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| 5COSC021W Coursework 2 - GROUP template 2024\_25  * 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. | | | | |
| **Surname** | Gilgil | | | |
| **Forename** | Mehmet | | | |
| **Registration No:** | W2046446 | | | |
| **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’s name and the other members of your group** | 5SE02\_03\_H: Adnan Choudhury, Thanaphol Promsilp, Aleeza Muneer, Muhammad Hashmi | | | |
| Code functionality - Database implementation (5 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. | | | |
| **Section Leader:**  **Mehmet Gilgil – Designed and implemented**  **Contributors:**  **Adnan Choudhury –provided feedback**  **Thanaphol Promsilp –provided feedback**  **Aleeza Muneer – providing feedback**  **Muhammad Hashmi - providing feedback and reviewed final version** | | |
| **Guidance:**   * Describe here the final tables (entities, attributes, operations) that you implemented for the databases and whether (and how) it has changed from cwk 1 draft design. | | | |
| For the final implementation of my database in Coursework 2, I made several improvements compared to the original Coursework 1 design, carefully following the feedback given by the teacher. The main advice I received was to simplify the structure, remove unnecessary parts, and make the system more robust, which I focused on throughout the redesign.  In the original Coursework 1 design, I had a much more complicated structure with separate tables for Senior Managers, Department Leads, Team Leaders, and Engineers. Each of these roles had its own table, which made the database harder to manage and created a lot of repetition. In addition, there were extra allocation tables like tLeaderSessionAlloc and engSessionAlloc, which were not really needed and made the whole system more complex than it needed to be.  In my final implementation, I decided to use Django’s built-in User model for handling all employees. Instead of creating a new table for every type of employee, I created a UserProfile model that links to the default User and stores extra information like the employee’s role, team ID, and department ID. This way, user creation became much simpler, and I could easily manage all types of users in one place while keeping track of their specific roles and assignments within the organization.  Sessions were simplified too. Instead of allocating sessions separately for team leaders and engineers like in the original design, each session is now directly linked to the user who attended. Votes are tied to both sessions and cards, and I also included a field for comments to allow users to leave additional feedback when voting.  In general, I removed the unnecessary complexity from the original design, fixed mistakes around how relationships were set up, and made sure that the database is more flexible and robust. Every change was made deliberately based on the teacher’s feedback, and the final database is now much easier to maintain while fully supporting the intended functionality. | | | |
| 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 etcGroup members that have neither led nor contributed will not receive any marks for this section. | | | | |
| **Section Leader:**  **Mehmet Gilgil – Designed and implemented**  **Contributors:**  **Adnan Choudhury –provided feedback**  **Thanaphol Promsilp –provided feedback**  **Aleeza Muneer – providing feedback**  **Muhammad Hashmi - providing feedback and reviewed final version** | | | | |
| **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 our Sky Health Check application, we made sure to follow key UI/UX principles like consistency, simplicity, and accessibility. The design is visually consistent across all pages, with the same Sky branding, colour palette, and layout structure, which helps users build familiarity and confidence as they move between sections. This aligns with the UI principle of consistency and standards, making the platform feel professional and predictable. All pages have clear fonts, with easy to understand layouts and UI. The information is always centered and presented to the user in a clear fashion.

A screenshot of a computer

AI-generated content may be incorrect.

Strong contrast checking was also applied throughout the design. We used clear white text on dark backgrounds and dark text on light backgrounds to ensure that all content is easy to read. This improves accessibility, especially for users with visual impairments or those using the application in different lighting conditions. Maintaining high contrast levels supports the principle of accessibility, ensuring that all users have an equally smooth experience.

A screenshot of a computer screen

AI-generated content may be incorrect.A screenshot of a survey

AI-generated content may be incorrect.

Ease of navigation was another important priority. We included a simple and clear top navigation bar across all pages, allowing users to move between Home, Health Check, Summary, Profile, and Logout quickly and without confusion. The navigation bar is also sticky, so it stays visible at the top of the page even when users scroll down. This small detail makes navigation even easier, as users can access different sections at any time without having to scroll back up. These choices follow the principle of user control and freedom, where users should easily understand how to get where they need to go without feeling lost or stuck. Each main task (such as logging in, signing up, or resetting a password) also has its own focused, uncluttered page, which follows the principle of minimalist design by avoiding unnecessary elements that could overwhelm or distract users.

A screenshot of a website

AI-generated content may be incorrect.

We also ensured the platform is responsive across different viewports. Whether viewed on a large desktop monitor or a smaller mobile device, the layout adjusts smoothly without losing clarity or cutting off content. This follows the responsive design principle, maintaining a consistent and user-friendly experience across all devices. On smaller screens, the navigation bar automatically switches to an accordion-style menu, which keeps the interface clean and avoids clutter, while still giving users easy access to all sections. Forms remain centred and readable, and text maintains proper spacing even on smaller screens, helping preserve usability and clarity no matter what device is used. A screenshot of a phone

AI-generated content may be incorrect.A screen shot of a login form

AI-generated content may be incorrect.

Clear system feedback was another important element we implemented. When users take important actions, such as attempting to log in or resetting their password, they receive clear success or error messages. For example, a failed login attempt displays an error explaining the problem, while a successful password reset shows a confirmation message. This follows the UI/UX principle of visibility of system status, where users are always kept informed about what is happening in the system, reducing uncertainty and building trust.



We minimised bloat to maximise functionality. We only showed on screen relevant information to the user that the user was searching for. This makes the website extremely user friendly even to newer users. One example of this is in the summary page where information is presented in a fashion where it is clear, concise and easy to understand even to the least tech savvy user.

A screenshot of a graph

AI-generated content may be incorrect.

Overall, by focusing on consistency, accessibility, simplicity, feedback, and responsiveness, our application provides a clean and intuitive user experience. If we were to improve it further, we would add subtle interactive elements, such as button hover animations, and refine the font size hierarchy slightly to guide the user’s attention even more clearly throughout the interface.

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| **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 |

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| Application Front End (SECURITY)– group part (5 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. |
| **Section Leader:**  **Mehmet Gilgil – Wrote the answer and proofread**  **Contributors:**  **Adnan Choudhury – proofread and provided feedback**  **Thanaphol Promsilp – proofread and provided feedback**  **Aleeza Muneer – wrote text**  **Muhammad Hashmi – wrote text** |
| **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 Sky Health Check application was built using Django, which offers strong built-in security protections. Django automatically hashes all user passwords securely using modern algorithms, reducing the risk of password leaks. CSRF tokens were implemented on all forms to protect against cross-site request forgery attacks, and input validation was applied to prevent basic injection threats. Password reset emails are sent over TLS, ensuring that sensitive information is encrypted during transmission.

Since the project currently runs locally, certain risks like server breaches or man-in-the-middle attacks are less of a concern. However, if the application were deployed publicly, additional security measures would be needed. For example, adding two-factor authentication (2FA) would help protect accounts even if passwords were compromised. Rate-limiting login attempts, and account lockout features would defend against brute-force attacks. Server-side input validation and regular security updates would also be important to maintain a secure environment.

Overall, the major security issues were carefully addressed within the scope of the project using Django’s built-in features and additional good practices. However, security is an ongoing process, especially once an application is exposed to a wider audience.

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| 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 etcGroup members that have neither led nor contributed will not receive any marks for this section. |
| **Section Leader:**  **Mehmet Gilgil – Wrote the answer, found references and proofread**  **Contributors:**  **Adnan Choudhury – proofread and provided feedback**  **Thanaphol Promsilp – proofread and provided feedback**  **Aleeza Muneer – provided references, wrote text**  **Muhammad Hashmi – provided references, wrote text** |
| **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). |
| The development and use of the Sky Health Check project raise several key legal issues, particularly relating to the protection of personal data under the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018.  Since the application collects employees’ personal information, including their opinions about workplace control and wellbeing, it is subject to UK GDPR requirements. Under this law, personal data encompasses any information that can directly or indirectly identify an individual, such as names, emails, and workplace responses (Omar and Valmira, 2020). Therefore, we must try to ensure that all data collected is processed lawfully, transparently and securely. To this end in our project, we used default packages from Django that already has security features.  Users’ rights under UK GDPR must also be upheld. These include the right to be informed, the right to access their data, the right to correct inaccuracies, and the right to request data removal where appropriate (Fahimeh et al, 2019). Employees will have the right to access their data on the profile and summary pages and can freely change some of it themselves and other data through the admin.  Security of personal data is another major concern. UK GDPR mandates that organisations implement appropriate technical and organisational measures to protect data against accidental or unlawful destruction, loss, alteration, and unauthorised disclosure. The application must therefore ensure strong encryption, limited access controls, and regular security assessments. As of now the application only runs on local devices, however some security features have been implemented such as a csrf token when users are signing up to ensure no hackers can infiltrate the connection and steal user data. Further consideration is required when an application is launched.  The principle of privacy by design and by default is a core requirement under the UK GDPR. It mandates that data protection must be integrated into the development of the application from the earliest stages, ensuring that only the minimum amount of personal data necessary for the stated purpose is collected and processed (Tikkinen-Piri, Rohunen and Markkula, 2018). We have considered and within our technical abilities as second year computer science students attempted follow since development began.  We have considered and within our technical abilities as second year computer science students attempted follow since development began. However, a vast majority of these legal requirements are outside the scope of the project but also only really apply to big data, whereas this application is built to be used by few hundreds of employees at Sky (at the very most). |

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| Professional conduct – Legal & Ethical4.2 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 etcGroup members that have neither led nor contributed will not receive any marks for this section. |
| **Section Leader:**  **Mehmet Gilgil Wrote the answer, found reference and proofread**  **Contributors:**  **Adnan Choudhury – proofread and provided feedback**  **Thanaphol Promsilp – proofread and provided feedback**  **Aleeza Muneer – provided reference, wrote text**  **Muhammad Hashmi – provided reference, wrote text** | |
| **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). |
| |  |  | | --- | --- | | ****Ethical Issue**** | Impact | | Privacy of Personal Data | We must minimise the amount of personal data collected, store it securely, and avoid using it for anything beyond the stated purpose. | | Informed Consent | Users should know exactly what data is being collected and why and must give clear permission before submitting anything. | | Accessibility | The app must work for all users, including those with disabilities, by following basic accessibility standards. | | Avoiding Dark Patterns | Interfaces must be honest and avoid sneaky designs that trick users into giving away more information than they intended. | | Data Security | |  | | --- | |  |  |  | | --- | | Strong protection like encryption and secure login methods are needed to prevent leaks of sensitive wellbeing data. | |   When developing the Sky Health Check app, we had to think carefully about a few major ethical issues.  Privacy was a big focus because the app handles sensitive wellbeing information. We made sure to protect user data by adding CSRF tokens to our forms to stop hackers from hijacking sessions. Basic protections like this are essential for building trust from the start.  Informed consent is another area we thought about. Right now, users must sign up before using the app, which means they give some initial permission. But if the app were launched across Sky for all employees, we would definitely need a full Terms of Service and a clear consent form, so that users would know exactly what data is collected, how it is stored, and why (Tavani, 2016).  We also made an effort with accessibility. For example, we used a contrast checker tool during development to make sure there was enough contrast between text and background colours. This small step helps users with visual impairments and makes the app easier for everyone to use (Henry et al., 2014).  At the moment, dark patterns were not an issue because the app is small and only used internally. But if it expanded to hundreds of users, it would be crucial to avoid any manipulative designs. Keeping interfaces honest and clear would not only respect users but also result in better, more accurate feedback for Sky (Gray et al., 2018).  Finally, data security was a big priority. We've already built in basics like password hashing and using TLS for password reset links. If the app was rolled out more widely, we would also need to encrypt stored data, secure the servers properly, and run regular security scans to stay protected.  Overall, working on Sky Health Check made it really clear just how important ethical thinking is when developing software. Even though it is a small project for now, we stillmade choices to protect people's privacy, give them control over their data, make the app usable for everyone, and keep information secure. If this system ever grew into a full scale app, we know there is a lot more we would need to do, like stronger security, clearer consent, and continuous updates to stay ahead of risks. Building ethical apps is not just about following rules, it is about creating something people actually trust and feel safe using, which is just as important as the technical side of development. |

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| 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** |
| Legislation.gov.uk (2018). *Data Protection Act 2018*. Available at: https://www.legislation.gov.uk/ukpga/2018/12/contents (Accessed: 27 April 2025).  Fahimeh, A., Zeleznikow, J. and Brien, C. (2019) ‘Developing regulatory standards for the concept of security in online dispute resolution systems ‘, *Computer Law & Security Review*, <https://doi.org/10.1016/j.clsr.2019.05.003>  Omar, A. and Valmira, O. (2020) ‘The role of government regulations in the adoption of cloud computing: A case study of local government’ , *Computer Law & Security Review*, <https://doi.org/10.1016/j.clsr.2020.105396>  Tikkinen-Piri, C., Rohunen, A. and Markkula, J. (2018) 'EU General Data Protection Regulation: Changes and implications for personal data collecting companies', *Computer Law & Security Review*,  <https://doi.org/10.1016/j.clsr.2017.05.015> |
| **Section 4.2 references** |
| Tavani, H.T. (2010) *Ethics and Technology: Controversies, questions, and strategies for ethical computing*, *Wiley Publishing eBooks*. <https://books.google.co.uk/books?hl=en&lr=&id=pMI7CwAAQBAJ&oi=fnd&pg=PA17&dq=ethics+and+Technology:+Controversies,+Questions,+and+Strategies+for+Ethical+Computing.&ots=y4lbyCgUUZ&sig=UYxlu--F576moD5RFhixUTGxPtA#v=onepage&q&f=false> (Accessed: 27 April 2025).  Henry, S.L., Abou-Zahra, S. and Brewer, J., 2014. *The role of accessibility in a universal web*. Proceedings of the 11th Web for All Conference. DOI: <https://doi.org/10.1145/2596695.2596719>  Gray, C.M., Kou, Y., Battles, B., Hoggatt, J. and Toombs, A.L., 2018. *The dark (patterns) side of UX design*. Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems. DOI: <https://doi.org/10.1145/3173574.3174108> |