worked on the transition of data from the products page to the booking page and implemented the query set in the booking app.

Guidance:

- Describe here the tables (entities, attributes, CRUD operations) that you implemented for the databases

Entities	Attributes
Product	name, device_type, quantity, audit, location, status, image, comments
Product_Instance	serial_number, cpu,gpu,ram
Booking	product,user,date_booked, start_date, end_date, status, alert_sent, return_date, is_overdue, manually_set_overdue
products_home (views.py) add_to_booking_cart	Contains a read operation as it retrieves data from the database object.all(). Also contains read operation as product is retrieved from the given product.id. Update operation is used to update the array of booking cart.
confirm_booking	Uses create operations as it creates a new booking instance when a request is made.
update_dates	uses update operation as it updates the start and end dates attributes of the booking instance.
remove_from_booking_cart	Uses delete operation as it removes a product of the booking cart array.

2. Application frond end– group part (10 marks)

(if you have not been able to incorporate your work in the group project do not fill in this section, instead fill in section 2a below)

Which group members worked on this:

Indicate the name(s) of the section leader(s), as well as all contributors. Note the type of contribution – eg wrote part of the text, provided feedback, proofreading etc

Group members that have neither led nor contributed will not receive any marks for this section.

- Samuel Cucicea -implemented the front end for the booking page and implemented the navigation bar. Provided vital feedback to all team members.

- Ahsan Ziad -Implement the Contact Us page. Modified the booking page and reports page. Provided valuable feedback to improve the overall appearance of the application.

- Pavel Strelcovs -Implement the front end for the welcome page , modified the product and booking page.

- Velislav Penev – Implemented the products page , created the base html file, and modified the booking history page and updated the contact us page.

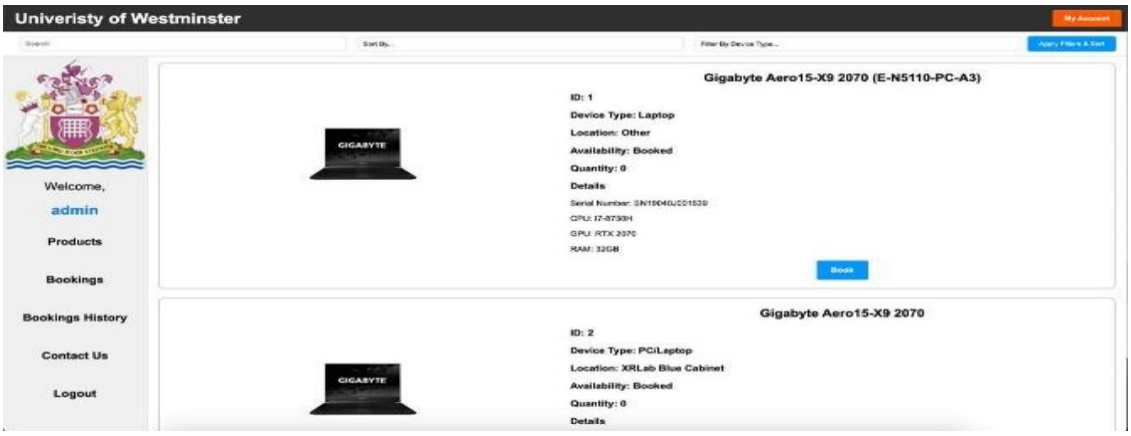
- Md Mehedi Hasan Midul -Implemented the login page and booking history page . Done the user_login.html and necessary CSS for the pages . Contributed to make changes in the navigation side bar.

Guidance: Attach here a screenshot of the front end of your application, incorporating the elements from each group member.

- Discuss here the main UI/UX principles you applied in your implementation. Discuss whether the UI/UX experience is consistent across the pages of the applications. Support your text with examples from your implementation and reflect on the final front end submission. Eg what you feel provides good user experience and why; what would enhance user experience.
- Marking of this section will also include the defence of your work during the demonstration as well as review of the application through the video.
- Use as many pages as required

In designing the user interface (UI) and user experience (UX) of our web-based inventory application, we have implemented fundamental principles of web-based application development:

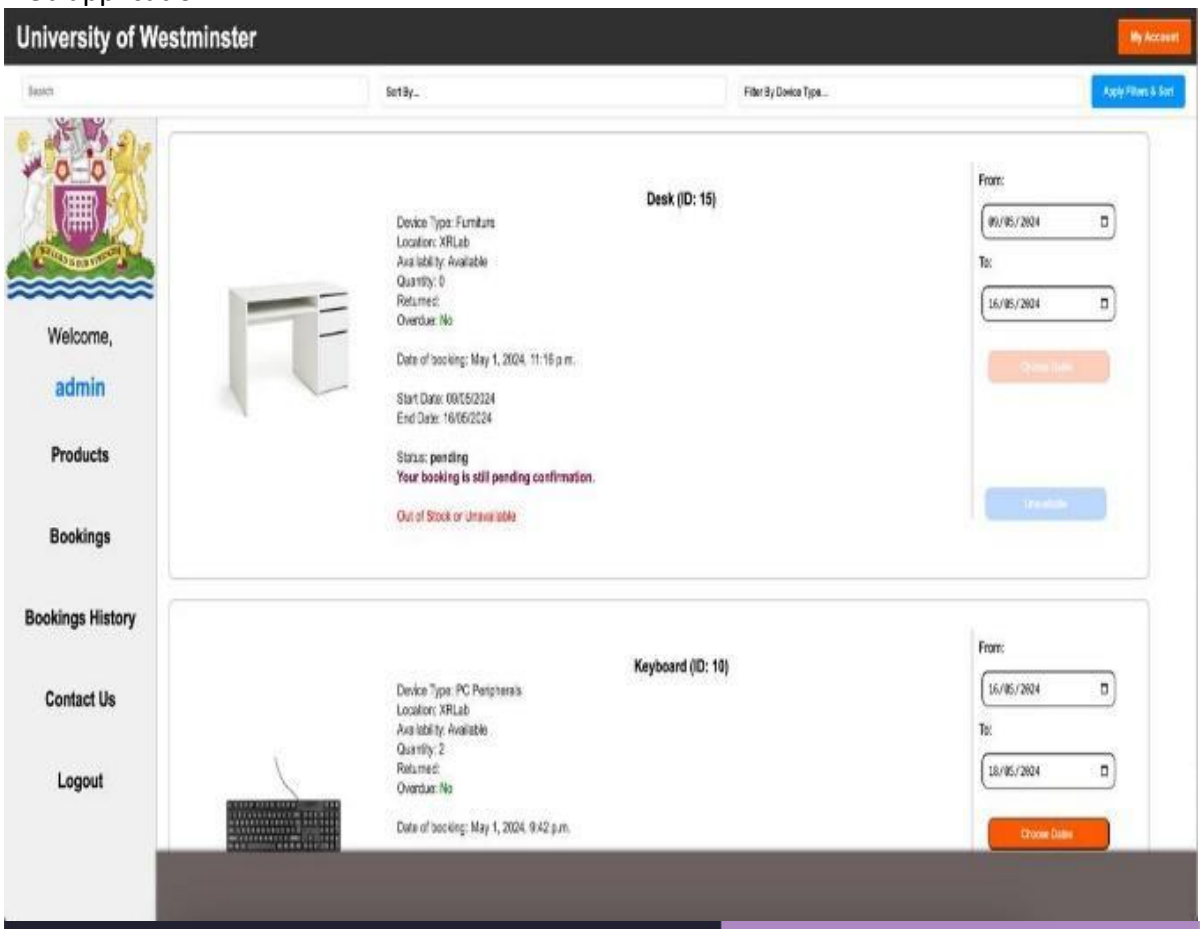
Consistency: We maintained a consistent layout, navigation, and design elements across all pages to provide users with a familiar and predictable experience throughout the application.

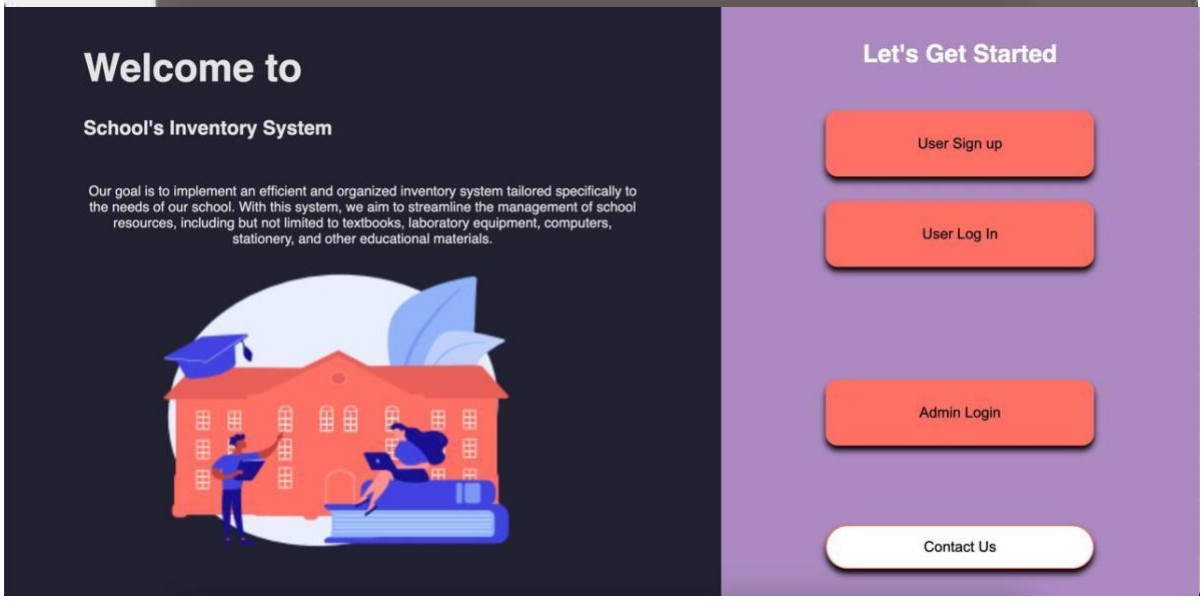


The navigation bar is the same for both the products page and the booking request page.

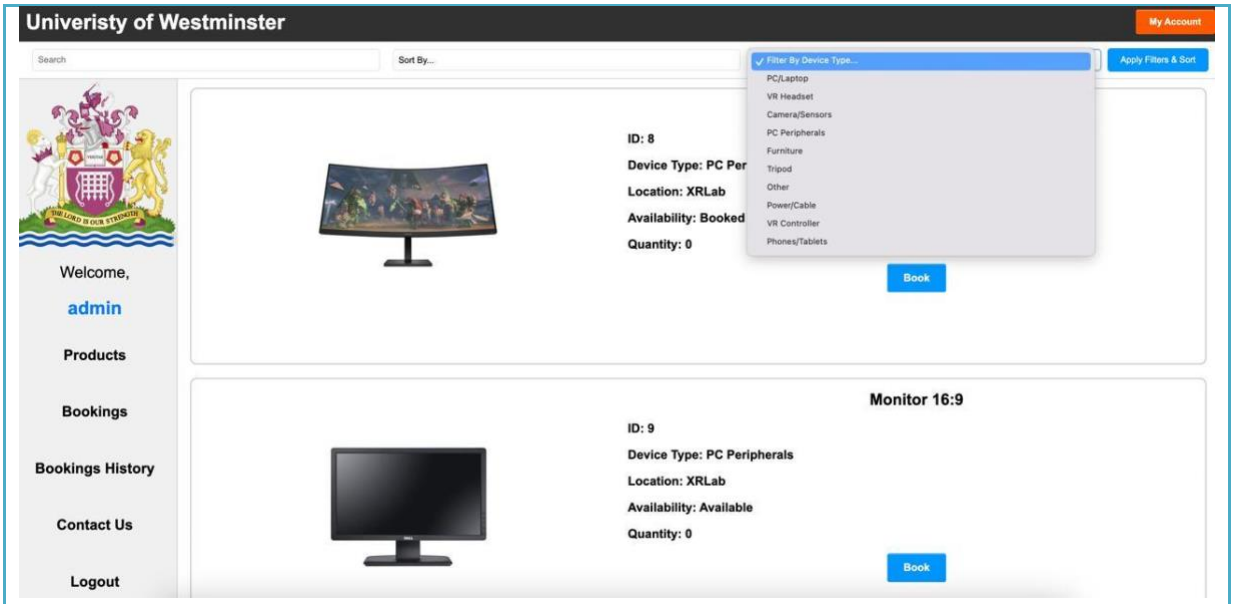
Simplicity: We aimed for a clean and intuitive interface by avoiding unnecessary complexity, ensuring that users can easily navigate a**n** applicatio**n** and perform their desired tasks without confusion. Our welcome page is a good example of the simplicity feature of our

web application.

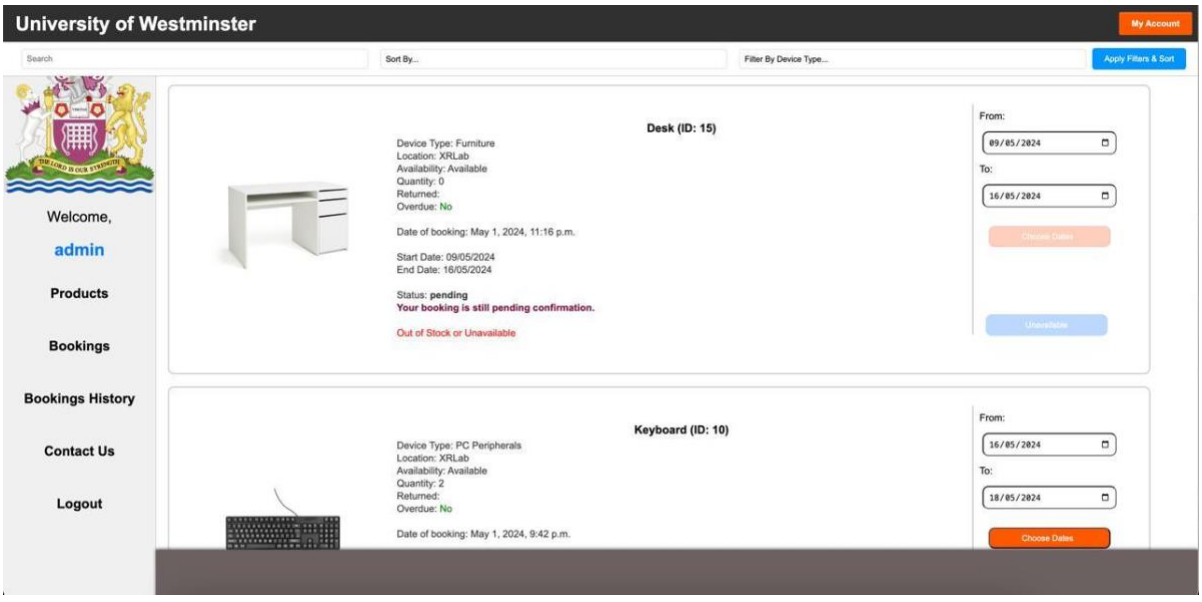




Accessibility: Our design prioritized accessibility, ensuring that all users, regardless of abilities, can interact with the application effectively. We followed best practices for accessibility standards to provide an inclusive experience for everyone.
We have used appropriate and clear font styles and created multi-coloured pages to facilitate the accessibility of the application. Also, we have added sort and filter functions to ensure a better user experience.



Feedback: We provided clear and timely feedback to users for their actions, including success and error messages, loading indicators, and other visual cues to guide them through their interactions. The evidence of user feedback is shown below:

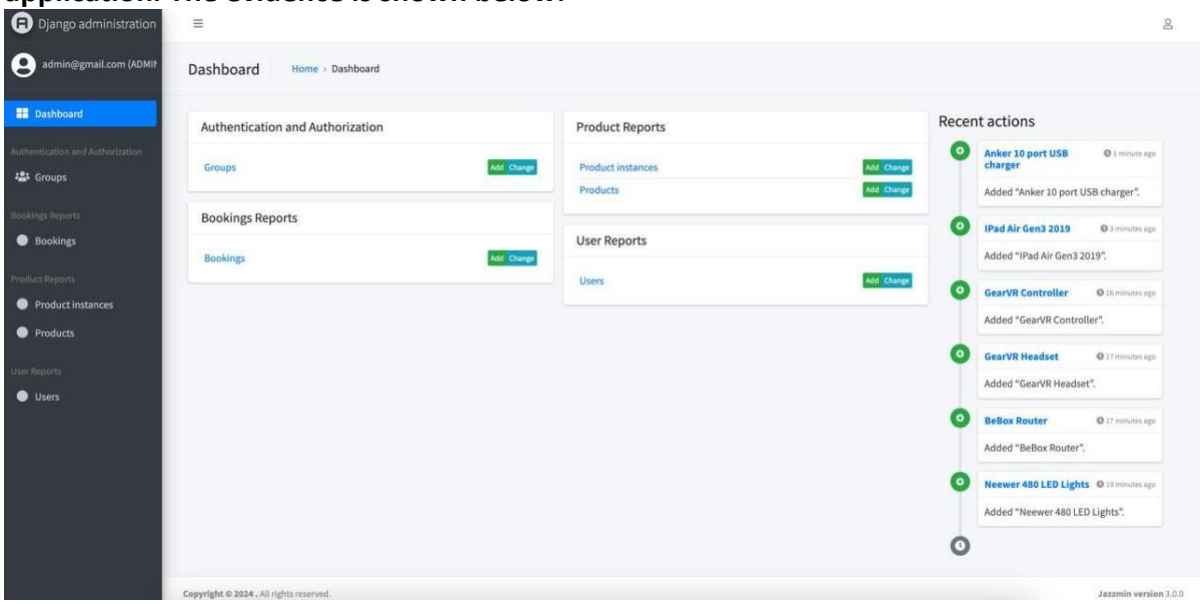


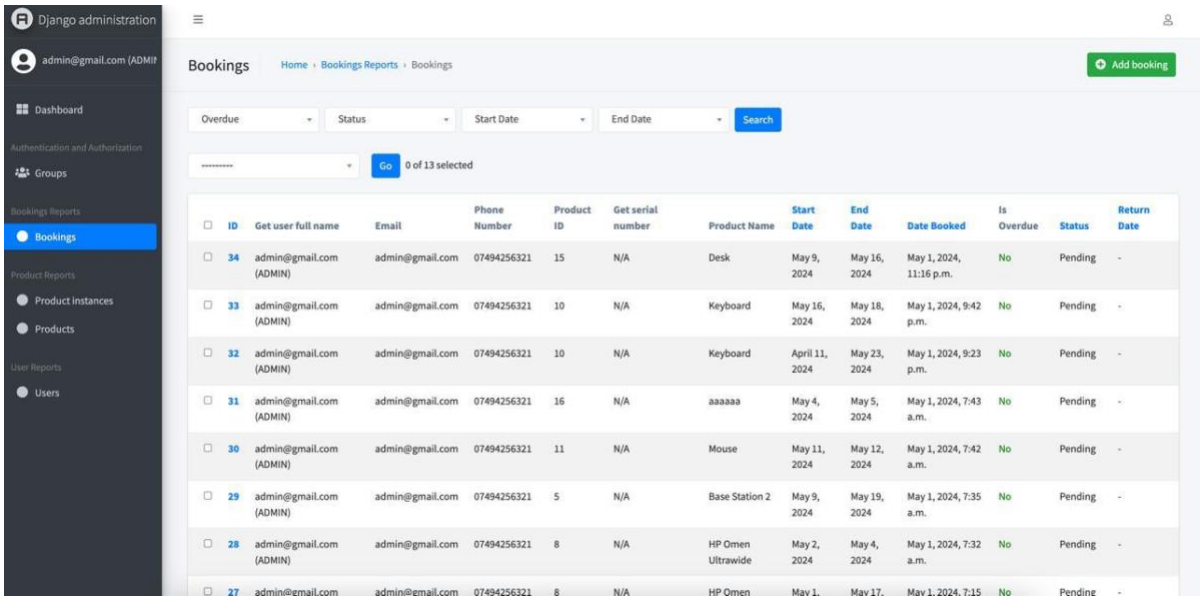
The buttons are disabled for the products which are not available.

Navigation: Our application was designed to be responsive and accessible across various devices and screen sizes. We ensured that navigation elements, such as menus and links,

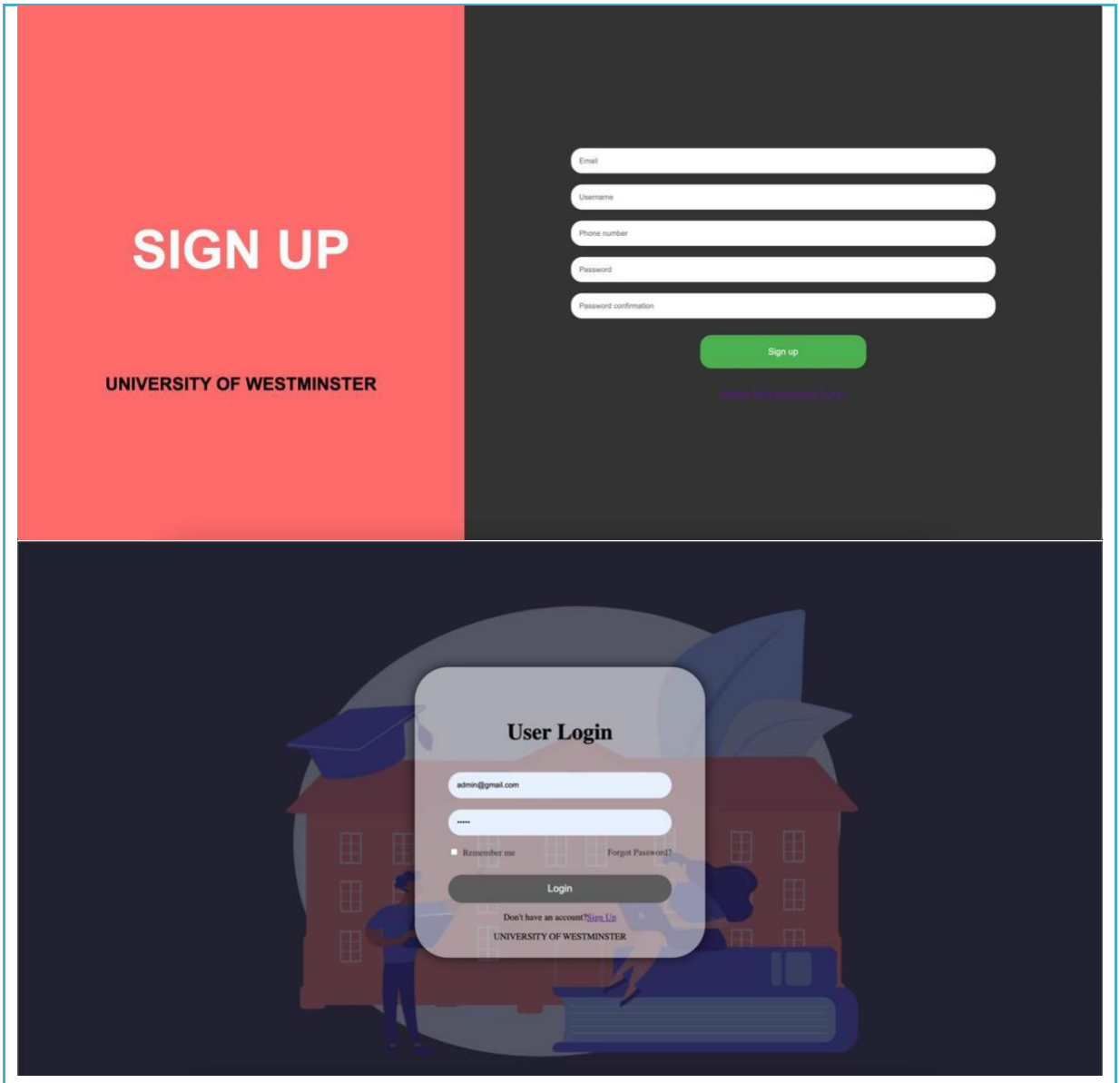
were consistent across all pages, facilitating easy movement between different sections of the application. Which is visible throughout the web application.

<u>Design Elements:</u> Each page followed the same design theme, colour scheme, and typography, maintaining visual consistency and reinforcing the brand identity of the application. The evidence is shown below:

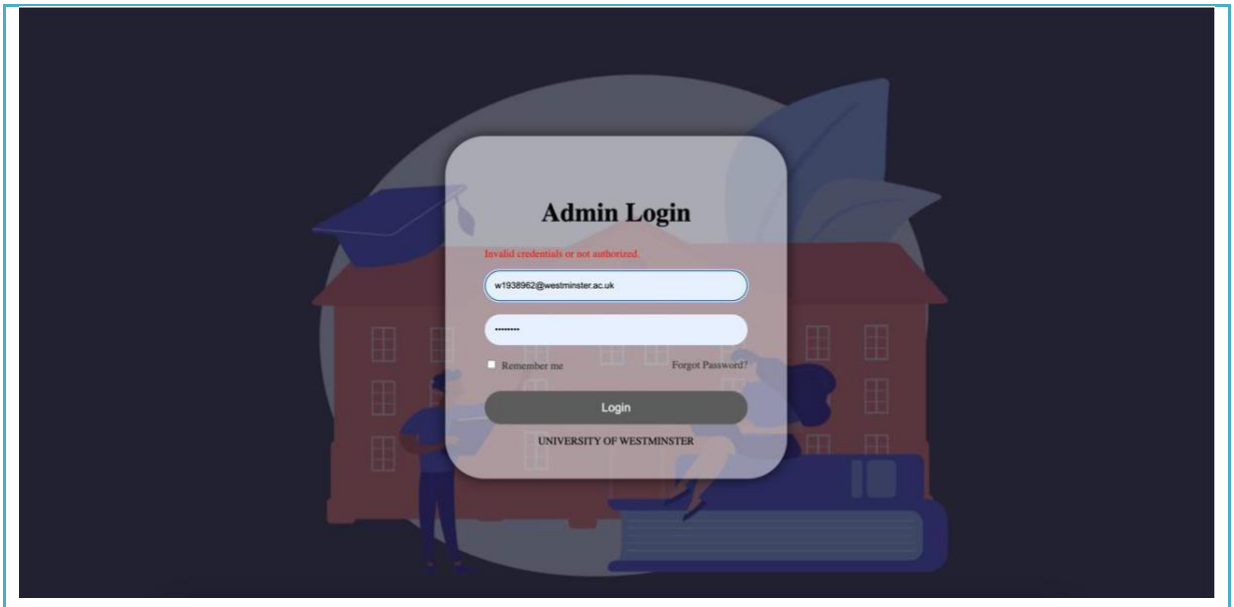


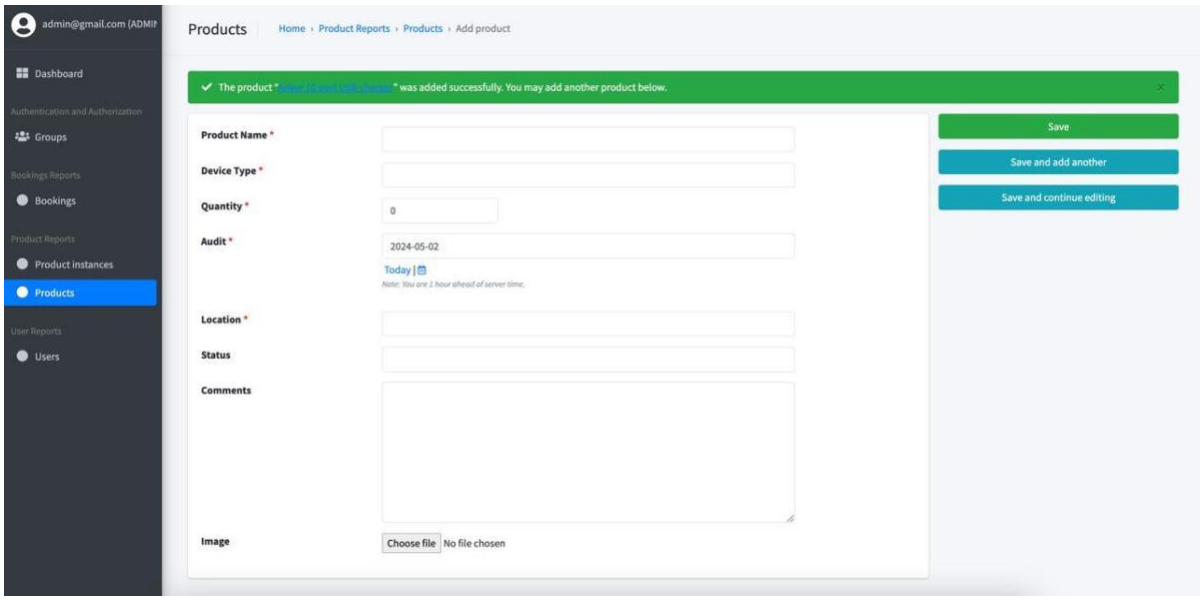


<u>Interaction Patterns:</u> Common interaction patterns, such as buttons and forms, were standardized across pages to provide users with a familiar and intuitive experience.

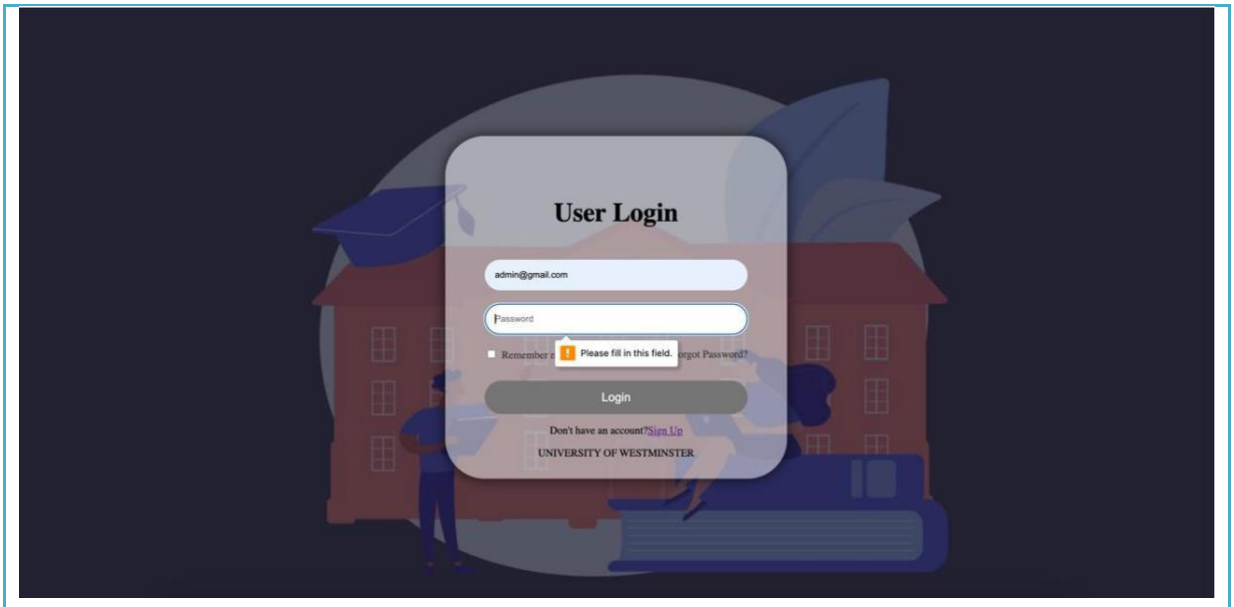


Feedback and Messaging: Feedback mechanisms, including success and error messages, were implemented consistently throughout the application to provide users with clear guidance and information about their interactions.





Intuitive Forms: Forms were designed with clear labels, placeholders, and validation messages, simplifying the data input process and minimizing user errors.



Enhancements for Better User Experience:
While our current implementation addressed many aspects of UI/UX design effectively, several enhancements could further improve the user experience:

User Personalization: Providing options for users to customize their experience, such as choosing preferred themes or layouts, could enhance user satisfaction and engagement.

***Interactive Elements*: Incorporating interactive features like animations or drag-and-drop functionality could make the application more engaging and enjoyable to use.**
User Feedback Integration: Integrating mechanisms for users to provide feedback directly within the application would enable us to gather valuable insights and identify areas for improvement to enhance the overall user experience.

2a. (only if you cannot fill in part 2 above)

Application Front End (HCI) – individual part

If you have not been able to connect your part to the group application:

- Attach here a screenshot of the front end of your own implemented part.
- Explain why your part has not been able to connect to the group application.
- Sum up the main UI/UX principles applied in your implementation (10 marks) and reflect on the UI/UX implementation by discussing good elements, why you believe they provide good UI/UX (with examples), and what changes can be made to improve it?
- Marking of this section will also include the defence of your work during the demonstration.

3. Application Front End (SECURITY)– group part (10 marks)

Which group members worked on this:

Indicate the name(s) of the section leader(s), as well as all contributors. Note the type of contribution – eg provided references, wrote text, provided feedback, proof reading etc Group members that have neither led nor contributed will not receive any marks for this section.

- Ahsan Ziad – Implemented the Login pages and relevant model pages along with Mehedi
- Samuel Cucicea -Implemented the Admin part and used the built-in functions to ensure access control and password management.
- Pavel Strelcovs – Worked with Samuel to make changes on the admin side and helped the team with his useful research to improve the application security
- Velislav Penev – Gave useful feedback and helped to make last-minute changes to improve the security and stability of the application.
- Md Mehedi Hasan Midul: Worked on the login page and implemented the Django built-in login function with Ahsan. Made last-minute changes on the sign-up page to improve clarity.

Guidance:

- Sum up all the main **security** issues of the application and how they were addressed and any security risks still remaining
- Marking of this section will also include the defence of your work during the demonstration

The security of our application's front end primarily relies on Django's built-in authentication system, which provides robust mechanisms for user authentication and authorization. We utilized Django's authentication functionalities to ensure secure access to the application's front end, allowing only authenticated users to interact with sensitive features and data.

User Authentication: We implemented user authentication using Django's authentication system, requiring users to log in with valid credentials before accessing the application. This helps prevent unauthorized access to sensitive areas of the application and protects user data from unauthorized use.
Password Hashing: Django automatically hashes passwords before storing them in the database, ensuring that sensitive user credentials are securely stored and protected against unauthorized access or theft.

Access Control : The actions attribute in the BookingAdmin class defines a set of actions that can be performed on selected booking objects. These actions, such as approving bookings or marking items as returned, are only accessible to users with the necessary permissions. By restricting access to these actions based on user permissions, the code helps prevent unauthorized users from performing sensitive operations that could compromise the integrity of the data.
Also in authentication, by inheriting from PermissionsMixin, the custom user model gains built-in methods for handling permissions, allowing for fine-grained control over user access to resources. Permissions can be assigned to users based on their roles (admin, staff, student), enabling secure access control on the front end by restricting users' actions and views based on their permissions.
Input validation: Django's admin interface automatically performs input validation on user-submitted data. This includes sanitizing user input to prevent common security vulnerabilities such as SQL injection or cross-site scripting (XSS) attacks. By validating and sanitizing user input, the code helps protect against malicious input that could exploit vulnerabilities in the frontend interface.

1. *Professional conduct: Legal & Ethical (10 marks)*

4.1 Legal

Which group members worked on this:

Indicate the name(s) of the section leader(s), as well as all contributors. Note the type of contribution – eg provided references, wrote text, provided feedback, proof reading etc

Group members that have neither led nor contributed will not receive any marks for this section.

- Ahsan Ziad - Provided references and contributed to the discussion on software licensing and compliance.
- Samuel Cucicea - Provided references and contributed to the discussion on data protection and privacy laws, including GDPR compliance.
- Pavel Strelcovs - Provided references and contributed to the discussion on contractual obligations with clients or users.
- Velislav Penev - Contributed to the section on intellectual property rights, including discussions on copyright, trademarks, and open-source licensing.
- Md Mehedi Hasan Midul - Made contributions to the section on contractual obligations with clients or users.

Guidance: List here the legal issues that would affect both the development and the use of your application. You need to support this work with research and cite your sources within the text. The marks in this section also include marks for references (see end of document).

Data protection and privacy

The application must comply with the GDPR as it is the primary law governing data protection. Our application must have a robust data handling process which complies with the regulations. This must include gaining client consent, allowing users to access data, and ensuring data minimisation. Users must be able to access, delete and correct their data at any time. Users must be notified if a data breach has occurred.[1]

Intellectual Property Rights

Must make sure the code, design or any other content is used fairly and with consent. Infringing others property violates this law, to prevent this the code snippet or any other entity must have permission. Another element of this is to protect any unique entity created by ourselves. This can involve getting copyright and trademarks. Open-source entities may have rules that users must follow to oblige by the law. This can vary from the source as some open-source entities such as code may not have many rules, and some may have more.[2]

Software Licensing & Compliance

All software licensing must be managed to make sure the application is compliant with specific rules. Following this prevents legal complications, following this rule will enable the school to use the application without licence restrictions.[3]

Contractual Obligations with Clients or Users

This application will be used in an educational environment; therefore, institutions must clearly identify the aim of the service, terminal clauses and data handling responsibilities.

Our application must have tailored terms of service to the educational sector. It must also comply with the specific requirements set out by the UK government.[4]

Professional conduct – Legal & Ethical

4.2 Ethical

Which group members worked on this:

Indicate the name(s) of the section leader(s), as well as all contributors. Note the type of contribution – eg provided references, wrote text, provided feedback, proof reading etc

Group members that have neither led nor contributed will not receive any marks for this section.

- Ahsan Ziad - Provided references and contributed to the discussion on security measures, accountability, and transparency in ethical development.
- Samuel Cucicea - Contributed to the section on security measures, including discussions on preventing unauthorised access and ensuring accountability.
- Pavel Strelcovs - Made contributions to the section on accessibility and data privacy.
- Velislav Penev - Provided references and contributed to the discussion on transparency in ethical development.
- Md Mehedi Hasan Midul - Contributed to the discussion on security measures, accountability, and transparency in ethical development

Guidance: With the aid of a table list here the ethical issues that would affect both the development and the use of your application. You need to support this work with research and cite your sources within the text. The marks in this section also include marks for references (see end of document).

Issue	Implication
Security	**Measures must be in place to prevent unauthorised access. In a school setting this applies to students not being able to use teacher features.**[5]
Accountability	**All users of the application should be accountable for impacts and inappropriate use of the applicatio.**[6]
Transparency	**Must be transparent with how user data is being used, who has access and why. This builds trust between stakeholders.**[7]
Accessibility	**Ethical development must ensure accessibility is included to aid all users. This includes adding features to allow easy access to people with disabilities, this must adhere to international standards.**[8]
Data Privacy	**application must include measures to protect user data such as personal information. This is a requirement for GDPR. Application for a school must include this as sensitive information is being used.**[9]

References (marks included in each of the main sections)

Section 4 must be supported by research.

List below your sources, using Harvard referencing. Make sure that your references are referred to correctly from the relevant text of your work.

If you are not clear how to reference read:
https://www.westminster.ac.uk/library-and-it/support-and-study-skills/guides-and-tutorials/referencing-your-work

Here's how we'll assess it:

- No research sources: that's very bad for level 5 work
- There is one source with all information, copied directly as if it's your own text: that is plagiarism
- There is one source with all information, referenced and discussed: that is bad research
- There are a few different sources, referenced and discussed in the text: this is getting better
- There are quite a few good sources from many different places, referenced and discussed in the text: this gets good marks.

Section 4.1 references

1 Data protection act 2018 (no date) Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted (Accessed: 02 May 2024).

2 M., S.L.A., M., S.L.A. and St.Laurent, A.M. (2004) Understanding open source and free software licensing. Sebastopol, Ca: O'Reilly Media Inc.

3 Progoff, S., Halpern, M. and Feinberg, I. (2009) Understanding the intellectual property license, 2009. New York, NY: Practising Law Institute.

4 Contract law: Text, cases, and materials: McKendrick, Ewan: 9780198808169: Amazon.com: Books. Available at: https://www.amazon.com/Contract-Law-Texts-Cases-Materials/dp/019880816X (Accessed: 02 May 2024).

Section 4.2 references

[5]ISO/IEC 27001:2022 (2022) ISO. Available at: https://www.iso.org/standard/27001 (Accessed: 02 May 2024).

[6]Twente, P.B.U. of et al. (2000) Disclosive Computer Ethics, ACM SIGCAS Computers and Society. Available at: https://dl.acm.org/doi/10.1145/572260.572264 (Accessed: 02 May 2024).

[7]Edquist, A. et al. (2022) Data ethics: What it means and what it takes, McKinsey & Company. Available at: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/data-ethics-what-it-means-and-what-it-takes (Accessed: 02 May 2024).

[8]Web content accessibility guidelines (WCAG) 2.1 (no date) W3C. Available at: https://www.w3.org/TR/WCAG21/ (Accessed: 02 May 2024).

[9](No date a) OECD guidelines on the protection of privacy and ... Available at: https://www.oecd.org/sti/ieconomy/oecdguidelinesontheprotectionofprivacyandtransborderflowsofpersonaldata.htm (Accessed: 02 May 2024).