Principal Examiner Report

Summer 2025

T Level Technical Qualification in Digital Production, Design and Development- Occupational Specialism

Introduction

This was the fifth thoroughly assessed series of the Occupational Specialism that took place.

The tasks set out in the assessment followed the format identified in both the Sample Assessment Materials (SAM) and the Additional Sample Assessment Materials (ADSAM) published on our website.

This assessment consisted of four tasks, requiring students to demonstrate knowledge of a range of specification topics and apply this knowledge to the scenario.

Individual questions

The following section considers each question on the paper, providing examples of good student responses and a brief commentary on why the responses received the marks they did and how they can be improved to gain full marks. This section should be considered in conjunction with the live external assessment and the corresponding mark scheme.

Task 1- Activity A (ii) The Proposal

Pass Commentary

The student's proposal identifies *some* of the core problems to be solved, such as the need for a booking system and a page for creating user profile content. The decomposition, presented as a simple high-level diagram, shows the main sections of the proposed website, demonstrating a basic ability to break down the overall project into its primary components.

Why was a Pass awarded? The work meets the Band 1 criteria by identifying some problems and providing a decomposition that is effective for some of these issues. The proposed solution would address *some* of the client's fundamental needs, including providing information and a booking function.

Why was a higher mark not achieved? The decomposition lacks depth. It does not effectively break down more complex subsystems (how the booking system would handle different types of appointments or manage availability). Consequently, the proposal only addresses the most obvious needs of the client and users, without fully considering the intricacies of the required solution. To reach a higher band, the student needed to break the problems down into more detailed, manageable parts.

Appreciation of broader issues in the context

Pass Commentary

The proposal offers *limited* justification for the solution. For example, when discussing risks, the student identifies relevant issues, such as data privacy, but provides generic mitigation strategies (using two-factor authentication) that are not explicitly contextualised to the Rolsa Technologies project. The discussion of legal requirements lists relevant regulations (GDPR) but does not explain precisely how the proposed solution will ensure compliance.

Why was a Pass awarded? The student demonstrates an awareness of broader issues, meeting the Band 1 criteria. The proposal *partially* justifies how the solution meets user needs and how risks will be mitigated.

Why was a higher mark not achieved? The justification is superficial. To achieve a higher mark, the student needed to provide a more detailed and evidence-based argument, linking their proposed features directly to specific user needs and explaining exactly how their mitigation strategies would work in the context of their proposed system.

Appreciation of the business context

Pass Commentary: The proposal provides *basic* definitions for functional and non-functional requirements, as well as for Key Performance Indicators (KPIs). The requirements are listed and

> The Key performance indicator and user acceptance criteria for the proposed solution. An example of the KPI on the website would be how well the website would allow users to bounce between each page. The reason this is important to a KPI is because it would tell us how reactive and the loading speed of a page would be. Another KPI would be users' data and validation, by having users' data saved and validated we could have important contact info on the users which out client Rolsa Technology's would most likely need in order to contact them, checking the website for errors would also be a KPI as errors checking and testing would be excellent before launching the website to check for any additional problems.

briefly described, demonstrating that the student understands the meaning of these terms.

Why was a Pass awarded? The student has correctly identified and defined the key components of a technical proposal, meeting the Band 1 criteria.

Why was a higher mark not achieved? The definitions lack depth and perceptive understanding. The listed KPIs are generic (Bounce rate, Page load time) and not tailored to Rolsa Technologies' specific business goals. To move into a higher band, the student needed to define requirements and KPIs that were more specific, measurable, and directly relevant to the client's objectives.

Task 1: Activity B – The Design

Effectiveness of the design interface

Pass Commentary

The proposed design interface is *adequate*. The student has produced visual designs for the key pages, which gives a general idea of the intended layout. There is a *reasonably practical* use of standard conventions, such as placing the navigation bar at the top.

Why was a Pass awarded? The designs fulfil the basic requirement of visually representing the proposed solution, aligning with Band 1 criteria.

Why was a higher mark not achieved? The design lacks professionalism and refinement. The layout is cluttered, and the inconsistent use of multiple colours and font styles would lead to a poor user experience. There is little evidence of a considered visual hierarchy to guide the user's attention. To achieve a higher mark, the student needed to apply design principles more effectively to create a cleaner, more consistent, and more user-friendly interface.

Algorithm Design

Pass Commentary

The student has provided flowcharts for key processes, illustrating a *basic decomposition* of the identified problems. The algorithms cover the primary inputs, methods, and outputs for the happy path (when everything works as expected), resulting in *some correct outcomes*.

Why was a Pass awarded? The algorithms demonstrate a foundational understanding of logical thinking, meeting the Band 1 criteria. They show how a process should work under ideal conditions.

Why was a higher mark not achieved? The logic is not always precise, and the structure can be inefficient at times. Crucially, the algorithm does not account for validation, error handling, or alternative user flows. This means they would fail if a user entered incorrect data or if a system error occurred. To improve, the student needed to create more robust algorithms that could handle a broader range of scenarios.

The design of the data requirements

Pass Commentary

The data requirements are *appropriate*. The student has identified the main entities (such as Users and Bookings) and some of their attributes, demonstrating a basic understanding of what data the system needs to store.

Why was a Pass awarded? The student has met the Band 1 criteria by identifying the core data requirements for the solution.

Why was a higher mark not achieved? The data design lacks detail. It does not clearly define the relationships between entities, consistently specify data types, or consider constraints (e.g., character limits, uniqueness). Naming conventions are inconsistent. This lack of detail would lead to ambiguity during database development.

Test strategy

Why was a Pass awarded? The work meets the Band 1 criteria by outlining a fundamental strategy for testing.

Why was a higher mark not achieved? To achieve Band 3, the test strategy must be comprehensive and actionable. The student needed to document his strategy with much greater detail. For each feature, the strategy should explicitly define the types of tests to be conducted (functional, validation, UI) and, critically, specify the exact categories of data to be used. For example, for the registration form, the strategy should state an intention to test. By providing this level of detail, the strategy becomes a precise and repeatable guide, ensuring a thorough test of the solution as required for the top band.

Quality of communication

The communication of the design is *sometimes effective*. The documents are structured with headings, but the information can be disorganised, and the use of technical language is occasionally inconsistent or incorrect. The overall presentation lacks a professional polish.

Why was a Pass awarded? The documentation communicates the basic intent of the proposal and design, meeting the Band 1 criteria.

Why was a higher mark not achieved? The lack of clarity, inconsistent formatting, and occasional grammatical errors detract from the overall quality of the text. To improve, the student needed to present their work in a more structured, professional, and written format.

Task 2: Developing the Solution

2.1 Functionality

(Pass – Band 2) The student's prototype implements some functionality in multiple languages (HTML/CSS, PHP, and JavaScript). However, the core calculator feature relies on a third-party iframe, which limits the demonstration of the candidate's coding skills. Furthermore, the custom-coded elements contain significant errors, such as the non-functioning side menu on the home page. This performance aligns with the Band descriptor: 'The prototype implements code with some functionality in at least two different languages, but the code lacks efficiency, and some major errors persist'.

To achieve Band 4, the student would have needed to develop the carbon footprint calculator themselves using JavaScript. This would involve writing the calculation logic, implementing robust input validation to handle incorrect data types, and ensuring the feature was fully integrated and free of the errors present in this final submission. This would have provided direct evidence of his ability to use precise logic to produce consistently correct outcomes, as required for the top band.

2.2 Code Organisation

Pass-Band, the student's code presents some difficulties for maintenance. While there is some logical organisation, the presence of unresolved bugs, such as the side menu issue, suggests an underlying structural problem.

```php
<!--Session Start-->
<?php
session_start();
include 'C:\xampp\htdocs\rolsa_\database\db.php';

if ($_SERVER['REQUEST_METHOD'] == 'POST') {
    $email = $_POST['email'];
    $password = $_POST['password'];

    try {
        $stmt = $pdo->prepare('SELECT * FROM users WHERE email = :email');
        $stmt->execute(['email' => $email]);
        $user = $stmt->fetch(PDO::FETCH_ASSOC);

        // Check if the user exists and verify the password
        if ($user && password_verify($password, $user['password'])) {
            $_SESSION['loggedIn'] = true;
            $_SESSION['user'] = $user;
            header('Location: account.php');
            exit();
        } else {
            echo "<script>alert('Invalid email or password');</script>";
        }
    } catch (PDOException $e) {
        echo "<script>alert('Error: " . $e->getMessage() . "');</script>";
    }
}
```

Problems: Commenting is sparse, and the reliance on an external iframe for the main feature means a significant part of the solution's logic is not documented or organised within the project structure at all. This aligns with the Band 2 descriptor, where code 'is maintainable by a third party, but would present some difficulties'.

To secure Band 4, the student needed to ensure their code was meticulously organised and commented throughout. This includes writing clean, modular code for all features, using clear and consistent naming

conventions, and adding comments to explain the purpose of functions and complex logic. By building the calculator himself and organising that code logically, he would have provided evidence of a well-structured, easily maintainable project, which is required for full marks.

2.3 User Experience

Pass – Band 2: An adequate user experience is provided, but key issues undermine it. The inconsistent visual design between the leading site and the iframe calculator is jarring for the user. Furthermore, the non-functioning menu on the home page and the lack of robust security on the login forms mean the solution is not fully robust and does not effectively handle common errors or user needs. This aligns with the Band 2 descriptors for providing an 'adequate user experience' where the solution is only 'partially robust'.

How to Achieve Full Marks: For a top-band mark, the user experience must be seamless and professional. The student would have needed to resolve all UI bugs, particularly the broken menu. Most importantly, by creating a custom calculator, he could have ensured a consistent design, branding, and user journey.

Implementing robust validation on all forms, including password strength checks, would have demonstrated the effective handling of common errors needed to provide an excellent user experience.

3.0 Task 2: Testing

3.1 Suitability of Test Data

Pass – Band 1: The student's test log shows a basic understanding of the testing process. He has used normal data to confirm functionality and some invalid data (empty fields). However, there is limited use of varied data types; for example, there is no evidence of testing with extreme values or different formats of invalid data. This performance falls within Band 1, which describes tests that utilise 'limited use of: normal data, erroneous data, extreme data'.

How to Achieve Full Marks: To achieve Band 3, the test plan must be comprehensive. The student needed to significantly expand his test data. For his registration form, this would include testing with extremely long names, passwords that meet or fail length requirements (boundary data), and email addresses with

Pass Commentary: The test strategy demonstrates a *basic understanding* of the testing process. The student has correctly identified the components to be tested and the types of tests required (black-box and white-box tests), but has used incorrect formats. For a custom-built calculator, he would need to test with zero values, huge numbers, and negative numbers to ensure the validation and calculations were completely robust.

3.2 Use of Testing to Inform the Iterative Development Process

Pass – Band 1: Students' testing shows evidence of a basic iterative development process. The log identifies problems, such as the broken side menu. However, it acts more as a list of known issues rather than a tool for refinement, as there is no documented evidence that these issues have been rectified and successfully retested. This aligns with the Band 1 descriptor, where 'Testing shows evidence of a basic iterative development process'.

How to Achieve Full Marks: Full marks are awarded when testing is clearly shown to drive development. After identifying a bug, such as a broken menu, the Student would have needed to document their attempts to fix it in their development log. Following the fix, he would then need to create a new entry in his test log to re-test the feature, showing the Actual Outcome as now matching the 'Expected Outcome'. This whole cycle of identifying, rectifying, and re-testing is essential for demonstrating an effective iterative process.

4.0 Task 2: Documentation

4.1 Quality of the Iterative Development Process

Pass – Band 2: Documentation provides an adequate record of the development process. Their evaluation identifies the most obvious flaws, such as the inconsistent UI, and provides a 'supported rationale for some notable changes made' (including the replacement of the iframe). This meets the criteria for Band 2.

How to Achieve Full Marks: To move into the top band, the rationale for change must be more than just fixing obvious mistakes; it must be perceptive. Instead of just stating that the iframe looks bad, Student could have analysed *why* that design choice was made initially (due to time constraints) and then proposed a more ambitious future iteration. For example, he could have suggested not only building a custom calculator but also adding features that the iframe did not have, such as saving results to a user's account, justifying this by improving user engagement and data personalisation. This would demonstrate the 'convincing and perceptive' rationale required for Band 3.

Assessment of Task 3a: Gathering Feedback

Pass Level Evaluation:
The student's work meets all the required criteria for a Pass. They demonstrate a practical and solid understanding of the feedback process by creating materials to gather opinions from different user types and using the results to identify necessary future development work.

Effectiveness of Materials and Tools
The Students' materials are adequate for gathering feedback. He created two questionnaires using Google Forms, one for a technical audience and one for a non-technical audience. These included a mix of rating scales and open-ended questions, which successfully allowed him to get feedback on different parts of the prototype. He also appropriately used OBS software to create a video demonstration for his testers.

Effectiveness of Communication
The quality of communication is mostly effective. The student's plan correctly identifies the need to gather feedback from both technical and non-technical personnel. The language used in his non-technical questionnaire is generally accessible, ensuring users can understand what is being asked.

Analysis of Feedback
Student presents the feedback he received clearly, using graphs and charts generated by Google Forms and including direct quotes from users. He successfully identifies several specific areas for future work based on this feedback. For example, he acknowledges that the navigation bar does not work well on mobile devices and that the back-end PHP for the contact and login forms is broken and requires fixing.

How to Achieve Higher Marks
To progress from a Pass to a Distinction, the student must adopt a more strategic and comprehensive approach to their studies.

Tailor Materials for High-Quality Feedback: The two questionnaires had a significant overlap. To meet the Distinction criteria, the materials must be tailored to elicit. High-quality, detailed feedback from each specific audience. This would involve creating two truly distinct sets of questions: one focused entirely on user experience and design for the non-technical group, and a separate one using precise technical language to probe code quality, security, and maintainability with the technical group. Effective communication is essential for consistent success. This means ensuring the language is perfectly and consistently appropriate for each audience, with zero ambiguity. The plan should also be more detailed, explaining not just.

Provide a Justified Development Plan: The analysis must conclude with a comprehensive summary of proposed future work that is directly and explicitly linked to the feedback gathered. For each point of feedback, a convincing and perceptive rationale for the intended change is required. For instance, rather than just stating that PHP is broken, he would need to explain why the proposed fix (refactoring the database connection string) is the correct technical solution based on the issues identified by testers.

Feedback Report: Task 3b - Evaluation (Pass Level)

Overall Grade: Pass

This evaluation report meets the criteria for a Pass. The student has conducted a functional review of the prototype, considering the assets used and how well the solution meets its initial requirements. The report identifies several areas for future development. To progress to the higher grade bands, the evaluation needs to be more detailed, analytical, and more explicitly linked to the evidence gathered from user feedback.

Assessment Focus: Effectiveness of assets and content

The report provides a review of the selected content, considering its appropriateness, validity, and the associated legal and ethical implications.

What the student did well:

- The student has considered the appropriateness of the assets, explaining that they were chosen to represent the client and the function of the pages.
- There is an awareness of validity and reliability, as the student identifies the sources of assets (Unsplash and Flaticon) and acknowledges the use of placeholder text that the client would replace.
- A basic consideration of legal and ethical issues is present, with a correct statement that using copyrighted assets would be unethical.

How to achieve full marks:

- To achieve a comprehensive review, the student should provide more depth. Instead of simply stating that assets are copyright-free, they could discuss the specific license, such as the Creative Commons license.
- The section on validity needs to be supported by more substantial evidence of **comparison and corroboration**. For example, if information was generated or sourced online, the report should detail how it was fact-checked against multiple other reliable sources to ensure its accuracy.
- The discussion of legal and ethical implications should be more thorough. For example, a discussion on data protection and GDPR would be expected, explaining how the solution handles user data securely and respects their privacy rights.

Assessment Focus: Evaluation of project outcomes

The report provides a basic evaluation of how well the prototype meets its requirements and provides a simplistic rationale for future changes.

What the student did well:

The report structure is logical, evaluating the solution against the functional and non-functional requirements laid out in the project proposal.
The student correctly identifies that the solution meets most of the user acceptance criteria.
The rationale for future development identifies relevant areas for improvement, such as fixing the booking system and adding more accessibility features.

How to achieve full marks:

- The evaluation should be more detailed and less descriptive. Instead of just stating that a feature meets a requirement, the student should explain *how well* it meets it, using specific examples.
- The rationale for future iterations needs to be **convincing and perceptive**. This is achieved by explicitly linking every suggested improvement back to the specific feedback gathered in Task 3a.
- The report should utilise examples, user comments, and data from the feedback analysis to justify its claims.

The need for a change. For example, instead of just saying *'Add more accessibility features*,' the student could say: *Based on user feedback, where a user suggested adding more options, future iterations should include a colour-blind mode and a text-to-speech option to improve the experience for visually impaired users*.

A perceptive selection of evidence must support the evaluation. The report should embed screenshots, data charts, and direct user comments from the feedback analysis to support the points being made. This provides a clear, evidence-based link between the feedback, the evaluation, and the plan for future development.

Task 1: Activity A(ii) – The Proposal Distinction

Decomposing the problem

This student's proposal *fully identifies* the problems to be solved, moving beyond the obvious requirements to consider the underlying business and user goals. The decomposition is highly effective, presented through clear, hierarchical diagrams for both the overall site architecture and specific, complex subsystems, such as the registration process. This detailed breakdown demonstrates a clear implementation plan.

Why was a Distinction awarded? The work is a clear example of Band 3 performance. The problems are not just listed but are effectively decomposed into their constituent parts. The proposal demonstrates how the solution would meet the *full needs* of the client and users, mitigate a comprehensive range of potential risks, and address all relevant regulatory guidelines.

Appreciation of the business context

This work provides *comprehensive and perceptive definitions* of all business context elements. The functional requirements are detailed and unambiguous. The non-functional requirements are specific and measurable (page load time of under 2 seconds on a 4G connection). The KPIs are directly tied to the business goals, and the user acceptance criteria are clear, testable, and precise.

Why was a Distinction awarded? The student demonstrates a sophisticated understanding of the business context, meeting the Band 3 criteria. The definitions are not just academic; they form a practical and robust framework for the project's development and evaluation.

Task 1: Activity B – The Design

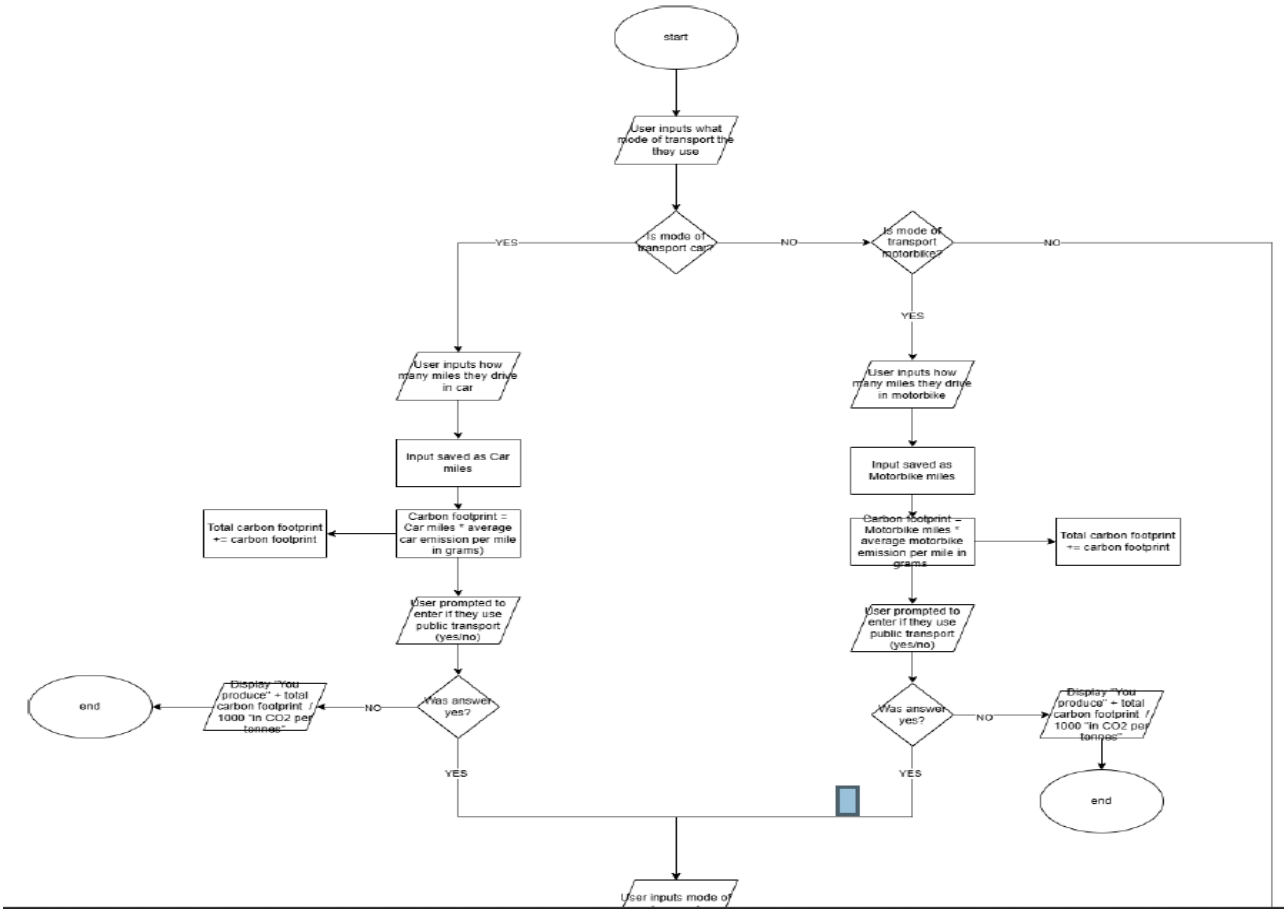
Effectiveness of the design interface

The proposed design interface is *excellent*. The student demonstrates a professional workflow, starting with clean, well-structured, and annotated wireframes before creating higher-fidelity visualisations. The design effectively utilises sophisticated layout, white space, and visual hierarchy. The consistent colour scheme and typography create a professional and credible aesthetic.

Why was a Distinction awarded? The design documentation is of a professional standard and would allow a third party to build the interface with clarity. The work is a clear example of Band 3 performance, showing a sophisticated understanding and application of UI design principles.

Algorithm Design

The algorithms demonstrate a *highly effective decomposition* of complex problems. The logic is *precise*, and the structure is *efficient*. The flowcharts detail not only the primary path but also validation checks, error loops, and different outcomes based on user input or status (user vs. admin). This results in *consistently correct outcomes*.



Why was a Distinction awarded? The work aligns perfectly with Band 3 criteria. The algorithms are robust, well-structured, and demonstrate a sophisticated level of logical thinking. They are detailed enough to be translated directly into efficient and reliable code.

The design of the data requirements

The design of the data requirements is *entirely appropriate*. The student has provided a clear and structured data dictionary that details tables, fields, data types, and descriptions. The naming conventions are *thoroughly appropriate and consistent*. The design effectively models all the data needed for the solution in a logical and organised manner.

Variable name	Data Type	Data Format	Purpose	Error handling
name	String	"[redacted]"	To get the user's name for account creation	Invalid name not matching name requirements is not processed and error message is displayed "Inputted name does not meet the requirements"
email	String	"[redacted]@gmail.com"	To get the user's email address for account creation	Invalid email format not matching email requirements is not processed and error message is displayed "Inputted email does not meet the requirements"

Why was a Distinction awarded? The data requirements are comprehensive, transparent, and ready for implementation, meeting the Band 3 criteria. The student has demonstrated a thorough understanding of effective database design.

Test strategy

The test strategy demonstrates a *thorough and detailed understanding* of quality assurance. The student outlines a comprehensive plan that covers different test types and specifies the use of normal, erroneous, and extreme test data. The strategy is well-structured and provides enough detail for a third party to execute the tests effectively

Date of test	Component to be tested	Type of test to be carried out	Prerequisites and dependencies
17/03/2025	Navigation bar	White box -> Black box -> Integration testing	Navigation bar code must have all the links to pages within and when user clicks on a page on the bar it should take them to the page. Must also be on all pages across site
17/03/2025	Footer	White box -> Black box -> Integration testing	Footer code must have all the links to pages within and when user clicks on a page on the footer it should take them to the page. Must also be on all pages across site
17/03/2025	Account registration	Integration testing	Back-end must be available to store & validate user's detail
17/03/2025	Account registration	Black box -> White box	User's inputted details must be required first before sending to back-end for processing.

Why was a Distinction awarded? The test strategy is robust, comprehensive, and practical, aligning perfectly with the Band 3 criteria. It shows that the student is not just thinking about building the solution, but also about how to ensure it is of high quality.

Quality of communication

Distinction Commentary
The communication of the design is *consistently effective*. The documentation is professionally presented, well-structured, and uses clear and appropriate technical language throughout. The use of annotated diagrams and a logical flow of information makes the entire submission easy to understand for both technical and non-technical audiences.

Why was a Distinction awarded? The submission is exemplary in its clarity and professionalism, meeting the Band 3 criteria. It effectively communicates a complex technical plan in a clear and accessible manner.

2.0 Task 2: Developing the Solution

2.1 Functionality
(Distinction – Band 4) The Students' prototype demonstrates consistently efficient functional code across multiple languages (HTML, CSS, JavaScript). The core feature, a bespoke calculator, employs precise logic for its calculations and robust validation to accurately handle user inputs. The outcome is a solution with consistently correct outputs that is free from significant errors. This aligns perfectly with the Band 4 descriptor requiring 'consistently efficient functional code' and 'precise logic and programming structures throughout'.

2.2 Code Organisation

(Distinction – Band 4) Students' code is easily maintainable. It is logically organised into distinct functional blocks, uses consistently appropriate naming conventions for variables and functions (annualEnergyEmissions, KWH_TO_CO2E), and features informative comments that explain the purpose of the code. This directly meets the Band 4 requirement for code that is 'easily maintainable by a third party through the use of consistently appropriate: naming conventions, logical organisation, informative commenting'.

```
<!-- container for electricityusage session -->
<?php
  if (isset($_SESSION["electricityusage"])){
    $electricityusage = $_SESSION["electricityusage"];
    ?>

    <div class="co2container"><b>CO2 from housing electricity: </b><?php echo $electricityusage,"Kg"; ?></div>
    <?php
    }
    ?>

<!-- container for heatingFuleTypes session -->
  <?php
  if (isset($_SESSION["heatingFuleTypes"])){
    $heatingFuleTypes = $_SESSION["heatingFuleTypes"];
    ?>

    <div class="co2container"><b>CO2 from heating: </b><?php echo $heatingFuleTypes,"Kg"; ?></div>
    <?php
    }
    ?>

<!-- container for carfuleTypes session -->
  <?php
  if (isset($_SESSION["carfuleTypes"])){
    $carfuleTypes = $_SESSION["carfuleTypes"];
    ?>

    <div class="co2container"><b>CO2 from car travel: </b><?php echo $carfuleTypes,"Kg"; ?></div>
    <?php
    }
    ?>

<!-- container for co2Waste session -->
  <?php
  if (isset($_SESSION["co2Waste"])){
```

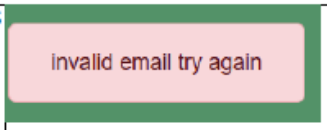
2.3 User Experience

(Distinction – Band 4) An excellent user experience is provided through the consistently effective use of input handling, user guidance, and outputs. The calculator form is intuitive, provides immediate visual feedback when fields are selected, and uses precise error handling to guide the user. The solution is fully robust and effectively handles both familiar and unexpected errors, such as entering text into a number field. This is a clear example of a Band 4 submission.

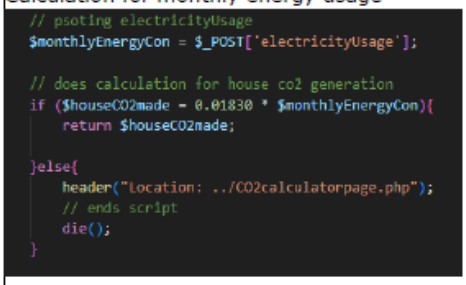
3.0 Task 2: Testing

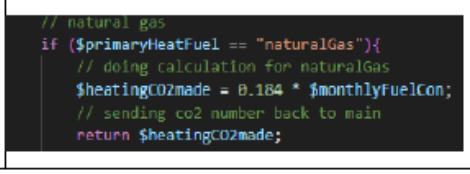
3.1 Suitability of Test Data

(Distinction – Band 3) The test log demonstrates a thorough and detailed understanding of how to test a solution effectively. He has used a comprehensive range of test data, including normal, erroneous (invalid), and extreme (boundary) values. This allowed him to test not just the positive paths but also the system's validation and error handling capabilities, aligning perfectly with the Band 3 criteria.

<table>
<tr>
<td>4.6.3
Reisterpage.php</td>
<td>user@website</td>
<td>emailVal=FALSE</td>
<td>emailVal=FALSE</td>
<td> 
</td>
</tr>
<tr>
<td>5.1
CO2calcalations.php</td>
<td>10
Natural gas
10</td>
<td>0.183

1.84</td>
<td>0.183

1.84</td>
<td>0.183
1.84
Calculation for monthly energy usage
 

Calculation for natural gas
 
</td>
</tr>
</table>

3.2 Use of Testing to Inform the Iterative Development Process

(Distinction – Band 3) The test log provides clear evidence of an effective iterative development process. Test IDs 4 and 4.1 show a complete development cycle: a bug was identified, the cause was diagnosed, a fix was implemented, and regression testing was performed to ensure the fix was successful and had not introduced new problems. This is precisely what is required to meet the Band 3 descriptor, 'Testing shows evidence of an effective iterative development process'.

4.0 Task 2: Documentation

4.1 Quality of the Iterative Development Process

(Distinction – Band 3) The documentation provides a clear and detailed narrative of the project's evolution. The evaluation offers a Convincing and perceptive rationale for the next steps. By identifying the limitation of using a single emission factor and proposing an API integration as a solution, the student demonstrates a sophisticated understanding of their project's context and potential. This aligns directly with the top-band criteria.

Task 3a Overall Grade: Distinction

This work is a comprehensive and highly effective response to the task brief. The student has demonstrated a strategic and professional approach to planning, creating, and analysing feedback from a range of stakeholders. The process is well-documented, the materials are expertly tailored, and the resulting analysis is perceptive, providing a solid foundation for the next stage of development. This submission fully meets the criteria for the Distinction grade band.

Assessment Focus: Effectiveness of materials to support the feedback process

The materials created are of a professional standard and have been expertly designed to gather **high-quality, detailed feedback** on all key aspects of the prototype.

The student has demonstrated a sophisticated understanding of the need for audience-specific feedback by creating two distinct questionnaires: one for a **non-technical audience** and one for a **technical audience**.

- The **non-technical questionnaire** effectively focuses on user experience, with questions covering the overall design, colour scheme, ease of use of the account and booking systems, and accessibility features. The use of rating scales combined with mandatory open-ended questions, such as *'Explain*

- *The student's answer* ensures that the feedback is not just superficial but captures the reasoning behind user opinions.
- The **technical questionnaire** is expertly targeted, asking programmers to evaluate code maintainability, adherence to PEP 8 standards, security vulnerabilities such as client-side business logic, and efficiency principles like the DRY principle (Don't Repeat Yourself). This dual-pronged approach enables a comprehensive evaluation of the project, encompassing both front-end usability and back-end integrity.

This strategic separation ensures that the feedback gathered is highly relevant and insightful, providing a rich dataset for analysis and informed decision-making.

Assessment Focus: Use of appropriate feedback tools to support the gathering of effective feedback
The student has selected and used a range of appropriate tools and methods that **consistently provide the opportunity for evidence-informed further iteration**.

The feedback plan clearly outlines an approach that goes beyond simple questionnaires, incorporating:

1. **User Observations:** Observing users attempting specific challenges, such as creating *a booking* or *calculating their carbon footprint*, to identify pain points provides invaluable qualitative data on usability.
2. **Paired Coding Reviews:** Engaging with programmers for direct code reviews is an excellent method for gathering expert technical feedback, which is evident in the detailed technical questionnaire.
3. **Screen Recordings and Demonstrations:** Providing users with a demonstration video before they interact with the site ensures they understand its full scope, leading to more informed feedback.

The use of Microsoft Forms is appropriate for gathering questionnaire data, and the student's analysis demonstrates effective use of the tool's built-in data visualisation features, such as graphs and charts. Crucially, the student has not just presented this data but has synthesised it with qualitative feedback to produce a detailed and structured analysis.

Feedback Report: Task 3b - Evaluation (Distinction Level)

Overall Grade: Distinction
This evaluation report is an outstanding piece of work that comprehensively and perceptively analyses the developed prototype. The student has skilfully synthesised project outcomes with the detailed feedback gathered in the previous task to produce a strategic and well-supported plan for future development. The report demonstrates a mature understanding of the entire development lifecycle, from initial requirements to iterative improvement. This submission confidently meets all the criteria for the Distinction grade band.

Assessment Focus: Effectiveness of assets and content

The report provides a **comprehensive review of the effectiveness of the content selected**, including a thorough consideration of its appropriateness, validity, reliability, and the associated legal and ethical implications.

- **Appropriateness and Justification:** The student provides clear justification for the chosen assets, explaining how images of solar panels and electric vehicle charging stations align with the client's brand as a green technology company. The reasoning extends to the use of frameworks like Django and Bootstrap, explaining why these were appropriate technical choices for the project.

- **Validity, Reliability, and Corroboration:** The review is well-supported by **adequate consideration, comparison, and corroboration across multiple sources**. The student demonstrates excellent academic and professional practice by:

    - Acknowledging the use of AI for generating text and the crucial step of fact-checking this information against other online sources.
    - Detailing how the formulae for the calculators were researched, sourced, and then cross-referenced with other online calculators to verify their accuracy.
    - Identifying the sources of copyright-free assets, such as Pixabay, demonstrates an understanding of asset provenance.

- **Legal and Ethical Implications:** The student addresses the legal and ethical dimensions of the project with considerable depth and detail. There is a thorough discussion of GDPR and data.

  Protection is evidenced by the implementation of a privacy policy and the user's right to account deletion. The report also thoughtfully considers the ethical use of AI-generated content and the responsible adaptation of code snippets from public forums, such as Stack Overflow, rather than simply copying them.

Assessment Focus: Evaluation of project outcomes

The report presents a **thorough and detailed evaluation** of how well the prototype meets its objectives, supported by a **convincing and perceptive rationale for future iterations**.

- **Evaluation Against Requirements:** The student systematically evaluates the prototype against the initial functional and non-functional requirements. Each point, from the booking system and account management to security and accessibility, is addressed with specific examples from the

prototype, demonstrating how the requirement was met. The evaluation of User Acceptance Criteria is equally detailed and directly linked to the implemented features.

- **Perceptive Rationale for Future Iteration:** The rationale for future development is powerful because it is directly and explicitly driven by the feedback gathered in Task 3a. The student provides **convincing and perceptive** suggestions that go beyond superficial fixes. For instance:
    - The proposal to move calculator processing from the client-side to the backend is a direct and intelligent response to technical feedback regarding security and scalability, demonstrating a deep understanding of software architecture principles.
    - Suggestions to improve the user experience, such as adding graphical outputs for calculators, introducing a calendar for date selection, and improving the colour scheme, are all directly tied to specific user comments and ratings.

- **Perceptive Use of Evidence:** Throughout the evaluation, the points made are supported by an **entirely relevant and perceptive selection of examples and consideration of feedback**. The student has effectively embedded screenshots, data charts, and user comments from their feedback analysis directly into this evaluation report. This creates a powerful and convincing narrative, clearly showing how user feedback has been meticulously analysed to inform a strategic and targeted plan for the next development cycle.