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**HERALD**  
**COLLEGE**  
KATHMANDU

# **L4CG1 – Introductory Programming and Problem-Solving Skills**

## **Individual Coursework**

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## 1. What are the most challenging aspects of the coursework task?

- Building an algorithm for this user-friendly coursework (Tic-tac-toe game) was complex.
- Needs a deep understanding of game theory and requires efficient coding practices to handle various game situations step by step.
- Creating a user-friendly interface, with input validation, error handling, and clear instruction can be crucial.
- Saving scores and displaying leaderboards require proper data handling, error management, and data storage formats such as JSON.
- It was challenging to follow every small detail in a question, such as defining functions with identical names as specified and many more.
- Using infinite loops and for loops multiple times was quite challenging.
- Was challenging to put everything that we have learned so far into a single program.
- Testing and debugging were also crucial to ensure the game functions were as expected and to ensure that errors were handled efficiently or not.

## 2. How did you go about completing the task?

- For my coursework, I had to write a program in Python to develop a program that plays the classic game of Noughts and Crosses, or Tic-Tac-Toe. It was a challenging task that required me to apply everything I had learned about Python so far. However, I managed to complete it successfully by following these steps:
  - Tried to carefully break down the task into parts for better understanding.
  - I have implemented the functions that were provided in the question, using the same names and with the same work as instructed.
  - For Error handling in inputs, I have used more numbers of loops and try-except.
  - Added comments for a better understanding of the code.
  - Tested the program with various inputs, including both valid and invalid scenarios, and verified the outputs against expected results to ensure correctness.
  - Finally checked if the game worked efficiently before submitting.

### 3. What have you learned over the course of completing this coursework task?

- I've gained a deeper understanding of algorithms, particularly in the context of game development.
- I've learned about designing user interfaces for interactive applications, focusing on usability, clarity, and error handling.
- To break down a problem into smaller parts and analyze each part systematically to find possible solutions.
- Understood the concept of the logic behind the classic game of Noughts and Crosses, or Tic-Tac-Toe.
- I have learned how to manage files, which includes reading files and writing data into files as a form of storing game scores.
- I have learned how to create functions that perform specific and well-defined tasks.
- I have gained proficiency in utilizing both finite and infinite loops to efficiently execute repeated tasks and handle errors with ease.
- I got clearer about the try-except concept for better error handling.
- Gained experience in testing and debugging the code for error-free output.