

Programming Exercise 01 - Basic Java

Authors: Vince, Akul, Andrew

Problem Description

This assignment will test your basic knowledge of variables, assignment, expressions, and code comments.

Solution Description

Fahrenheit to Celsius/Kelvin Conversion

1. Create a class called `Temperature`.
2. Add a `main` method to this class.
3. In the `main` method do the following:
 - a. Declare a variable called `fahrenheit` and assign the value `450.0` to it. This variable should be the **smaller** of the two primitive types that can hold **floating point numbers**.
 - b. Declare a variable called `celsius`. This variable should be the **larger** of the two primitive types that can hold **floating point numbers**. On the same line as the declaration, calculate the equivalent Celsius temperature based on the `fahrenheit` variable.
The formula for this is: $Celsius\ Value = (Fahrenheit\ Value - 32) / 1.8$.
 - c. Declare a variable called `kelvin`. This variable should be the **larger** of the two primitive types that can hold **floating point numbers**. For now, assign the value of `celsius` to the `kelvin` variable.
 - d. Using a *Compound Assignment Operator*, (e.g. `*=`), calculate the equivalent Kelvin temperature based on the Celsius temperature stored in the `kelvin` variable. The formula for this is: $Kelvin\ Value = Celsius\ Value + 273.15$.
 - e. Print out to the console each of the variable values, each on a new line in this order:

```
{fahrenheit value}
{celsius value}
{kelvin value}
```
 - f. For the specified values, your output should be:

```
450.0
232.22222222222223
505.3722222222222
```
4. Leave a comment on the line after your last print statement about what you're excited for this semester!

Submitting

To submit, upload the files listed below to the corresponding assignment on Gradescope:

- `Temperature.java`

Make sure you see the message stating "PE01 submitted successfully." From this point, Gradescope will run an autograder on your submission verifying all necessary files are included and working as intended. Note: the nature of some assignments means they are **not fully autogradable** and will require some manual grading after submission. Although all autograder tests will be made visible on this assignment, this is NOT always your final grade. You can submit as many times as you want before the deadline, so feel free to resubmit as you make

progress on the homework. We will only grade your last submission be sure to **submit *every file* each time you resubmit.**

Import Restrictions

You may not import anything for this homework assignment.

Feature Restrictions

There are a few features and methods in Java that overly simplify the concepts we are trying to teach or break our autograder. For that reason, do not use any of the following in your final submission:

- `var` (the reserved keyword)
- `System.exit`

Collaboration

No collaboration is allowed on this assignment. See syllabus for more details.

In addition, note that you are not allowed to upload your code to any sort of public repository. This could be considered an Honor Code violation, even if it is after the homework is due.

Important Notes (Don't Skip)

- Non-compiling files will receive a 0 for all associated rubric items
- Do not submit `.class` files
- Test your code in addition to the basic checks on Gradescope
- Submit every file each time you resubmit
- Read the "Allowed Imports" and "Restricted Features" to avoid losing points
- Check on Piazza for all official clarifications