Implement a WebDriver Manager

This lesson is a step-by-step guide to create a WebDriver manager.

WE'LL COVER THE FOLLOWING

- `DriverManager`
- Creating WebDriver instance for different browsers
- `BaseTest` - super class for all test classes

We have to create our web driver objects in a way that it can handle parallel runs. Below code will guide you step by step on creating a web driver manager which handles WebDriver object creation.

`DriverManager`

```
import org.openqa.selenium.WebDriver;

public class DriverManager {

    private static final ThreadLocal<WebDriver> DRIVER = new ThreadLocal<W
ebDriver>();

    public static WebDriver getWebDriver() {
        return DRIVER.get();
    }

    public static void setWebDriver(WebDriver driver) {
        DRIVER.set(driver);
    }

    public static void closeDriver() {
        if (DRIVER.get() != null) {
            DRIVER.get().quit();
            DRIVER.remove();
        }
```

```
    }

}
```

Creating WebDriver instance for different browsers

Assuming the driver executables are present in the classpath of the machine, the following code will create a `WebDriver` object for different browsers with default capabilities.

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.edge.EdgeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

public class DriverFactory {

    private DriverFactory() {
    }

    /**
     * Create WebDriver Instance
     */
    public static WebDriver createInstance(String browser) {

        WebDriver driver = null;
        // code for creating Chrome, Firefox or any other driver object
        switch (browser) {

        case "firefox":
            driver = new FirefoxDriver();
            break;

        case "edge":
            driver = new EdgeDriver();
            break;

        default:
        case "chrome":
            driver = new ChromeDriver();
            break;
        }
        return driver;
```

```
    }

}
```

`BaseTest` - super class for all test classes

```
/**
 * This is the super class of all TestClasses
 */
public abstract class BaseTest {

    private static final String DEFAULT_BROWSER = System.getProperty("brow
ser", "chrome");

    @BeforeMethod
    public void setUp(Method method) {

        // code...

        if (DriverManager.getWebDriver() == null) {
            DriverManager.setWebDriver(DriverFactory.createInstance(DEFAUL
T_BROWSER));
            System.out.println("WebDriver Object : " + DriverManager.getWe
bDriver());
        }

        // code....
    }

    @AfterMethod
    public void closeDriver() {
        DriverManager.closeDriver();
    }
}
```

In the next section, you'll learn to implement a page object model.