

Description

The purpose of this task is to add functionality to your working solution from Task 1. This effort is minor compared to creating the original version. In fact, it basically adds the pieces that were omitted to simplify the original. This updated version now accommodates three dimensions and does error checking.

Specifications

The original specifications still apply, except where superseded here. You are still responsible for the correct performance of what was tested previously. In other words, do not break anything in the process of enhancing it.

The general specifications (meaning it is your interpretation of how to implement them) is to add full error checking as follows:

- Accept no invalid arguments
- Do not build or process an invalid tree

For all cases except `CloneNotSupportedException`, throw our special `TaskException` defined below with a reasonable explanation of what was wrong.

Class Implementation

The following describes the role of the classes to implement or modify.

TaskException

Implement an unchecked exception (extending `RuntimeException`) with the empty and string constructors only.

Dimension3D

Implement a cloneable data class that takes three doubles for (*width*, *height*, *depth*) and supplies corresponding get methods; e.g., `getWidth()`. They map onto our x, y, and z axis, respectively.

Box and Connector

Change all instances of `Point2D` to `Point3D`, and all instances of `Dimension2D` to `Dimension3D`, and update any affected functionality to accommodate three dimensions.

Deliverables

Submit only your Java sources files. Do not zip them. Code that does not compile will receive no credit. Code that crashes will receive whatever credit it manages.