Reading assignment

**What are the advantages of Polymorphism?**

Advantages of Polymorphism include code reusability, flexibility, maintainability, extensibility, readability, understandability, and encapsulation. Overall, polymorphism is a powerful tool for designing modular, maintainable, and flexible software systems, making it a cornerstone of modern object-oriented programming paradigms.

**How is Inheritance useful to achieve Polymorphism in Java?**In Java, inheritance is useful for achieving polymorphism as it enables code reuse and method overriding, essential for polymorphic behavior. By leveraging inheritance and method overriding, you can write more flexible and maintainable code, treating objects uniformly regardless of their specific types.

**What are the differences between Polymorphism and Inheritance in Java?**

1. Conceptual Difference:

Polymorphism: Objects can take on multiple forms, promoting flexibility, code reuse, and extensibility through method overriding and dynamic binding.

Inheritance: A mechanism for a class to inherit properties from another class, facilitating code reuse and hierarchy creation.

1. Purpose:

Polymorphism: Enables a single interface to represent different forms, promoting flexibility and code reuse.

Inheritance: Used for creating class hierarchies, promoting code reuse by inheriting and extending superclass functionality.

1. Mechanism:

Polymorphism: Achieved through method overriding and dynamic binding.

Inheritance: Implemented via the 'extends' keyword, allowing subclasses to inherit fields and methods.

1. Flexibility:

Polymorphism: Promotes flexibility by treating different types uniformly, facilitating loose coupling.

Inheritance: Provides a structured way to organize code and promote reuse within class hierarchies.