

BCS Digital Modular Programme Level 4 Software Developer

Learner Guide: Synoptic Project Brief

Are you ready for the synoptic project?

Well done for all of your hard work so far on the Digital Modular Programme (DMP). It's now time to begin planning and preparing your synoptic project. This is your opportunity to apply everything you have learned so far, and we want to make sure that you are as prepared as possible.

Within this document, you will find information about the requirements and format of this part of the assessment for this Level 4 Software Developer module.

NB: This **project** is part of the mandatory assessment strategy for all qualifications in the DMP suite of qualifications. This project **will not be required** by learners accessing any element of the DMP as part of an Apprenticeship.

Overview of the synoptic project

Working in a project-based environment, software developers work through the software development lifecycle to develop a software solution which meets the customer and end user requirements.

The project will enable learners to demonstrate their ability to design, build and test a software solution which fulfils the given requirements. It requires learners to draw upon experience gained during their day-to-day work or training and design a project to address a software development task that is relevant to their role, or an alternative approach for learners who are not currently working in a software development role.



Top tip: Start with the end in mind! We encourage learners to familiarise themselves with the project early on in their DMP journey and to think about areas or topics that they might like to explore further in their project.

What should I write about?

The project focus and title are flexible – any project can be considered, **provided** that it permits adequate coverage of the mandatory skills and behaviour requirements.

The project should address a specific problem, recurring issue or idea/opportunity and be focused on at least one of the following:

1. **A real-world business solution.** This is where the project is focused on a real-work situation, either live client work (which can be anonymised) or where this forms part of a larger-scale or wider focused business activity.
2. A simulated activity using a **sample set of requirements provided by BCS.** This activity has been specifically designed to give learners an authentic experience of the data workplace.

Both of these options are available to learners currently working in a software developer role, or those currently working or studying in a non-software developer role.

How should I structure my work?

The suggested content flow for your project is:



How long will the project take?

The project must represent a substantial piece of work; as such, the time requirement for this part of the assessment is 30 hours. These hours are included in the Total Qualification Time (TQT) of 320 hours.

A word limit of **3500 words** applies to your project, with a 10% tolerance either way. Any additional reports, surveys or supporting documentation can be included as an annex, which would not contribute to the overall word count.

What should I submit?

To ensure thorough coverage of the required skills and behaviours, the files you submit for your project should reference the Software Development Lifecycle throughout, and should contain:

- An introduction
- Details of the project scope
- Details of the planning and design activities undertaken
- Samples of the code you have developed
- Evidence of consideration of legislation or industry standards
- Details of the testing undertaken
- A conclusion explaining the final solution and any improvements you would make

How will I submit my work?

Your project must be submitted electronically and contain notes and guidance for the assessor so that they can easily identify where you have met the learning objectives and assessment criteria in your work. The final submission must be in a format that is straightforward to access, so that your work can be assessed against the stated criteria – these might include PowerPoint, Word, PDF or Excel.

What will I need to demonstrate to pass this assessment?

In order to pass this assessment, the learner will be required to demonstrate within their project report how they have met all of the following pass criteria:

- Applies clear and valid reasoning in order to create software which is logical, effective and uses appropriate algorithms and data.
- Selects and applies a suitable testing approach, following a stated methodology or framework.
- Proactively identifies and resolves problems, using algorithms where required.
- Displays understanding and creativity to design a fit for purpose solution using appropriate techniques.
- Identifies and applies a suitable development approach.
- Communicates information and the solution in a suitable way.
- Shows understanding of their role and the project environment.
- Demonstrates consideration and adhere to relevant guidelines, standards, legalities and regulations.



Important: Learners must meet all **Pass** criteria in order to pass the module.

Which skills and behaviours will I be able to demonstrate?

The table below demonstrates how each of the pass criteria aligns with the occupational standard and the related syllabi. This shows which parts of your learning will help you achieve the pass criteria and demonstrate the required skills and behaviours.

Pass criteria.	Occupational standard.	Syllabus reference.
Applies clear and valid reasoning in order to create software which is logical, effective and uses appropriate algorithms and data.	S1: create logical and maintainable code S16: apply algorithms, logic and data structures S2: develop effective user interfaces S3: link code to data sets S17: interpret and implement a given design whilst remaining compliant with security and maintainability requirements B2: applies logical thinking. For example, uses clear and valid reasoning when making decisions related to undertaking work instructions	Software Developer 7.2, 7.3, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11, 7.13 Digital Core 6.1, 6.2, 6.4
Selects and applies a suitable testing approach, following a stated methodology or framework.	S4: test code and analyse results to correct errors found using unit testing S5: conduct a range of test types, such as Integration, System, User Acceptance, Non-Functional, Performance and Security testing. S6: identify and create test scenarios S13: follow testing frameworks and methodologies	Software Developer 10.1, 10.2, 10.3

<p>Proactively identifies and resolves problems, using algorithms where required.</p>	<p>S7: apply structured techniques to problem solving, can debug code and can understand the structure of programmes to identify and resolve issues</p> <p>B6: Shows initiative for solving problems within their own remit, being resourceful when faced with a problem to solve.</p>	<p>Software Developer</p> <p>7.1</p>
<p>Displays understanding and creativity to design a fit for purpose solution using appropriate techniques.</p>	<p>S8: create simple software designs to effectively communicate understanding of the program</p> <p>S9: create analysis artefacts, such as use cases and/or user stories</p> <p>S12: follow software designs and functional/technical specifications</p> <p>B9: Demonstrates creativity and tenacity in their approach to solutions and the methods used to come to a solution for example, sees the task through to the end by devising new solutions and despite obstacles and problems along the way.</p>	<p>Software Developer</p> <p>9.1, 9.2, 9.3</p>
<p>Identifies and applies a suitable development approach.</p>	<p>S11: apply an appropriate software development approach according to the relevant paradigm (for example object oriented, event driven or procedural)</p>	<p>Software Developer</p> <p>4.1, 4.2, 4.3</p> <p>Digital Core</p> <p>6.1</p>
<p>Communicates information and the solution in a suitable way.</p>	<p>S15: communicate software solutions and ideas to technical and non-technical stakeholders</p> <p>B7: Communicates effectively in a variety of situations to both a technical and nontechnical audience.</p>	<p>Software Developer</p> <p>1.3, 2.3, 3.1</p> <p>Digital Core</p> <p>7.2</p>

Shows understanding of their role and the project environment.	<p>B1: Works independently and takes responsibility. For example, has a disciplined and responsible approach to risk, and stays motivated and committed when facing challenges</p> <p>B3: Maintains a productive, professional and secure working environment</p>	<p>Software Developer</p> <p>3.3, 3.4</p>
Demonstrates consideration and adhere to relevant guidelines, standards, legalities and regulations.	<p>B5: Acts with integrity with respect to ethical, legal and regulatory ensuring the protection of personal data, safety and security.</p>	<p>Software Developer</p> <p>1.4, 6.3</p> <p>Digital Core</p> <p>3.4, 3.6, 5.4</p>

Note that there are other skills and behaviours within the occupational standard - please refer to the standard for a complete list of knowledge, skills and behaviours.

Extra top tips for learners

Finally, here are our key pieces of advice for learners preparing their project:



1. Plan your time wisely – e.g. you should approach this piece of work as if it were a real-life project.
2. Document what you do – e.g. some activities may not work as planned or intended, but this does not mean that they are not worth writing about. For example, you might like to discuss why they failed, what you learned and how this impacted your next steps?
3. Use tools that you are familiar with – e.g. do not be tempted to use new or unfamiliar tools for the project, as this could waste time.
4. Don't be afraid to make assumptions – e.g. your requirements may be open or broad, you can choose to take this forward in the direction of your choosing, without undertaking further requirements elicitation, to save time.
5. Show your thought process – e.g. think about how you have used logic or problem-solving techniques to approach and break down a problem. Make sure you document this!

You can find more information in the [DMP Level 4 Software Developer Syllabus](#) or the [DMP Qualification Guide](#).

Good luck!