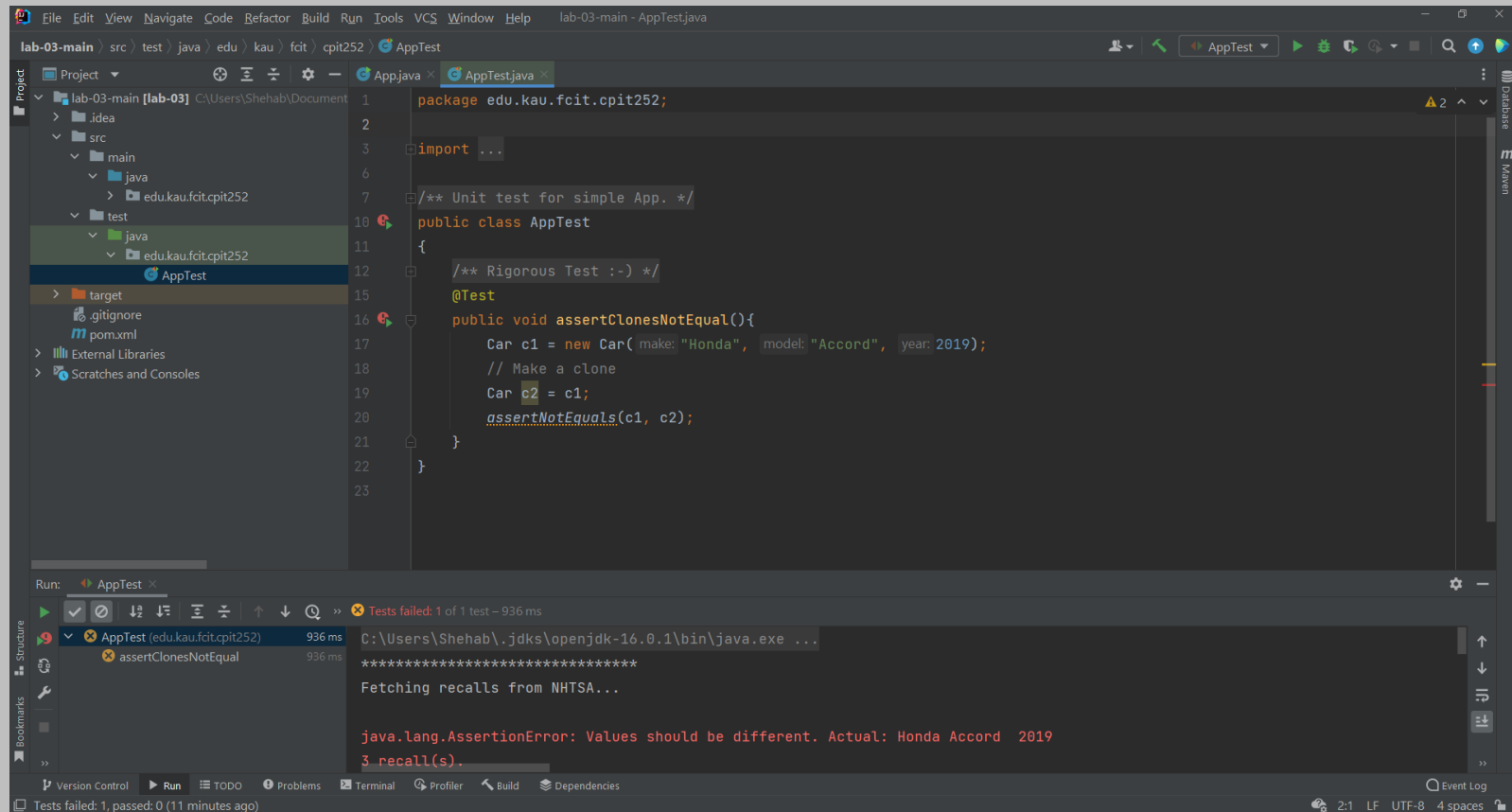


# LAB 3 – Prototype



The screenshot shows an IDE window titled 'lab-03-main - AppTest.java'. The left sidebar displays a project structure with a 'test' directory containing 'AppTest'. The main editor shows the following Java code:

```
1 package edu.kau.fcit.cpit252;
2
3 import ...
4
5
6
7 /** Unit test for simple App. */
8
9 public class AppTest
10 {
11
12     /** Rigorous Test :-) */
13
14     @Test
15     public void assertClonesNotEqual(){
16         Car c1 = new Car( make: "Honda", model: "Accord", year: 2019);
17         // Make a clone
18         Car c2 = c1;
19         assertEquals(c1, c2);
20     }
21 }
22
23
```

The bottom panel shows the 'Run' output for 'AppTest'. It indicates 'Tests failed: 1 of 1 test - 936 ms'. The output text is as follows:

```
*****
Fetching recalls from NHTSA...

java.lang.AssertionError: Values should be different. Actual: Honda Accord 2019
3 recall(s).
```

The status bar at the bottom indicates 'Tests failed: 1, passed: 0 (11 minutes ago)'.

This is before changing anything.

Shehab

## FIRST:

I had to implement the interface in “Car” class

```
10 public class Car implements Vehicle{
```

Therefore, I had to implement the only method that is in the “Vehicle” interface which is

```
3 public interface Vehicle extends Cloneable{  
4     public Car makeCopy();  
5 }
```

```
78 @Override  
79 public Car makeCopy() {  
80     Car car = null;  
81     try{  
82         car = (Car) super.clone();  
83     }catch (CloneNotSupportedException e) {  
84         e.printStackTrace();  
85     }  
86     return car;  
87 }
```

Then, I had to create “CloneFactory” class and create a method inside it that returns a copy of any object of any class that do implements “Vehicle” interface.

```
3 public class CloneFactory {
4     @ public Vehicle getClone(Vehicle vehicle){
5         return vehicle.makeCopy();
6     }
7 }
```

```
3 public class App {
4     public static void main(String[] args) {
5         CloneFactory cloneFactory = new CloneFactory();
6         Car c1 = new Car( make: "Honda", model: "Accord", year: 2019);
7         // print car and recall info
8         System.out.println(c1);
9         // create a duplicate car object to print the recall info in a table
10        // Car c2 = new Car("Honda", "Accord", 2019);
11        Car c2 = (Car) cloneFactory.getClone(c1);
12        RecallViewer rv = new RecallViewer(c2);
13        rv.printTableView();
14    }
15 }
```

Then I had to create an object of “CloneFactory” then I used the method getClone() to get a clone of the c1 object and cast it to car.

```
16  public void assertClonesNotEqual(){
17      Car c1 = new Car( make: "Honda", model: "Accord", year: 2019);
18      CloneFactory cloneFactory = new CloneFactory();
19      // Make a clone
20      Car c2 = (Car) cloneFactory.getClone(c1);
21      assertEquals(c1, c2);
22  }
23 }
```

I also had to change line 20 in the junit test for the same purpose above.

