

Student Assignment Brief

**This document is intended for Coventry University Group students for their own use in completing their assessed work for this module. It must not be passed to third parties or posted on any website. If you require this document in an alternative format, please contact your Module Leader.**

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The work you submit for this assignment must be your own independent work, or in the case of a group assignment your own groups’ work. More information is available in the ‘[Assignment Task](#_Assignment_Task)’ section of this assignment brief.

# Assignment Information

**Module Name:** Problem Solving and Programming

**Module Code:** 403IT

**Assignment Title:** CW2 Portfolio

**Assignment Due:** 21st February 2025 18:00

**Assignment Credits:**  20 Credits

**Assignment Type:** Portfolio

**Percentage Grade** (Applied Core Assessment). You will be provided with an overall grade between 0% and 100%. You have one opportunity to pass the assignment at or above 40%. Resit attempts will be capped at 40%

# Assignment Task

**Introduction**

In this assignment, you are tasked with developing a professional portfolio to demonstrate your understanding and knowledge of problem-solving and programming.

Your portfolio should be a selection from the programming projects outlined below which illustrates your skills in the software development lifecycle (SDLC). That is problem analysis, algorithm design, solution implementation and testing.

Demonstrate proficient use of the Python high-level programming language. This portfolio will stand as proof of your capability to use problem-solving approaches and apply core programming principles to address varied challenges.

Please select and complete at least two of the six tasks and expand to include graphical user interfaces (GUI), functions, graphs (histogram, bar chart or pie chart), classes and object-oriented concepts, all for inclusion in your portfolio:

1. **Temperature Converter:** Develop a program that converts temperatures from Fahrenheit to Celsius and vice versa. The user should be able to input the temperature and select the conversion they wish to perform.
2. **Basic Calculator:** Create a simple calculator that can perform basic arithmetic operations (addition, subtraction, multiplication, division). The program should allow the user to input two numbers and it should perform the operation.
3. **Palindrome Checker:** Write a Python script that checks if a given string is a palindrome. A palindrome is a word, phrase, number, or other sequences of characters that reads the same forward and backward (ignoring spaces, punctuation, and capitalisation).
4. **Contact Book:** Design a Python application that can store, retrieve, and update contact details (name, phone number, and email address) of individuals. Implement functionalities to add new contacts, search for specific contacts, and delete contacts.
5. **Tip Calculator:** Write a program to manage an order and calculate a tip. Add additional features such as add new order, delete order, edit order etc.
6. **To-do List Manager:** Write a program that helps users manage their tasks. It should allow users to add new tasks, mark tasks as completed and delete tasks from the list.

**Submission requirements:**

Your portfolio should clearly document your selected task(s), including the problem statement, your solution approach, the Python code, and a brief discussion of the results. Ensure that your code is well-commented and adheres to standard coding practices.

**Professional Portfolio (2000 words total) – 100%**

1. **Introduction:** Provide an overview of your portfolio, explaining the purpose and goals of the tasks included. (10%)
2. **Problem Solving Technique:** Choose at least two of the tasks above stating the problem-solving techniques to be used, breaking down the problems into smaller components and then in each case discuss the requirements analysis stage of the SDLC, using tools such as mind maps and use case diagrams. (20%)
3. **Algorithm Design and Generalised Problem Solutions:** Present the algorithms in text format, pseudocode and flowcharts to solve the problems. Additionally, demonstrate how you can modify or generalise the algorithms e.g. using object-oriented concepts such as inheritance to handle similar problems
4. **Programming Language Concepts:** Write the Python code for the selected tasks to showcase your understanding of programming language concepts. Explain key syntax elements, classes, functions, data structures, control structures, and loops you used in your programs. (20%)
5. **Software Development:** Describe the software development process e.g. Agile or Waterfall that you followed while solving the selected tasks. Discuss the steps you took in analysing, designing, implementing, testing, and debugging the programs. Include a video demonstration of your developed applications e.g. record a 5-minute demonstration on MS Teams, or any screen recording tool of your choice and then upload the video recording to the Aula Artefact HandIn Submission Link. (20%)
6. **Conclusion:** Reflect on the overall experience of creating the portfolio of developed applications. Discuss the most significant insights gained, challenges encountered, and how this module has enhanced your problem-solving and programming skills. (10%)

**Submission Instructions:**

**What do I need to submit?**

**Professional Portfolio 2000 words total**

program files along with video recording/s in Aula (HandIn).

Your document should be formatted according to the university's guidelines for written assignments (e.g., font type (Calibri or Arial), font size (12), line spacing (1.5), and referencing style (APA Version 7).

Ensure you use the CU Group standard report template for your campus presenting your work with the Module Name and Code, also an appropriate Title, along with an abstract, and your Student ID.

This report will demonstrate your understanding of problem-solving and programming. It is essential to approach this task with ethical considerations in mind and avoid any illegal or unethical activities. Use scholarly sources of research citing and referencing them properly.

The report must be submitted as a single **Microsoft Word document** via the AULA Turnitin link for this assignment. The file should be named with your Student Number, the Module Code and the Assessment Number:

(e.g. 1234567\_403IT\_CW2.docx).

NB: Video Recordings - Ensure videos are optimized to reduce the file size of the recordings. The file should be named with your Student Number, the Module Code and the Assessment Number appended with “Video”:

(e.g. 1234567\_403IT\_CW2\_Video.docx).

This is an individual assignment. Each student must submit their own work. Group / team submissions are not permitted!

Be sure to keep backup copies of your submission. Please ensure that you upload your work to reflect your Campus location e.g. CUP for Poland, CUL for CU London and CUS for CU Scarborough.

# Marking and Feedback

**How will my assignment be marked?**

Your assignment will be marked by the module team.

**How will I receive my grades and feedback?**

Provisional marks will be released once submissions are internally moderated.

Feedback will be provided by the module team alongside grades release.

After marking is completed, you can access your marked work and feedback by clicking on the submission link. Feedback will be provided in the Turnitin viewer and mark distributions will show you where marks were awarded or deducted. If you are unsure how to access your feedback, please ask your tutor for clarification.

Your provisional marks and feedback should be available within 2 weeks (10 working days).

**What will I be marked against?**

Details of the marking criteria for this task can be found at the [bottom of this assignment brief](#_Assessment_Marking_Criteria).

# Assessed Module Learning Outcomes

The Learning Outcomes for this module align to the [marking criteria](#Marking_Rubric) which can be found at the end of this brief. Ensure you understand the marking criteria to ensure successful achievement of the assessment task. The following module learning outcomes are assessed in this task:

1. Deploy a range of problem-solving techniques.
2. Create algorithms to solve specific and generalised problems expressing them in a suitable manner to enable a programmed solution to be developed.
3. Demonstrate an understanding of the fundamentals of software development and the syntax and control structures of a high-level programming language.
4. Design, implement, test and debug programmes to solve defined problems, using appropriate tools and techniques and present them in a professional manner.

# Assignment Support and Academic Integrity

If you have any questions about this assignment, please see the [Student Guidance on Coursework](https://share.coventry.ac.uk/students/Registry/Pages/Coursework.aspx) for more information.

### Spelling, Punctuation, and Grammar:

You are expected to use effective, accurate, and appropriate language within this assessment task.

### Academic Integrity:

The work you submit must be your own, or in the case of groupwork, that of your group. All sources of information need to be acknowledged and attributed; therefore, you must provide references for all sources of information and acknowledge any tools used in the production of your work, including Artificial Intelligence (AI). We use detection software and make routine checks for evidence of academic misconduct.

Definitions of academic misconduct, including plagiarism, self-plagiarism, and collusion can be found [on the Student Portal](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fshare.coventry.ac.uk%2Fstudents%2FRegistry%2FPages%2FEssential-definitions.aspx&data=05%7C01%7Cab5576%40coventry.ac.uk%7C96dc42ffe3484dd999e808db0e964c5d%7C4b18ab9a37654abeac7c0e0d398afd4f%7C0%7C0%7C638119810903032146%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=%2FggkmIN9ZackqogiKZxEXKYD3QaXAk0jCME%2F1ne82YU%3D&reserved=0). All cases of suspected academic misconduct are referred for investigation, the outcomes of which can have profound consequences to your studies. For more information on academic integrity please visit the [Academic and Research Integrity](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fshare.coventry.ac.uk%2Fstudents%2FRegistry%2FPages%2FAcademic-and-Research-Integrity.aspx&data=05%7C01%7Cab5576%40coventry.ac.uk%7C96dc42ffe3484dd999e808db0e964c5d%7C4b18ab9a37654abeac7c0e0d398afd4f%7C0%7C0%7C638119810903032146%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=%2BPYuaO%2FDqY2x3ajLRlKjxHoEvTPzEqm%2B8wuQ%2FMvxlZk%3D&reserved=0) section of the Student Portal.

### Support for Students with Disabilities or Additional Needs:

If you have a disability, long-term health condition, specific learning difference, mental health diagnosis or symptoms and have discussed your support needs with health and wellbeing you may be able to access support that will help with your studies.

If you feel you may benefit from additional support, but have not disclosed a disability to the University, or have disclosed but are yet to discuss your support needs it is important to let us know so we can provide the right support for your circumstances. Visit [the Student Portal](https://livecoventryac.sharepoint.com/sites/students-healthandwellbeing/SitePages/Disabilities.aspx) to find out more.

### Unable to Submit on Time?

The University wants you to do your best. However, we know that sometimes events happen which mean that you cannot submit your assessment by the deadline or sit a scheduled exam. If you think this might be the case, guidance on understanding what counts as an extenuating circumstance, and how to apply is [available on the Student Portal.](https://livecoventryac.sharepoint.com/sites/students-registry-extensions-deferrals/SitePages/CU-Extensions-and-Deferrals-Guidance.aspx)

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# Administration of Assessment

**Module Tutor Name:** As per Campus

**Module Tutor Email:** As per Campus

**Assignment Category:** Written

**Attempt Type:** Standard

**Component Code:** CW2

## Assessment Marking Criteria

**Coventry University Generic Assessment Criteria: Undergraduate**

|  |  |  |
| --- | --- | --- |
| **Mark band** | **Outcome** | **Guidelines** |
| 80-100%  1st | Meets learning outcomes | 1st - Exceptional work with very high degree of understanding, creativity, and critical/analytic skills. Evidence of exceptional research well beyond minimum recommended using a range of methodologies. Exceptional understanding of knowledge and subject-specific theories. Demonstrates creative flair, a high degree of originality and autonomy.  Exceptional ability to apply learning resources. Demonstrates well-developed problem-solving skills. Work completed with very high degree of accuracy and proficiency and autonomy. Exceptional communication and expression, significant evidence of professional skill set. Student evidences deployment of a full range of exceptional technical, including proficiency in the English Language, and/or artistic skills. |
| 70-79%  1st | 1st - Excellent work with clear evidence of understanding, creativity and critical/analytical skills. Thorough research well beyond the minimum recommended using methodologies beyond the usual range. Excellent understanding of knowledge and subject-specific theories with evidence of considerable originality and autonomy.  Excellent ability to apply learning resources. Demonstrates consistent, coherent substantiated argument and interpretation. Demonstrates considerable creativity and clear problem-solving skills. Assessment completed with accuracy, proficiency, and considerable autonomy. Excellent communication and expression, some evidence of professional skill set. Student evidences deployment of a highly developed range of technical, including proficiency in the English Language, and/or artistic skills. |
| 60-69%  2:1 | 2:1 - Very good work demonstrating strong understanding of theories, concepts and issues with clear critical analysis. Thorough research, using established methodologies accurately, beyond the recommended minimum with little, if any, irrelevant material present. Very good understanding, evidencing breadth and depth, of knowledge and subject-specific theories with some originality and autonomy.  Very good ability to apply learning resources. Demonstrates coherent substantiated argument and interpretation. Demonstrates some originality, creativity and problem-solving skills. Work completed with accuracy, proficiency, and autonomy. Very good communication and expression with evidence of professional skill set. Student has a thorough command of a good range of technical, including proficiency in the English Language, and/or artistic skills. |
| 50-59%  2:2 | 2:2 - Good understanding of relevant theories, concepts and issues with some critical analysis. Research undertaken accurately using established methodologies, enquiry beyond that recommended may be present. Some errors may be present and some inclusion of irrelevant material. Good understanding, with evidence of breadth and depth, of knowledge and subject-specific theories with indications of originality and autonomy.  Good ability to apply learning resources. Demonstrates logical argument and interpretation with supporting evidence. Demonstrates some originality, creativity and problem-solving skills but with inconsistencies. Expression and presentation mostly accurate, proficient, and conducted with some autonomy. Good communication and expression with appropriate professional skill set. Student consistently demonstrates a well-developed range of technical, including proficiency in the English Language, and/or artistic skills. |
| 40-49%  3rd Class | 3rd - Meet the learning outcomes with a basic understanding of relevant theories, concepts and issues. Demonstrates an understanding of knowledge and subject-specific theories sufficient to deal with concepts. Assessment may be incomplete and with some errors. Research scope sufficient to evidence use of some established methodologies. Some irrelevant material likely to be present.  Basic ability to apply learning resources. Demonstrates ability to devise and sustain an argument. Demonstrates some originality, creativity and problem-solving skills but with inconsistencies. Expression and presentation sufficient for accuracy and proficiency. Sufficient communication and expression with basic professional skill set. Student demonstrates technical, including a basic level of proficiency in the English Language, and/or artistic skills. |
| 30-39%  Fail | Fails to achieve learning outcomes | Fail – Outcomes not met. Limited understanding of relevant theories, concepts and issues. Little evidence of research and use of established methodologies. Some relevant material will be present. Deficiencies evident in analysis. Fundamental errors and some misunderstanding likely to be present.  Limited ability to apply learning resources. Student’s arguments are weak and poorly constructed. Limited originality, creativity, and struggles with problem-solving skills. Expression and presentation insufficient for accuracy and proficiency. Insufficient communication and expression and with deficiencies in professional skill set. Student demonstrates some deficiencies in technical, including in their use of the English Language, and/or artistic skills. |
| 0-29%  Fail | Fail – Outcomes not met. Clear failure demonstrating very little understanding of relevant theories, concepts and issues. Minimal evidence of research and use of established methodologies and incomplete knowledge of the area. Serious and fundamental errors and aspects missing.  Very little evidence of ability to apply learning resources. Student’s arguments are very weak and with no evidence of alternative views. Little evidence of originality, creativity, and problem-solving skills. Expression and presentation deficient for accuracy and proficiency. Insufficient communication and expression and with deficiencies in professional skill set. Student demonstrates a lack of technical, including in their use of the English Language, and/or artistic skills. |