

```
        John.withdraw(100);  
    }
```

Followed principles:

- Used JUnit which is a reusable approach to write tests.

Violated principles:

- He wrote the source code, and tested for it. This violates the principle that one should not test his own code.
- He wrote test cases for the valid and expected inputs (i.e., no handling for negative amounts, or for withdrawing extra money for instance). This violates the principle that test cases should consider both the valid and invalid inputs/cases.
- The absence of any definition/assertion of the expected result within the second test case.

Question 2 [34 marks]

We have looked at a number of black-box techniques for testing.

- a) Explain what black-box testing and white-box testing mean, and the difference between them. **[4]**

Within black box testing, the tester does not have access to the source code, nor to how the software operates. He only knows what the software is supposed to do.

Within white-box testing, the tester has access to the program's source code, hence using the code's structure while designing his test cases.

- b) `NextDate` is a function that takes three arguments as input: month, day, year. It has the following specifications:

- It returns the date of the day following the input date. The allowed years are from 1812 – 2020.
- If it is not the last day of the month, only the day value will be incremented.
- At the end of a month, the next day is 1 and the month is incremented.
- At the end of the year, both the day and the month are reset to 1, and the year gets incremented.
- Leap year (سنة كبيسة) definition: A 29th day is added to February in all years that are evenly divisible by 4, except for centennial years (i.e., years that end with –00) which are not evenly divisible by 400. Hence, 1600, 2000 and 2400 are leap years, but 1700, 1800, 1900, 2100, 2200 and 2300 are not.