4/29/19 – Final Exam revision

**Inheritance**

1. Inheritance has an “is a” relationship; Contains superclass and subclasses
2. Aggregation is a “has a” relationship; Attribute is a class
3. Superclass/Subclass example: Boat/Motorboat
4. Subclass also called specialized class
5. Subclass only inherits public members(ie: public methods. Constructors and attributes aren’t inherited)
6. When a subclass is instantiated, the superclass default constructor is executed first. Eg: super()
7. Put keyword extends in header to indicate inheritance from superclass ie: public class Motorboat extends Boat
8. A subclass can have a chain of inheritance where the super class inherits from another super class

**Abstract classes and methods**

1. Abstract classes aren’t instantiated and only serves to be inherited from.
2. To make a class abstract use keyword abstract in header
3. Abstract methods only have the header and no body but they must be overridden by the subclass

**Interfaces**

1. An interface is like a contract. Any methods inside the interface are abstract and must be overridden. This ensures that whatever class that implements from this interface implements all of the methods inside this interface.
2. Interface species the behavior of other classes
3. Make an interface by using the keyword interface ie: public interface Behaviors
4. Classes that wish to use this interface must use keyword implements to use interface ie: public class Motorboat extends Boat implements Behaviors
5. All fields in interfaces are treated as final and static

**Polymorphism**

1. One class can take on many forms

**Exceptions**

1. Object generated as a result of an error
2. Said to be thrown
3. Unhandled exceptions crash your program
4. Exception handling – Taking care of our errors
5. All Exceptions inherit from Throwable which inherits from Object
6. Try – catch clauses used to handle errors
7. There can be a finally clause that must appear after all of the catch clauses – this executes whether an exception occurs or not
8. @exception exceptionName Description– Javadoc

**GUI – Graphical User Interface**

1. Buttons, labels, fields, radial buttons, sliders,
2. Java programmers use Java Foundation Classes to create GUI apps
3. Classes – swing, AWT (Abstract Windowing Toolkit)
   1. Import javax.swing.\*;
   2. Import java.awt.\*;
4. When buttons are clicked, etc.., that is known as an event
5. Event listening methods
6. A window is a container which is a frame
7. Inheritance used extensively in GUI