**CSE 212 – Programming with Data Structures**

**W10 Prove – Response Document**

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| **Name:** | Jorge A Chavez |
| **Date:** | 11/18/2023 |
| **Teacher:** | Ephraim Kunz |

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**Question 1: Provide the outline for the data structures tutorial you are creating for the final project. Use the Python Fundamentals Tutorial outline provided in the assignment instructions as an example.**

**Data Structure Tutorial - Outline**

1. Welcome

* Introduction
* Contact Information

1. Stack
2. Introduction to Stack

* Purpose of the data structure
* Performance analysis (Big O notation)
* Problems that can be solved using a stack.

1. Implementation in Python

* How to use a stack in Python
* Sample Python code with explanations
* Common errors and how to avoid them.

1. Example Problem

* Detailed problem description
* Step-by-step solution using a stack.
* Python code for the solution

1. Problem for the Student

* A new problem for the student to solve.
* Link to the solution

1. Linked List
2. Introduction to Linked List

* Purpose of the data structure
* Performance analysis (Big O notation)
* Problems that can be solved using a linked list.

1. Implementation in Python

* How to use a linked list in Python
* Sample Python code with explanations
* Discussion on recursion in linked lists

1. Example Problem

* Detailed problem description
* Step-by-step solution using a linked list.
* Python code for the solution

1. Problem for the Student

* A new problem for the student to solve.
* Link to the solution

1. Tree
2. Introduction to Tree

* Purpose of the data structure
* Performance analysis (Big O notation)
* Problems that can be solved using a tree.

1. Implementation in Python

* How to use a tree in Python
* Sample Python code with explanations
* Discussion on tree traversal

1. Example Problem

* Detailed problem description
* Step-by-step solution using a binary search tree.
* Python code for the solution

1. Problem for the Student

* A new problem for the student to solve.
* Link to the solution

1. Conclusion

* Summary of the covered data structures
* Encouragement for further exploration in data structures and algorithms