Advanced Object Oriented Programming and Design

Theoretical Homework 1

Abraham Murciano and Daniel Klein

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We are given the following code which we can assume is correct.

```
public static void main(String[] args) {
    int x;
    String y;
    C b1 = new B();
    A[] arrA = new A[3];
    arrA[0] = new B(x, y);
    arrA[1] = new B();
    arrA[2] = new C();
    arrA[0].f();
    arrA[0].g();
    arrA[0].h();
}
```

Section A

We are told A is an interface, and we are tasked with writing its declaration.

```
interface A {
    void f();
    void g();
    void h();
}
```

Section B

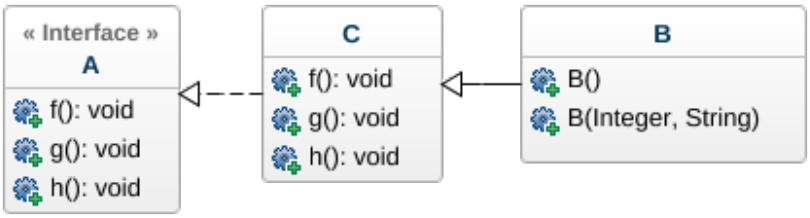
We must now implement classes B and C.

```
class C implements A {
    void f() {}
    void g() {}
    void h() {}
}

class B extends C {
    public B() {}
    public B(int, String) {}
}
```

1 Section C

Below is a UML diagram for the classes A, B, and C.



2 Section D

C cannot be an interface, because we call its constructor in the code, and interfaces cannot be instantiated.