420-B31

**Lab 3 Appendix**

**Test Cases for the Temperature Class**

**Test Case 1** Instantiation of a Temperature object using default values for the attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Purpose | Object State | Expected Result |
| Temperature t1 = new Temperature() | To create a temperature object using the default values. | units = 'C'  temperature = 0.0 | A new Temperature object with default values for the attributes. |
| t1.getTemperature() | To verify instantiation and accessor method |  | 0.0 |
| t1.getUnits() | To verify instantiation and accessor method |  | 'C' |

**Test Case 2** Instantiation of a Temperature object using Celsius units for the attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Purpose | Object State | Expected Result |
| Temperature t2 = new Temperature(24.0,'C') | To create a temperature object using the default values. | units = 'C'  temperature = 24.0 | A new Temperature object with default values for the attributes. |
| t2.getTemperature() | To verify instantiation and accessor method |  | 24.0 |
| t2.getUnits() | To verify instantiation and accessor method |  | 'C' |

**Test Case 3** Instantiation of a Temperature object using Fahrenheit units for the attributes.

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t3 = new Temperature(84.0,'f') | To create a temperature object for a Fahrenheit temperature. | units = 'f'  temperature = 84.0 | A new Temperature object with default values for the attributes. |
| t3.getTemperature() | To verify instantiation and accessor method |  | 84.0 |
| t3.getUnits() | To verify instantiation and accessor method |  | 'F' |

**Test Case 4** Instantiation of a Temperature object using illegal values for the attributes.

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t4 = new Temperature(24.0,'A') | To create a temperature object using an illegal value for units. |  | Illegal argument exception |

**Test Case 5** Mutator to change the temperature for a Temperature object

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t5 = new Temperature(24.0,'C') | To create a temperature object for a Celsius temperature. | units = 'C'  temperature = 24.0 | A new Temperature object with client-supplied values for the attributes. |
| t5.setTemperature(56.5) | To test mutator with a legal value | units = 'C'  temperature = 56.5 |  |
| t5.getTemperature() |  |  | 56.5 |

**Test Case 6** Mutator to change the units for a Temperature object: legal input

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t6 = new Temperature(24.0,'C') | To create a temperature object for a Celsius temperature. | units = 'C'  temperature = 24.0 | A new Temperature object with client-supplied values for the attributes. |
| t6.setUnits('F') | To test mutator with a legal value | units = 'F'  temperature = 24.0 |  |
| t6.getUnits() |  |  | 'F' |

**Test Case 7** Mutator to change the units for a Temperature object: illegal input

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t7 = new Temperature(24.0,'C') | To create a temperature object for a Celsius temperature. | units = 'C'  temperature = 24.0 | A new Temperature object with client-supplied values for the attributes. |
| t7.setUnits('X') | To test mutator with an illegal value |  | Illegal argument exception |

**Test Case 8** getCelsius() method for Fahrenheit and Celsius objects

| Operation | Purpose | Object State | Expected Result |
| --- | --- | --- | --- |
| Temperature t8 = new Temperature(100.0,'C') | To create a temperature object for a Celsius temperature. | units = 'C'  temperature = 100.0 | A new Temperature object with client-supplied values for the attributes. |
| t8.getCelsius() | To test Celsius accessor method for a Celsius temperature | units = 'C'  temperature = 100.0 | 100 |
| t8.setUnits('F') |  | units = 'F'  temperature = 100.0 |  |
| t8.getCelsius() | To test Celsius accessor method for a Fahrenheit temperature | units = 'F'  temperature = 100.0 | 37.7777778 |