

Brock University

Lab Test 1, Winter 2025

Course: COSC 3P91

Number of Pages: 3

Number of Hours: 2

Instructor: M. Winter

Instructions

- 1) Implement the design as indicated below using Java and NetBeans.
- 2) Zip your project folder and name it with your name and student number, e.g., MichaelWinter123456.zip
- 3) Send the file to your lab instructor by email.
- 4) Wait for a confirmation email.
- 5) Log out of the lab computer and hand back the question sheets to the lab instructor. You can now leave the lab.
- 6) The test is worth a total of 20 marks.

In this test you are going to implement an existing design of parts of a game in Java. The design is provided by a UML class diagram below. The following additional comments might help during implementation:

1. The method `computeHitPoints()` in the enum type `ArmyClass` will return
 - a. D6+8 for a fighter unit,
 - b. D6+6 for a ranger unit,
 - c. 2D6+6 for a wizard unit,where D6 is a roll of a six-sided dice (2D6 = roll of two six-sided dices). Such a roll can be computed by `(int) (6*Math.random()+1)`.
2. The costs to enter a terrain are as follows: Grassland=1, Woods=2 and Montains=10.
3. The method `contentSize()` in the class `TerrainContent` returns the sum of the sizes of all items in the terrain content.
4. The method `reduceDefenseBonus(amount : int)` in the class `Place` reduces the defence bonus of the place by amount. The defence bonus cannot become negative. i.e., if the defense bonus is 2 and amount is 3, then the new defense bonus will be 0 (and **not** -1).
5. The `toString()` method in the class `Item` will first call the method `getDetails()` in order to print the details of the specific item and then add the general information stored in `Item` to that string.
6. The `toString()` method in the `Hex` class is supposed to print all available information about the hero, i.e., name, class, and the inventory. Below you find two examples as a guideline:

Brock University

This is the region Lower Eastlands.

It belongs to the Old World.

The region currently contains the following:

A unit of Rangers with strength 1.

Size: 2

Coalition: Bloodhounds

Barricades with defense bonus of 4.

Size: 8

Coalition: Bloodhounds

This is the region Misty Mountains.

The region currently contains the following:

Great outlook with defense bonus of 0.

Size: 1

Coalition: Freelanders

7. Delegation/Forwarding is indicated by the fact that the corresponding methods in the sender and receiver class have the same name.

Brock University

