Practice Assignment

Module 2	
Sr. No.	**Questions**
1	In the context of a banking application, discuss how encapsulation and abstraction contribute to maintaining data integrity and security. Provide examples of private fields and methods that demonstrate these principles.
2	Consider a scenario where you're developing a drawing application. Elaborate on how polymorphism can be employed to create a flexible system that supports various shapes and their behaviours, along with the advantages of doing so.
3	Describe the concept of constructor overloading with a practical example in Java. Explain how constructors enable the instantiation of objects and initialisation of their attributes, illustrating different use cases of constructor overloading.
4	Discuss the importance of interfaces in achieving multiple inheritance in Java. Provide a case study where you need to represent a class that should implement multiple behaviours from different sources through interfaces.
5	Imagine you're designing a game that involves different types of characters with varying abilities. Explain how you would use abstract classes to define common attributes

	and behaviours while allowing individual character types to implement their unique functionalities.
6	In a healthcare application, explain the concept of "composition" using classes such as "Patient" and "Doctor." Illustrate how a "Patient" object could be composed of multiple "Doctor" objects, each responsible for a specific aspect of care.
7	Consider a scenario where you're developing an e-commerce platform. Discuss how you would utilise inheritance and interfaces to model different types of products, highlighting their shared attributes and distinct functionalities.
8	Describe a case study where you're designing a media streaming service. Explain how you would apply encapsulation to ensure that the internal implementation details of media playback are hidden while providing a user-friendly interface for users to interact with.
9	Imagine you're creating a simulation software for a virtual zoo. Discuss the concept of "polymorphic behaviour" by detailing how different animal species could implement the same interface methods while exhibiting unique behaviours specific to their species.
10	In the context of an online learning platform, explain the benefits of using abstract classes to model different types of courses. Provide examples of how abstract methods can be defined to ensure that specific course types implement their own versions of crucial methods.