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16.5 Problem Set

1. Find and report any valuable facts about parameter passing and its importance in OOP.
   1. Parameter passing is a method of transferring information in and out of methods, which is used in OOP.
   2. When a parameter is passed by value, a copy of it is made, however, when passing by reference, the value does change in the original method.
2. What could be a real life example of a client-server relationship?
3. As servers provide resources to clients, an example is an online multiplayer video game, where the client gets updated “realtime” information from a central server.

1. What are mutators and accessors? Give examples.

1. A mutator method changes the contents of an object, example: .setName
2. An accessor method receives the value, example: .getName

2. List two visibility modifiers and describe when they are used.

1. Private: Limits access to a single class
2. Public: Allows any program component to access the method

3. What is a constructor?

1. A constructor is a method which is called when an instance of an object is created (initialized the object).

4. Why do we include a toString method with a new user-defined class?

1. The toString method is used to return a concatenated version of an object, usually for debugging purposes.

5. How can two variables refer to the same object? Give an example.

1. You can use the assignment statement (“=”) to set two variables to the same object, or to each other.

6. Explain the difference between a primitive type and a reference type, and give an example of each.

1. A primitive type represents integers, or other primitive data types.
2. On the other hand, reference types represent, for example, objects.

7. What is the null value?

1. A value which means that a variable refers to no object.

8. What is a null pointer exception? Give an example.

1. This error occurs when a program requests an objects that doesn’t exist (hence null).

9. How does a default constructor differ from other constructors?

1. A default constructor lacks parameters, or rather, uses default values.

10. How does Java handle the initialization of instance variables if no constructors are provided?

1. It uses defaults, like 0 or null.

11. What is the purpose of a constructor that expects another object of the same class?

1. It simply copies the information to another object.