1. What are the advantages of Polymorphism?

Polymorphism offers several advantages in Java programming:

-Code Reusability

-Flexibility

-Extensibility: Polymorphism makes it easier to extend your program with new functionalities. You can introduce new subclasses that inherit behavior from existing classes and still work seamlessly with existing code.

2. How is Inheritance useful to achieve Polymorphism in Java?

Subtyping: A subclass inherits all the methods and fields from its parent class. This allows you to treat a subclass object as an instance of its parent class at compile time.

Method Overriding: Subclasses can override methods inherited from the parent class to provide their own specific implementation. This enables polymorphic behavior where the same method call on different subclass objects can invoke different implementations at runtime.

3. What are the differences between Polymorphism and Inheritance in Java?

-Polymorphism:

+Definition: Ability of objects to respond differently to the same message

+Achieved by: Interfaces, Method Overriding

+Focus: Code behavior at runtime

+Requirement: Not mandatory, but enables flexibility

-Inheritance:

+Definition: Mechanism for creating new classes based on existing ones

+Achieved by: Keyword "extends"

+Focus: Code structure and reusability

+Requirement: Optional, but often used for polymorphism