TASK GUIDE (B1.01)

A. Objectives.

Students create a Temperature class to convert unit.

B. Requirements.

Hardware:

- 2 GB RAM minimum, 8 GB RAM recommended
- 2 GB of available disk space minimum, 4 GB Recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution
- Intel processor with support for Intel VT-x, Intel EM64T (Intel 64), and Execute Disable (XD) Bit functionality

Software:

- Microsoft Windows 7/8/10 (32-bit or 64-bit)
- JDK 8
- Android Studio IDE 3.5 (min)

C. Resources.

Documents:

- Guide

Supplement files:

- ViewTest.java

Test code:

- TestB1BasicActivityKT011.java

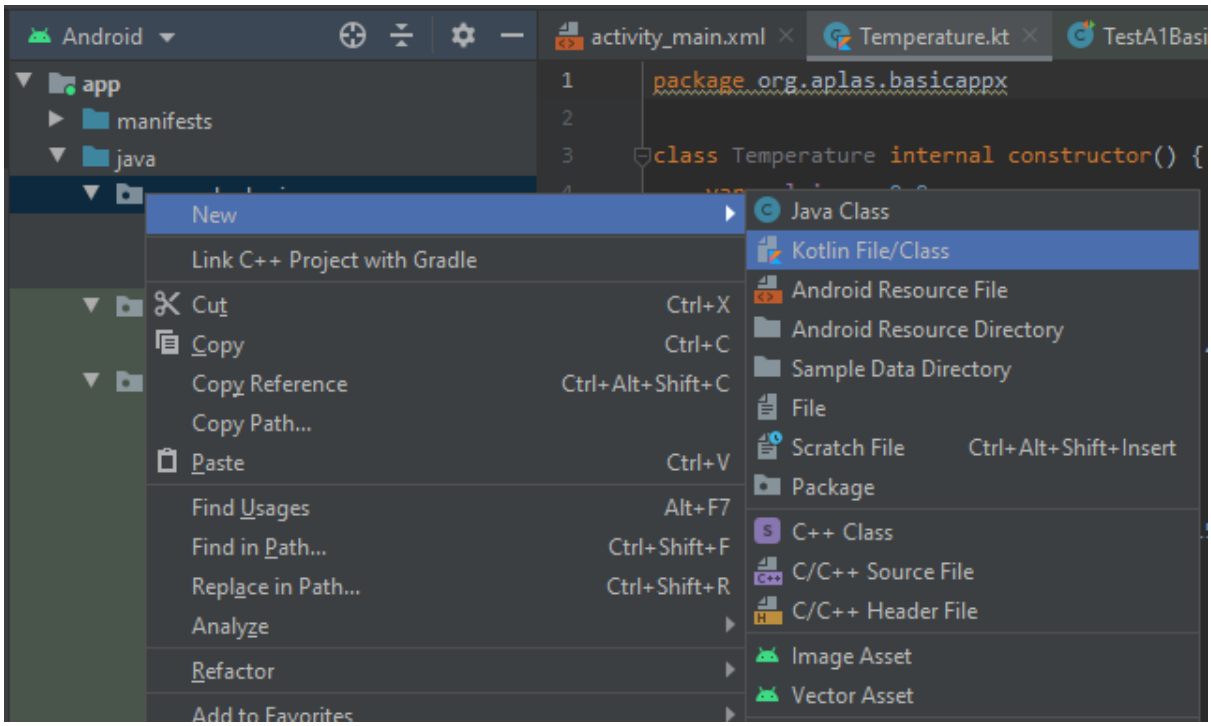
D. Task Description.

Student start to write a class to convert between temperature units with specified requirement and test it.

Reference to learn Kotlin:
https://kotlinlang.org/docs/reference/android-overview.html

E. Guidance.

1. Open BasicUI topic project (BasicApp) that already test passed.
2. Delete all files in “org.aplas.basicapp (test)” folder.
3. Create a new Temperature class, located in same folder with MainActivity.



4. Create a variable with name “celcius” and initiates field “celcius” with **0.0** value.

```
var celcius = 0.0
```

5. Create 2 variable with name “kelvin” & “fahrenheit” with double parameter :

$$(Temperature)\ 1^oC = \frac{9}{5} + 32\ ^oF = 273.15\ K$$

```
var fahrenheit: Double
var kelvins: Double
```

- Write “set(celcius)” inside variable “fahrenheit”, that will convert from $^\circ F$ to $^\circ C$ and assign the result to “celcius” field.

```
set(celcius) {
            this.celcius = (celcius - 32) / 9 * 5
        }
```

- “Write “set(celcius)” inside variable “kelvins”, that will convert from $^\circ K$ to $^\circ C$ and assign the result to “celcius” field.

```
set(celcius) {
            this.celcius = celcius - 273.15
        }
```

6. Make two get Method (function) to return a value of convert unit from “celcius” field:
   - “get()”, with blank parameter that will convert “celcius” field from *˚C* to *˚F* and return the result.

     ```
     get() = celcius * 9 / 5 + 32
     ```

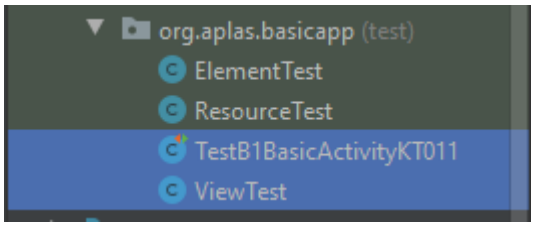
   - “get()”, with blank parameter that will convert “celcius” field from *˚C* to *K* and return the result.

     ```
     get() = celcius + 273.15
     ```

7. Make a “convert” method (function) to return a double value that convert from a unit (original) to another one (converted) as a return value. Utilize the get and set methods to create algorithm of this method. There are 3 parameters:
   - String oriUnit, as original unit (possibility values are *˚C, ˚F, K*).
   - String convUnit, as converted unit (possibility values are *˚C, ˚F, K*).
   - double value, as an original value that will converted.

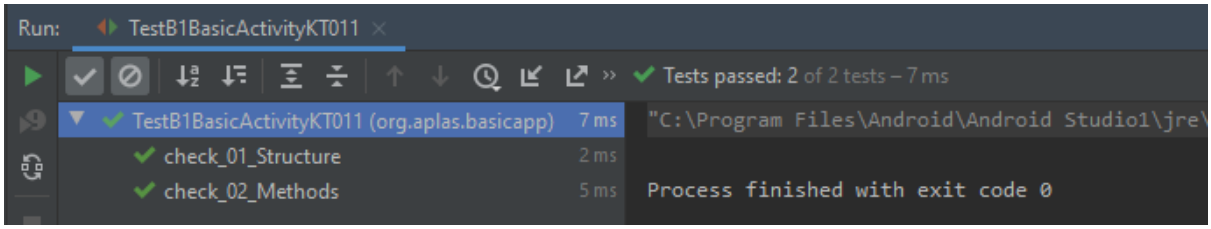
```
fun convert(oriUnit: String, convUnit: String, value: Double): Double {
        if (oriUnit == "°C") {
            celcius = value
        } else if (oriUnit == "°F") {
            fahrenheit = value
        } else {
            kelvins = value
        }
        return if (convUnit == "°C") {
            celcius
        } else if (convUnit == "°F") {
            fahrenheit
        } else {
            kelvins
        }
    }
```

8. Copy “TestB1BasicActivityKT011.java” and “ViewTest.java” file to “org.aplas.basicapp (test)” folder. Replace if possible.



9. Right click on the “TestB1BasicActivityKT011.java” file then choose Run ‘TestB1BasicActivityKT011’ and click it. It may take long time to execute.

10. Get the result of your task. If passed you will get green check. If the test failed, you will get orange check get the messages and you must start your project again.



F. Testing.

You have to try until get all green checks and continue to the next task.