

Digital Production, Design and Development

Project brief for Design, development and implementation



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Introduction

This student brief has been designed to support your preparations for the **Occupational Specialism** for the T Level in Digital Production, Design and Development. There are four tasks for you to undertake. These may be completed in sequential order (Task 1, followed by Task 2, and so on) or individually as stand-alone tasks to support specific areas of the occupational specialism.



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The four tasks included in this student brief are:

Task 1: Analysing the problem and designing a solution

Task 2: Developing the solution

Task 3a: Gathering feedback to inform future development

Task 3b: Evaluating feedback to inform future development

Support materials including templates for the tasks are also included and are accessible through hyperlinks in the relevant sections of the brief.

Project scenario



You work for the **Raspberry Pi Foundation** as a software engineer and collaborate with a team of developers to design, create, and maintain online content for different educational programmes.

As part of this role, you have been asked to work on a project for CoderDojo, which is a global movement of coding clubs run by volunteers for young people (aged 7-17).

CoderDojo clubs (**Dojos**) offer a space for young people to explore technology and coding in an informal, creative, safe, and social environment.

CoderDojo believes that:

- An understanding of programming languages is important in today's world
- It is easier to learn these computing skills early
- Everyone should have the opportunity to learn to code



The business need

The Raspberry Pi Foundation runs a Dojo at its headquarters in Cambridge once a month.

These sessions are extremely popular and recently the sessions have had too many young people turn up. The organiser of the Dojo would like to set up a booking system which requires participants to book their place at the Dojo before the session. The system should allow users to cancel a booking if they are no longer able to attend a session to ensure that spaces can be reallocated if available.



The organiser of the Dojo wants an online digital solution developed that:

- 1. Allows the organiser to set and publish the date and time of upcoming Dojo events**
- 2. Allows a user to book a place at one of the upcoming Dojo events**
- 3. Allows a user to cancel a booking if it is no longer required**
- 4. Allows a user to join a waiting list if the event is already fully booked**

During the Dojo event, a number of activities are provided, and young people can choose which activities they would like to try. This causes some challenges, as it is difficult to know in advance of the sessions what activities the attendees will choose, and therefore the resource requirements for each session (for example, the number of devices needed, the amount of space needed, etc). The organiser would potentially like the system to:

- 5. Allow the organiser to list the activities that will take place during the Dojo event**
- 6. Prompt the user to select (in order of preference) three activities they would like to do during the Dojo event**
- 7. Create user accounts to speed up the booking process**

You can learn more about the business need and project requirements in this [video](#).

Task 1: Analysing the problem and designing a solution

1a. Research

In preparation for developing a solution for the Dojo, you should carry out research to explore existing or potential solutions. You should consider the functionality of these existing solutions and whether or not they would meet the needs of the project brief.

Your research should also allow you to investigate the legal and regulatory considerations that are applicable to the context and environment of the project brief. Any notes produced in this research should be submitted as an appendix.

You will then use this research to create a detailed proposal.

1b. Proposal

You should produce a proposal which:

1. Introduces the business context
2. Identifies and clearly defines the problem
3. Defines the functional and non-functional requirements of the solution
4. Defines the key performance indicators (KPIs) of the solution
5. Justifies how the recommended solution meets the needs of the clients and users
6. Justifies the potential risks and how these will be mitigated
7. Describes in detail the proposed solution

8. Describes how relevant regulatory guidelines and legal requirements in relation to software development will be addressed

The solution you identify must be of enough complexity to demonstrate the ability to code and implement it in at least two languages that would be able to handle both front- and back-end processes.

The proposal should be presented as a document that has clear headings for each of the eight areas above.

1c. Design documentation

Your design documentation should clearly explain and illustrate the proposed solution. The design documentation should include:

- [Interface designs](#)
- [Algorithm designs](#)
- [Test strategy](#)

Your design documentation should allow the organiser of the Dojo to have a strong understanding of the proposed solution and be able to make informed decisions about the future development of the solution. Your design documentation should also communicate the proposed solution in a way that is suitable for both technical and non-technical audiences.

Your design documentation should be clear enough that it could be passed on to a third-party developer or design team in order to implement the solution.

Your test strategy should include plans for functional and non-functional testing and identify a range of appropriate test data. You can find a [template for this here](#).

In summary, there are three subtasks in Task 1:

- 1a. Research to explore existing and possible solutions (in an appendix for the proposal)
- 1b. Proposal (presented as a document that has clear headings for each area)
- 1c. A set of design documents that includes a test strategy

Task 2: Developing a solution

The organiser of the Dojo has approved your design and your manager has asked you to start developing a working prototype of the solution.

2a. Develop a functional prototype

When creating your functional prototype, you need to ensure you:

1. Implement your solution using at least two appropriate programming languages to implement front- and back-end processes
2. Select and use appropriate packages, modules, and libraries to add functionality and compatibility to your solution
3. Use common coding conventions and follow good practice when developing your solution
4. Follow legal and regulatory guidelines and standards ensuring a high-quality user experience

2b. Asset log

You should gather and prepare a range of appropriate assets for your prototype.

You should record the source, terms of use, and clear rationale for any assets used in your solution in your [asset log](#).

2c. Testing

You should provide evidence that you have iteratively tested and refined your solution during the development of the prototype.

You should provide a range of test data and conditions and demonstrate how these have been used to test your prototype.

You should document the iterative development process of your prototype and update your [test strategy](#) with actual tests completed to show an understanding of how to use appropriate test data in test inputs, calculations, validations, and processes.

In summary, there are three subtasks in Task 2:

- 2a. Prototype (presented as key versions for submission)
- 2b. Asset log (using the template provided)
- 2c. Updated test strategy (using the template provided)

Task 3a: Gathering feedback to inform future development

3a(i). Plan for gathering feedback

As part of your solution you need to develop a plan for how you will gather feedback on your prototype to support the planning for next steps.

Your plan should outline the audience that feedback will be collected from, the methods that will be used, the timescales for this, and any contingency planning you think may be useful. This may include speaking to your peers, industry placement organisation, employers, or other stakeholders.

As part of this plan you will need to develop a range of materials that will support you in gathering feedback.

3a(ii). Collect feedback or demonstrate for technical/non-technical audiences

You need to use the materials you have developed to collect feedback from both technical and non-technical audiences.

You should prepare and carry out a series of demonstrations that will reassure the client that your solution meets the requirements of the business need.

You should [record the feedback](#) in a suitable format so that it can be shared and used to inform future development of the proposed solution.

In summary, there are two subtasks in Task 3a:

- 3a(i). Create a plan to gather feedback on your prototype
- 3a(ii). Design a feedback form(s) and collect feedback on your prototype

Task 3b: Evaluating feedback to inform future development

Now that you have developed your prototype and have gathered feedback from different audiences, you need to write an evaluation to explain how the digital solution meets the needs of the client and the KPIs outlined in their business need.

3b(i). Evaluation

Produce an evaluation of the effectiveness of the prototype you have developed by completing this [template](#). It should consider:

1. The effectiveness of the assets and content used
2. Why the chosen assets were used and why some were rejected
3. The validity and reliability of sources used
4. Any legal or ethical implications of assets and content used
5. How well the solution meets the functional and non-functional requirements of the brief
6. How well the solution meets the KPIs in the business need
7. Whether or not the solution meets the user acceptance criteria

3b(ii). Present your design

The organiser of the Dojo would like you to talk through your design and recommendations for future development. You should prepare a presentation that:

1. Demonstrates your design solution
2. Recommends how the solution could be developed further
3. Explains how the design could be adapted if there are changes in:
 - o The business need or processes
 - o Technology and need for compatibility
 - o Regulatory requirements

In summary, there are two subtasks in Task 3b:

- 3b(i). Complete the evaluation (using the template provided)
- 3b(ii). Present your overall findings to demonstrate your digital solution, and how it can be developed further and adapted