

# Homework: Inheritance and Interfaces

1. **Exercise - Implement the class hierarchy:** Consider the following hierarchy of classes.

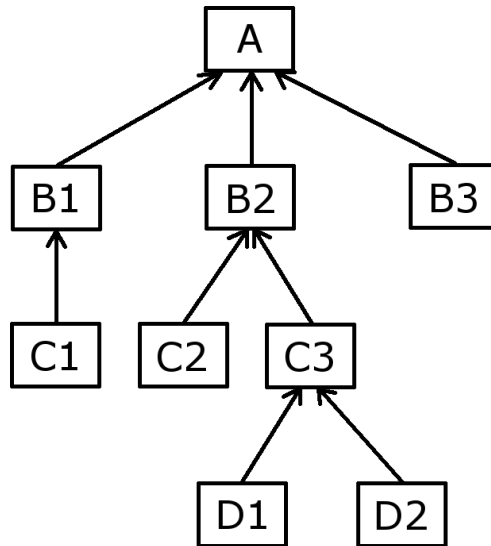


Figure 1: Class Hierarchy

This means, that A is the parent of B1, B2 and B3, B1 is the parent of C1 and so on. Now implement these classes.

2. **Exercise - Implement the interface:** Now take a look at the following interface definition.

```
public interface HierarchyDiscoverable {  
    /*  
     * Prints the name of the class.  
     */  
    void printClassName();  
  
    /*  
     * Prints the name of the parent class.  
     */  
    void printClassParent();  
  
    /*  
     * Prints the name of the class and all base classes separated by " -> ".  
     */  
    void printClassHierarchy();  
}
```

All classes in the hierarchy should now implement this interface. Try to be efficient with your coding, not all classes need to implement all methods. **Don't** hard code the results e.g. `System.out.println("B1 -> A -> Object")`. For example output of the methods, please see the main code below.

```
public class Main {
    public static void main(String[] args) {
        A a = new A();
        B1 b1 = new B1();
        D2 d2 = new D2();

        a.printClassName();      // Output: A
        a.printClassParent();    // Output: Object
        a.printClassHierarchy(); // Output: A -> Object

        b1.printClassName();     // Output: B1
        b1.printClassParent();    // Output: A
        b1.printClassHierarchy(); // Output: B1 -> A -> Object

        d2.printClassName();     // Output: D2
        d2.printClassParent();    // Output: C3
        d2.printClassHierarchy(); // Output: D2 -> C3 -> B2 -> A -> Object
    }
}
```