**Assignment 3**

1. Explain polymorphism.

Polymorphism is one of the big viewing of the override and overload, which means to make one message to be displayed changed in more than one form

1. What is overloading?

Overloading means that two method which have the same name, but the input type, return type, and inside function are totally different

1. What is overriding?

Overriding is part of the inheritance, which is to modify the previous parent function into a new way.

1. What does the final mean in this method: public void doSomething(**final** Car aCar){}

Which means it’s can’t be reassign

1. Suppose in question 4, the Car class has a method setColor(Color color){…}, inside doSomething method, Can we call aCar.setColor(red);?

Yes because the inside function is not final

1. Can we declare a static variable inside a method?

Do we can’t not static variable is class level variable not method

1. What is the difference between interface and abstract class?

Interface: no constructor can’t be initialize, allow multi inheritance, must be abstract, since java 8 allow default and static

Abstract class: can’t be initialize must be inheritance, only can have one, constructor must not be abstract

1. Can an abstract class be defined without any abstract methods?

yes

1. Since there is no way to create an object of abstract class, what’s the point of constructors of abstract class?

The abstract class also have the instance variable that need to be initiated

1. What is a native method?

It’s either an instance method or a class method whose implementation is written in another programming language

1. What is marker interface?

An interface that has no methods or constants inside it

1. Why to override equals and hashCode methods?

If you override the equals you must override the hashcode

1. What’s the difference beween int and Integer?

Integer is the wrapper class of the int, Integer is a object and int is a data type

1. What is serialization?

Is the process of turning an object in memory into a stream of bytes so you can store it one a flashdrive or sent it to the network

1. Create List and Map. List A contains 1,2,3,4,10(integer) . Map B contains ("a","1") ("b","2") ("c","10") (key = string, value = string)

Question: get a list which contains all the elements in list A, but not in map B.

List.keySet().containsAll(Map);

1. Implement a group of classes that have common behavior/state as Shape. Create Circle, Rectangle and Square for now as later on we may need more shapes. They should have the ability to calculate the area. They should be able to compare using area. Please write a program to demonstrate the classes and comparison. You can use either abstract or interface. Comparator or Comparable interface.

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