LAPORAN PRAKTIKUM PBO
Test Driven Development Junit 5

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1. Listing 20.1 Passanger Class
    - Source code

```java
public class Passenger {
    private String name;
    private boolean vip;

    public Passenger(String name, boolean vip) {
        this.name = name;
        this.vip = vip;
    }
    public String getName() {
        return name;
    }
    public boolean isVip() {
        return vip;
    }
}
```

    - Fungsi / tujuan class
      Class ini berfungsi untuk menginisiasi String name dan Boolean vip.

2. Listing 20.2 Flight Class
    - Source code

```java
public class Flight {
    private String id;
    private List<Passenger> passengers = new
ArrayList<Passenger>();
    private String flightType;

    public Flight(String id, String flightType) {
        this.id = id;
        this.flightType = flightType;
    }
    public String getId() {
        return id;
    }
    public List<Passenger> getPassengersList() {
        return Collections.unmodifiableList(passengers);
    }
    public String getFlightType() {
        return flightType;
    }
    public boolean addPassenger(Passenger passenger) {
        switch (flightType) {
            case "Economy":
                return passengers.add(passenger);

            case "Business":
                if (passenger.isVip()) {
                    return passengers.add(passenger);
                }
                return false;
            default:
                throw new RuntimeException("Unknown type: " +
flightType);
        }
    }
    public boolean removePassenger(Passenger passenger) {
        switch (flightType) {
            case "Economy":
                if (!passenger.isVip()) {
                    return passengers.remove(passenger);
                }
                return false;
            case "Business":
                return false;
            default:
                throw new RuntimeException("Unknown type: " +
flightType);
        }
    }
}
```

    - Fungsi / tujuan Class

      Class ini berfungsi untuk menginisiasi String id, List passanger dan String flightType

3. Listing 20.3 Airport Class, including the Main Method
    - Source code

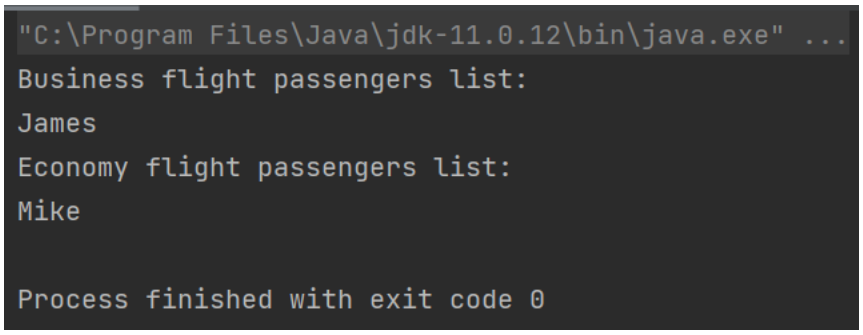
```java
public class Airport {
    public static void main(String[] args) {

        Flight economyFlight = new Flight("1", "Economy");
        Flight businessFlight = new Flight("2", "Business");

        Passenger james = new Passenger("James", true);
        Passenger mike = new Passenger("Mike", false);

        businessFlight.addPassenger(james);
        businessFlight.removePassenger(james);
        businessFlight.addPassenger(mike);
        economyFlight.addPassenger(mike);
        System.out.println("Business flight passengers list:");
        for (Passenger passenger:
businessFlight.getPassengersList()) {
            System.out.println(passenger.getName());
        }
        System.out.println("Economy flight passengers list:");
        for (Passenger passenger:
economyFlight.getPassengersList()) {
            System.out.println(passenger.getName());
        }
    }
}
```

    - Fungsi / tujuan Class
      Ini adalah Main Class untuk mengeksekusi program dari Class-Class yang sebelumnya sudah dibuat.
    - SS akhir program



```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" ...
Business flight passengers list:
James
Economy flight passengers list:
Mike

Process finished with exit code 0
```

4. Listing 20.4 Junit 5 Dependencies added to the pom.xml
   - Source code

```
<dependencies>
    <dependency>
        <groupId>org.junit.jupiter</groupId>
        <artifactId>junit-jupiter-api</artifactId>
        <version>5.6.0</version>
        <scope>test</scope>
    </dependency>
    <dependency>
        <groupId>org.junit.jupiter</groupId>
        <artifactId>junit-jupiter-engine</artifactId>
        <version>5.6.0</version>
        <scope>test</scope>
    </dependency>
</dependencies>
```

   - Fungsi / tujuan Class
     Class ini berfungsi sebagai library dari junit yang nantinya akan dipakai pada saat melakukan unit testing.

5. Listing 20.5 Testing the business logic for an economic flight

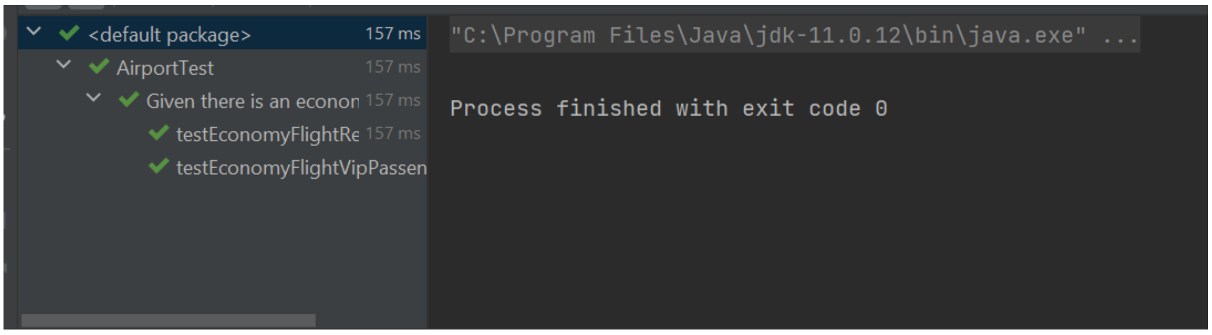
- Source Code

```
@DisplayName("Given there is an economy flight")
@Nested
class EconomyFlightTest {
    private Flight economyFlight;
    @BeforeEach
    void setUp() {
        economyFlight = new Flight("1", "Economy");
    }
    @Test
    public void testEconomyFlightRegularPassenger() {
        Passenger mike = new Passenger("Mike", false);
        assertEquals("1", economyFlight.getId());
        assertEquals(true, economyFlight.addPassenger(mike));
        assertEquals(1,
economyFlight.getPassengersList().size());
        assertEquals("Mike",

economyFlight.getPassengersList().get(0).getName());
        assertEquals(true,
economyFlight.removePassenger(mike));
        assertEquals(0,
economyFlight.getPassengersList().size());
    }
    @Test
    public void testEconomyFlightVipPassenger() {
        Passenger james = new Passenger("James", true);
        assertEquals("1", economyFlight.getId());
        assertEquals(true, economyFlight.addPassenger(james));
        assertEquals(1,
economyFlight.getPassengersList().size());
        assertEquals("James",

economyFlight.getPassengersList().get(0).getName());
        assertEquals(false,
economyFlight.removePassenger(james));
        assertEquals(1,
economyFlight.getPassengersList().size());
    }
}
```

- Fungsi / tujuan Class
  Class ini adalah tempat dilakukannya testing dari Economy Flight
- SS akhir program



```
<default package>                  157 ms
  AirportTest                      157 ms
    Given there is an econon       157 ms
      testEconomyFlightRe          157 ms
      testEconomyFlightVipPassen
```

```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" ...

Process finished with exit code 0
```

6. Listing 20.6 Testing the business logic for an business flight

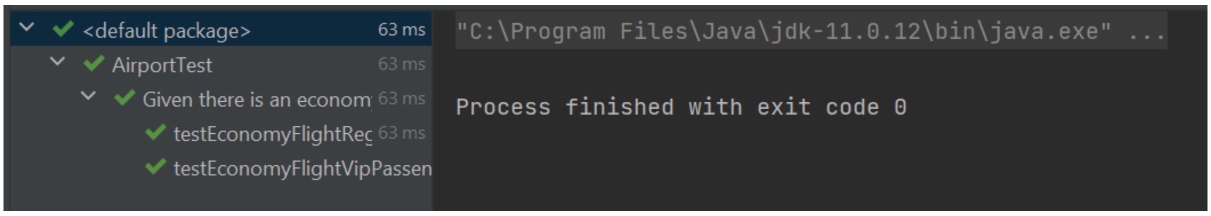
- Source Code

```
    @DisplayName("Given there is a business flight")
@Nested
class BusinessFlightTest {
    private Flight businessFlight;
    @BeforeEach
    void setUp() {
        businessFlight = new Flight("2", "Business");
    }
    @Test
    public void testBusinessFlightRegularPassenger() {
        Passenger mike = new Passenger("Mike", false);
        assertEquals(false, businessFlight.addPassenger(mike));
        assertEquals(0,
businessFlight.getPassengersList().size());
        assertEquals(false,
businessFlight.removePassenger(mike));
        assertEquals(0,
businessFlight.getPassengersList().size());
    }
    @Test
    public void testBusinessFlightVipPassenger() {
        Passenger james = new Passenger("James", true);
        assertEquals(true, businessFlight.addPassenger(james));
        assertEquals(1,
businessFlight.getPassengersList().size());
        assertEquals(false,
businessFlight.removePassenger(james));
        assertEquals(1,
businessFlight.getPassengersList().size());
    }
}
```

- Fungsi / tujuan Class

  Class ini adalah tempat dilakukannya testing dari Business Flight

- SS akhir program



```
<default package>                 63 ms
  AirportTest                     63 ms
    Given there is an econom      63 ms
      testEconomyFlightReg        63 ms
      testEconomyFlightVipPassen
```

```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" ...

Process finished with exit code 0
```

7. Listing 20.7 Abstract Flight class, the basis of the hierarchy

-
  ```
  public abstract class Flight {

      private String id;
      List<Passenger> passengers = new ArrayList<Passenger>();
      public Flight(String id) {
          this.id = id;
      }
      public String getId() {
          return id;
      }
      public List<Passenger> getPassengersList() {
          return Collections.unmodifiableList(passengers);
      }
      public abstract boolean addPassenger(Passenger passenger);
      public abstract boolean removePassenger(Passenger
  passenger);
  }
  ```
- Fungsi / tujuan Class
  Class ini berfungsi untuk menginisiasi String id dan List Passenger. Dan juga pendeklarasian abstract method Boolean addPassenger dan Boolean removePassenger.

8. Listing 20.8 EconomyFlight class, extending the abstract Flight class

- Source Code

```java
public class EconomyFlight extends Flight{

    public EconomyFlight(String id) {
        super(id);
    }

    @Override
    public boolean addPassenger(Passenger passenger) {
        return passengers.add(passenger);
    }
    @Override
    public boolean removePassenger(Passenger passenger) {
        if (!passenger.isVip()) {
            return passengers.remove(passenger);
        }
        return false;
    }
}
```

- Fungsi / tujuan Class

  Class ini berisikan inisiasi untuk Flight yang berjenis Economy.

9. Listing 20.9 BusinessFlight class, extending the abstract Flight class
    - Source Code

```
public BusinessFlight(String id) {
        super(id);
    }
    @Override
    public boolean addPassenger(Passenger passenger) {
        if (passenger.isVip()) {
            return passengers.add(passenger);
        }
        return false;
    }
    @Override
    public boolean removePassenger(Passenger passenger) {
        return false;
    }
}
```

    - Fungsi / tujuan Class
      Class ini berisikan inisiasi untuk Flight yang berjenis Business.

10. Listing 20.10 Refactoring propagation into the AirportTest class

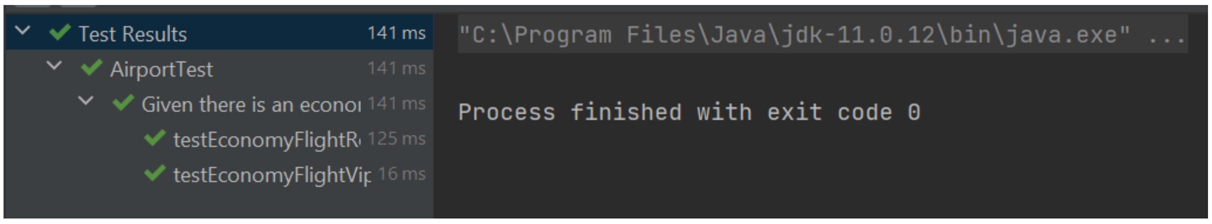
- Source Code Test Economy

```
@DisplayName("Given there is an economy flight")
@Nested
class EconomyFlightTest {
    private EconomyFlight economyFlight;
    @BeforeEach
    void setUp() {
        economyFlight = new EconomyFlight("1");
    }
    @Test
    public void testEconomyFlightRegularPassenger() {
        Passenger mike = new Passenger("Mike", false);
        assertEquals("1", economyFlight.getId());
        assertEquals(true, economyFlight.addPassenger(mike));
        assertEquals(1,
economyFlight.getPassengersList().size());
        assertEquals("Mike",

economyFlight.getPassengersList().get(0).getName());
        assertEquals(true,
economyFlight.removePassenger(mike));
        assertEquals(0,
economyFlight.getPassengersList().size());
    }
    @Test
    public void testEconomyFlightVipPassenger() {
        Passenger james = new Passenger("James", true);
        assertEquals("1", economyFlight.getId());
        assertEquals(true, economyFlight.addPassenger(james));
        assertEquals(1,
economyFlight.getPassengersList().size());
        assertEquals("James",

economyFlight.getPassengersList().get(0).getName());
        assertEquals(false,
economyFlight.removePassenger(james));
        assertEquals(1,
economyFlight.getPassengersList().size());
    }
}
```

- Fungsi / tujuan Class
  Class ini adalah tempat dilakukannya testing dari Economy Flight dan Business Flight. Namun codingan di atas hanya melakukan testing pada Economy Flight.
- SS akhir program



```
Test Results                      141 ms
  AirportTest                     141 ms
    Given there is an econoı      141 ms
      testEconomyFlightRı         125 ms
      testEconomyFlightVip         16 ms
```

```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" ...

Process finished with exit code 0
```

- Source Code Business Flight

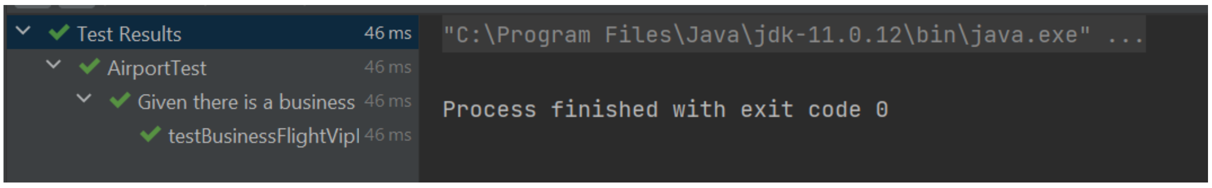
```
@DisplayName("Given there is a business flight")
@Nested
class BusinessFlightTest {
    private Flight businessFlight;

    @BeforeEach
    void setUp() {
        businessFlight = new BusinessFlight("2");
    }

    public void testBusinessFlightRegularPassenger() {
        Passenger mike = new Passenger("Mike", false);
        assertEquals(false, businessFlight.addPassenger(mike));
        assertEquals(0,
businessFlight.getPassengersList().size());
        assertEquals(false,
businessFlight.removePassenger(mike));
        assertEquals(0,
businessFlight.getPassengersList().size());
    }

    @Test
    public void testBusinessFlightVipPassenger() {
        Passenger james = new Passenger("James", true);
        assertEquals(true, businessFlight.addPassenger(james));
        assertEquals(1,
businessFlight.getPassengersList().size());
        assertEquals(false,
businessFlight.removePassenger(james));
        assertEquals(1,
businessFlight.getPassengersList().size());
    }
}
```

- Fungsi / tujuan Class
  Class ini adalah tempat dilakukannya testing dari Economy Flight dan Business Flight. Namun codingan di atas hanya melakukan testing pada Business Flight.
- SS akhir program



```
Test Results                        46 ms
  AirportTest                       46 ms
    Given there is a business       46 ms
      testBusinessFlightVipl        46 ms
```

```
"C:\Program Files\Java\jdk-11.0.12\bin\java.exe" ...

Process finished with exit code 0
```