

## Lab Assignment 1

In this lab, you will practice basic OOP in JAVA. You will need to implement a scenario using the OOP approach.

Assignment: Bank Account System

In this assignment, you will create a Java program that simulates a simple banking system. The system should be able to perform the following operations:

1. Create a new bank account.
2. Deposit money into an existing account.
3. Withdraw money from an existing account.
4. Check the balance of an existing account.
5. Print a statement of all transactions for a specific account.

The program should use OOP concepts such as inheritance, polymorphism, and encapsulation to model a bank account and its associated transactions.

Classes:

- **BankAccount:** This is the base class that represents a bank account. It should have the following properties: account number, account name, balance, and a list of transactions.
- **CheckingAccount:** This class extends the BankAccount class and represents a checking account. It should have the following additional property: overdraft limit.
- **SavingsAccount:** This class extends the BankAccount class and represents a savings account. It should have the following additional property: interest rate.
- **Transaction:** This class represents a transaction on a bank account. It should have the following properties: date, type (deposit or withdrawal), amount, and balance after the transaction.

Methods:

- **createAccount(int accountNumber, String accountName):** This method creates a new bank account with the specified account number and account name.
- **deposit(double amount):** This method deposits the specified amount into the account.
- **withdraw(double amount):** This method withdraws the specified amount from the account.
- **getBalance():** This method returns the current balance of the account.
- **printStatement():** This method prints a statement of all transactions for the account.

You will need to write a proper driver class to test these classes and methods. You also may include more methods if you want. Use your judgment to write the mentioned methods in the appropriate class. Every solution is correct as long as it makes sense.

**P.S: Plagiarism will not be tolerated and will result in getting 0. It will not matter whether you provided the code or copied the code.**