**ABSTRACT CLASS: 05/07/2025**

An abstract class is a class in Java that cannot make object directly but it is used to provide a common structure for other classes to follow. It is a like a template**.** It may have normal methods. Other classes may extend it and fill the missing method.

Example:

abstract class animal{

abstract void sound();//no body

void eat();

{ //with body

Sout(“Eating food”);

}

}

Class dog extends animal{

Void sound(){

Sopln(“Barking”);

}

}

Wrapper classes:

Wrapper classes are used to wrap primitive data types(int,char,double) inside objects.

Java is object-oriented **but primitive types like int,char,float are not objects** to treat them like objects we use wrapper classes.

Why use wrapper?

Collections like ArrayList works only with objects not primitives. Wrapper classes in short makes a primitive value to behave like an object.

Q. Problem Statement

Design a simple banking system in Java using object-oriented programming concepts.

The system should:

Define an abstract class Account with a balance and a method to calculate interest.

Have two concrete subclasses: SavingsAccount and CurrentAccount.

Override the interest calculation in each account type:

Savings accounts get 4% annual interest

Current accounts get 2% annual interest

Demonstrate polymorphism by creating both account objects and calling calculateInterest() on

Design a mini Library Management System in java using OOP the system should have

1. An abstract class LibraryItem with common properties like title and item id.\
2. Subclasses book and magazine that extends library item.
3. A method displayDetails(). Overriden in each subclass to show details.
4. Store the prize using the double Wrapper class.
5. Demonstrate polymorphism by displaying details of multiple items.

A custom exception also called user-defined exception is an exception that we create by ourselves by extending exception class(Or Runtime exception) to handle applications/.