Exercise – OO Introduction

Questions:

1. What are the key differences between procedural and OO programming?
2. What are the four main tenets of OO? For each one write a sentence in your own words summarizing what it means
3. For an NPC in a game would you make the following variables private (can only be access by functions in the object, or public (can be accessed by any object): Position, Health, SpriteID, behavioural state
4. Organise the following objects into a suitable hierarchy: tree, rabbit, plant, fox, stone, grass, predator, animal and tiger. Is there any additional objects you'd like to add? Draw the inheritance tree
5. For the example above think about what functionality and attributes each object has and how those are inherited by other further down the inheritance tree.
6. Research OO programming languages and produce a definitive list. Historically what was the first language?
7. Is C++ OO? (hint: you might want to research what its creator has to say on the subject)

1. Procedural Programming - top-down design, discrete functions performing small tasks, data transferable via function parameters, return values.
Object Oriented Programming - code is structured around objects, their relationships, and their interfaces.

2. Abstraction - the process of hiding implementation details and exposes only the functionality to the user.
Encapsulation - the process of wrapping code and data together into a single unit.
Inheritance - the process of one class inheriting properties and methods from another class
Polymorphism - is the ability to perform many things on many ways.

3.

© AIE 2020