

AAA Pattern:

Code:

1. aaa\src\main\java\com\example\BankAccount.java:

```
package com.example;

public class BankAccount {
    private double balance;

    public BankAccount(double initialBalance) {
        this.balance = initialBalance;
    }

    public void deposit(double amount) {
        balance += amount;
    }

    public void withdraw(double amount) throws
InsufficientFundsException {
        if (amount > balance) {
            throw new InsufficientFundsException();
        }
        balance -= amount;
    }

    public double getBalance() {
        return balance;
    }
}

class InsufficientFundsException extends Exception {}
```

2. aaa\src\test\java\com\example\BankAccountTest.java:

```
package com.example;
```

```
import org.junit.*;
import static org.junit.Assert.*;

public class BankAccountTest {
    private BankAccount account;

    @Before
    public void setUp() {
        account = new BankAccount(100.0); // Fresh account for
every test
        System.out.println("Setup: Created account with balance
100");
    }

    @After
    public void tearDown() {
        System.out.println("Teardown: Test completed");
    }

    @Test
    public void testDeposit() {
        // Arrange
        double depositAmount = 50.0;

        // Act
        account.deposit(depositAmount);

        // Assert
        assertEquals(150.0, account.getBalance(), 0.001);
    }

    @Test
    public void testWithdraw() throws InsufficientFundsException {

        double withdrawAmount = 30.0;

        account.withdraw(withdrawAmount);

        assertEquals(70.0, account.getBalance(), 0.001);
    }
}
```

```
@Test(expected = InsufficientFundsException.class)
public void testWithdrawFailsWhenInsufficientFunds() throws
InsufficientFundsException {
    double withdrawAmount = 150.0;
    account.withdraw(withdrawAmount); // Should throw exception
}
}
```

Output:

```
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.example.BankAccountTest
Setup: Created account with balance 100
Teardown: Test completed
Setup: Created account with balance 100
Teardown: Test completed
Setup: Created account with balance 100
Teardown: Test completed
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.101 s -- in com.example.BankAccountTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 3, Failures: 0, Errors: 0, Skipped: 0
```