

Assignment 1

Name	Student ID	Course	University
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Question 1

What is a constructor used for?

Constructors are used for initializing the object's state. Usually this means setting the initial values of instance variables and perform any necessary setup operations. It is called automatically when an instance of the class is created.

How do constructors differ from other methods in a class?

Constructors differ from other methods in a class in two main ways:

- they have no return type
- they are automatically invoked when an object is created

Other methods, on the other hand, may have return types and are called explicitly by the programmer to perform specific tasks on the object.

Question 2

- **Private:** Private methods or variables of a class are only accessible within the class itself. They cannot be accessed directly from outside the class, hiding implementation details from other parts of the program.
- **Public:** Public methods or variables are accessible from outside the class. They form the interface to the class and are meant to be used by other classes or objects.

Core principle of deciding whether a method or a variable should be public or private is **encapsulation**. Private methods encapsulate the internal details, preventing direct external access and manipulation of data inside. Public members provide a controlled and well-defined interface to the program.

Question 3

Instance variables

- Account balance: `double balance`
- Account holder's name: `String holderName`
- Account number: `String accountNumber`

Method headers

(a) `public void withdraw(double amount)`

(b) `public void deposit(double amount)`

(c) `public double getBalance()`

(d) `public String getAccountInfo()`

(e) `public void chargeFee()`

(f) `public BankAccount(double initialBalance, String holderName, String accountNumber)`