**Topic:** Hierarchical Data Representation

**Topic Introduction:**

The topic of this assignment is hierarchical data representation in Java. Hierarchical data structures are commonly used in software development to represent data in a tree-like structure, where each node has one parent and zero or more children. In the context of a company, for example, a hierarchical data structure could be used to represent the relationships between the CEO, managers, supervisors, and employees.

**Assignment Goals:**

* Understand the concept of hierarchical data representation
* Learn how to implement hierarchical data structures in Java
* Learn how to read data from a CSV file in Java
* Learn how to use inheritance and polymorphism in Java to create a hierarchy of employee classes
* Learn how to traverse a hierarchical data structure in Java and print its contents in a hierarchical manner

**Assignment Description:**

In this assignment, you will write a Java program to read data from a CSV file and create a hierarchical data structure to represent a company. The CSV file will contain information about the employees in the company, including their names, IDs, roles, and the IDs of their managers.

* Define a set of classes to represent the employees in the company. You should have at least four classes: Employee, Supervisor, Manager, and CEO. Each class should have instance variables to store the employee's name and ID, and any additional information that is specific to that role (e.g., the number of direct reports for a supervisor).
* Use inheritance to create a hierarchy of employee classes, where each class represents a different level in the company hierarchy. For example, the Supervisor class should extend the Employee class, the Manager class should extend the Supervisor class, and the CEO class should extend the Manager class.
* Implement a method in each class to print the employee's name and ID in a formatted string. For example, the Employee class might have a print() method that prints "Employee: {name}, ID: {id}".
* Use polymorphism to create a print() method in the Employee class that can be called on any employee object, regardless of its type. This method should traverse the hierarchical data structure and print each employee's information in a hierarchical manner.
* Implement a method to read data from a CSV file and create the corresponding employee objects.
* Create a main method that uses the methods you have implemented to read the data from the CSV file, create the hierarchical data structure, and print the contents of the data structure in a hierarchical manner.
* By completing this assignment, you will gain hands-on experience with hierarchical data structures, inheritance, polymorphism, and file I/O in Java. You will also learn how to represent and visualize complex data relationships in a structured and hierarchical manner.

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| Expected Output: |
| - John (CEO)  - Jane (Manager)  - Steve (Supervisor)  - Lisa (Employee)  - Mark (Employee)  - Karen (Supervisor)  - Ann (Employee)  - Bob (Manager)  - Jack (Supervisor)  - Sam (Employee)  - Mary (Employee) |

**Key Code:**

The complete code for the assignment is provided in the Key Code folder.