**IPO, Flowchart, and Pseudo-code, Unit 1**

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**Pseudo-Code**

Function ConvertFahrenheitToCelcius takes tempFahrenheit and returns tempCelsius

tempCelsius = (Tempfahrenheit-32)\*0.5556

return tempCelsius

Function ConvertFahrenheitToKelvin takes tempFahrenheit and returns tempKelvin

tempKelvin = (((tempFahrenheit-32) \*5) /9) + 273.15

return tempKelvin

Function toCelsiusAndKelvin taking tempFahrenheit as an argument while returning tempCelsius and tempKelvin.

tempCelsius = call function ConvertFahrenheitToCelcius with tempFahrenheit

tempKelvin = call function ConvertFahrenheitToKelvin with tempFahrenheit

return (tempCelsius, tempKelvin)

**The Input, Process, and Output Diagram**

The Standing Hypothesis:

If you call toCelsiusAndKelvin with a tempFahrenheit of 32, you will get a Celsius of 0 and a kelvin of 273.15.

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| * tempFahrenheit == 32 | * Pass tempFahrenheit to ConvertFahrenheitToCelcius * Subtract 32 from tempFahrenheit * Multiply tempFahrenheit by 0.5556 * Return result as tempCelsius * Pass tempFahrenheit to ConvertFahrenheitToKelvin * Subtract 32 from tempFahrenheit * Multiply tempFahrenheit by 5 * Divide tempFahrenheit by 9 * Add 273.15 to tempFahrenheit * Return the result as tempKelvin | * tempCelsius == 0 * tempKelvin == 273.15 |

According to this Input Process Output diagram, the algorithm used in the pseudo-code above functions as expected. We got the correct results for both Celsius and Kelvin when passing a Fahrenheit value.

**The FlowChart (Branching Returns)**

A flowchart for this algorithm can be demonstrated as such:

Return tempClesius and tempKelvin

Return tempKelvin

tempKelvin = (((tempFahrenheit-32) \*5) /9) + 273.15

tempCelsius = (Tempfahrenheit-32)\*0.5556

PassTempFahrenheit to toKelvin

Return tempCelsius

Pass TempFahrenheit to toCelcius

This flow chart can be constructed simply and logically due to the lack of conditionals and looping found in this program.