Ofqual QAN	**610/6138/4**
Quartz ID	**2332**
Qualification	**Level 2 Diploma in Computing**

Unit ID	**2334**
Assessment	**Computational Problem Solving**
Assessment Type	**Global Assignment**
Assessment Cycle	***Sample Assignment***

Assignment title:
Lost Pet Finder App

Important notes

- Please refer to the *Assignment Presentation Requirements* for advice on how to set out your assignment. These can be found on the NCC Education website. Hover over ‘About Us’ on the main menu and then navigate to ‘Policies and Procedures’ then scroll to the ‘Student Support’ area.
- You **must** read the NCC Education document *Academic Misconduct Policy* and ensure that you acknowledge all the sources that you use in your work. These documents are available on the NCC Education website. Hover over ‘About Us’ on the main menu and then navigate to ‘Policies and Procedures’ then scroll to the ‘Student Support’ area.
- You **must** complete the *Statement and Confirmation of Own Work*. The form is available on the NCC Education website. Hover over ‘About Us’ on the main menu and then navigate to ‘Policies and Procedures’ then scroll to the ‘Student Support’ area.
- Please make a note of the recommended word count. You could lose marks if you write 10% more or less than this.
- You must submit a paper copy and digital copy (on disk or similarly acceptable medium). Media containing viruses, or media that cannot be run directly, will result in a fail grade being awarded for this assessment.
- All electronic media will be checked for plagiarism.

Introduction

You should read through the information given and each task section of the assignment carefully before you begin.

You must work independently and should not share your work with other learners. All work produced must be your own.

Any sources of information, text, images created by others that you include in your work must be clearly identified and referenced. The use of work of others as your own without permission or without proper acknowledgement is considered plagiarism and may result in disqualification from the assessment.

You may ask your teacher for support if you have questions about the requirements of each task, however, they cannot give guidance with solutions for tasks or provide you with feedback about how to improve your work.

Scenario

In the vibrant city of Bristol, pets are a beloved part of many households. However, as a busy city with its mix of urban streets, green spaces, pets can easily go missing. Whether it is a dog slipping out of a garden gate, a cat wandering too far, or a rabbit escaping, pet owners often rely on posters or social media to find their animals—methods that can be slow and unreliable.

To help address this issue, Bristol City Council is partnering with local animal shelters and tech students to develop a **Lost Pet Finder App**. This app will allow residents to report lost pets, submit sightings, and receive alerts when a potential match is found. You have been selected as part of a student tech team to design and prototype a basic version of the app's logic using computational thinking, programming, and ethical awareness.

Aims:

You need to:

1. Apply computational thinking to design the app's logic.
2. Write a simple program that allows users to:
    - Report a lost pet.
    - Submit a pet sighting.
    - Match sightings with lost pet reports based on basic criteria (e.g., type, colour, location).
3. Test your program with sample data.
4. Evaluate your solution by reflecting on its strengths, limitations, and possible improvements.
5. Consider ethical issues such as:
    - How user data (e.g., location, contact info) is collected and stored.
    - How to prevent false reports or misuse of the app.
    - How to ensure fairness and accessibility for all users.

Task 1: Computational Thinking (LO1) – 50 Marks

Produce a report with **NINE HUNDRED (900)** words.

Design the **core logic and structure** of the Lost Pet Finder App for use in Bristol by applying the **FOUR (4)** principles of computational thinking:

a) **Problem Decomposition** **10 Marks**
Break the problem into smaller parts:
- What features should the app include (e.g., report lost pet, submit sighting, send alerts)?
- What are the steps involved in matching a sighting to a missing pet?

b) **Pattern Recognition** **10 Marks**
Identify patterns in pet sightings and reports:
- What traits help match a sighting to a missing pet (e.g., breed, colour, location)?
- Are there common areas in Bristol where pets are often lost or found (e.g., parks, neighbourhoods)?

c) **Abstraction** **10 Marks**
Focus on essential information:
- What data is necessary (e.g., pet type, last seen location, time and distinguishing features)?
- What can be ignored to simplify the process?

d) **Algorithm Design** **20 Marks**
Create a flowchart or pseudocode to represent the logic of the Lost Pet Finder App for how the app will match sightings with missing pet:
- What happens when a user submits a sighting?
- How does the app notify the pet owner?

Task 2: Programming Task (LO 2) – 20 Marks

Using a language (e.g. Python), write a simple program that includes:
- A way to store lost pet reports and sightings (e.g., using lists or dictionaries).
- A function to compare sightings with lost pets.
- A basic interface (text-based or graphical) for users to enter data.

Task 3: Testing and Evaluation (LO 2) – 20 Marks

a) **Testing** **10 Marks**
- Test your program with **THREE (3)** lost pet reports and **THREE (3)** sightings and complete the testing by documenting it in the Test Log
- Show the results of the matching process.
- Include screenshots or output logs.

b) **Evaluation** **10 Marks**

Reflect on your solution with **THREE HUNDRED (300)** words on :
- What worked well?
- What challenges did you face?
- How could the app be improved in future versions?

Task 4: Ethical Considerations (LO 6) – 10 Marks

Write a short reflection with **THREE HUNDRED (300)** words on:
- What ethical issues might arise from using this app?
- How would you protect user privacy and data?
- How could you prevent misuse or false reporting?
- How would you ensure the app is inclusive and accessible?

Guidance
Consult with your tutor if you are uncertain about any aspect of this assignment.

Submission requirements
A word-processed document must be submitted incorporating the full documentation of all the significant aspects of the development of the assignment above. The document should be submitted both in paper form and digital form.

Refer to the Guidance above when producing your final documentation.

Your report should answer Tasks 1 to 4. The word count for your report is **ONE THOUNSAND FIVE HUNDRED (1500) words**.

You are required to submit a publishable copy of the compiled system together with installation notes.

This publishable copy, which includes a setup file, should be on an appropriate medium (CD, USB flash drive, etc.).

Candidate checklist

Please use the following checklist to ensure that your work is ready for submission.

Have you read the NCC Education document *Academic Misconduct Policy* and ensured that you have acknowledged all the sources that you have used in your work?	❑
Have you completed the *Statement and Confirmation of Own Work* form and attached it to your assignment? **You must do this.**	❑
Have you ensured that your work has not gone over or under the recommended word count by more than 10%?	❑
Have you ensured that your work does not contain viruses and can be run directly?	❑

Test Log Template

Test Number	Test Purpose	Input	Expected Output	Actual Output	Pass/Fail