6. What is the output of running the class C in (a)? What problem arises in compiling the program in (b)?

```
class A {
  public A() {
    System.out.println(
      "A's no-arg constructor is invoked");
  }
}

class B extends A {
}

public class C {
  public static void main(String[] args) {
    B b = new B();
  }
}
```

(a)

```
class A {
  public A(int x) {
  }
}

class B extends A {
  public B() {
  }
}

public class C {
  public static void main(String[] args) {
    B b = new B();
  }
}
```

(b)

(a) Output: A's no-arg constructor is invoked

(b)The problem in compiling that class B try to find default constructor in class A to inherit from it but there only constructor with one parameter so the solution is to make a default constructor with class A or to put super(integer number) in class B to inherit from class A.

7. Identify the problems in the following code:

```
1  public class Circle {
2    private double radius;
3
4    public Circle(double radius) {
5      radius = radius;
6    }
7
8    public double getRadius() {
9      return radius;
10   }
11
12   public double getArea() {
13     return radius * radius * Math.PI;
14   }
15 }
16
17 class B extends Circle {
18   private double length;
19
20   B(double radius, double length) {
21     Circle(radius);
22     length = length;
23   }
24
25   @Override
26   public double getArea() {
27     return getArea() * length;
28   }
29 }
```

Line number:

5) this.radius = radius;

20) public B(double radius , double length){

21) super(radius);

22) this.length = length;

27) return super.getArea() * length;

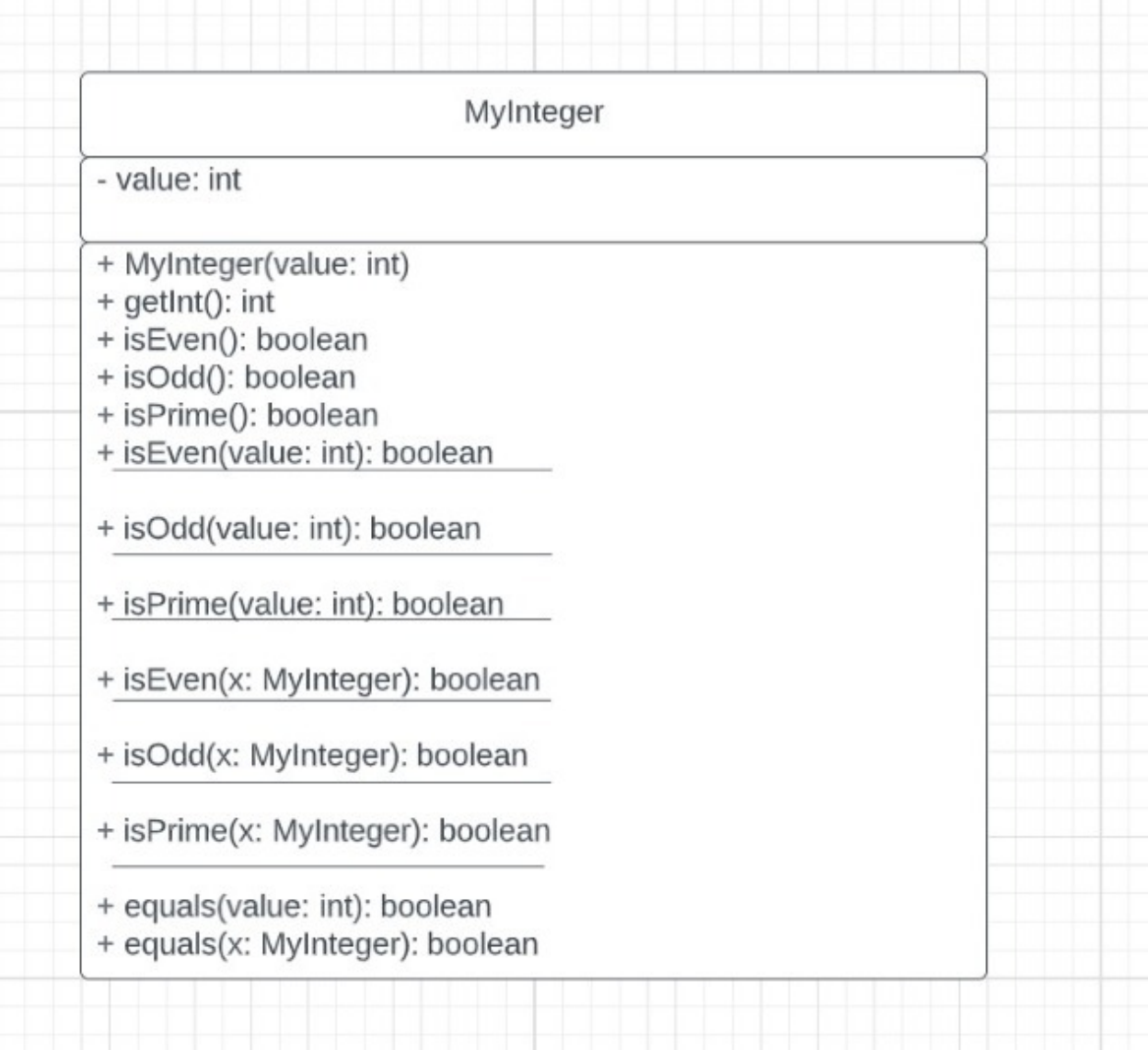
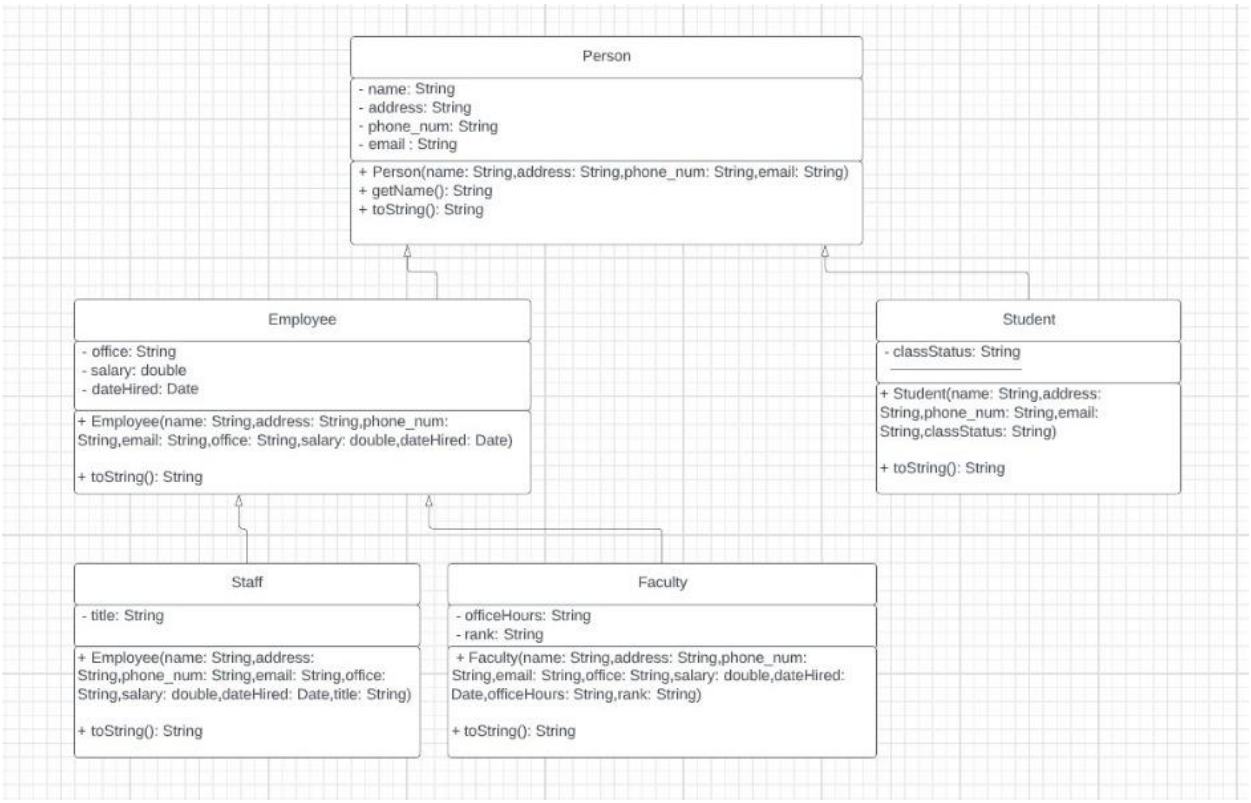
8. If a method in a subclass has the same signature as a method in its superclass with the same return type, is the method overridden or overloaded?

9. If a method in a subclass has the same signature as a method in its superclass with a different return type, will this be a problem?

8) overridden

9) Yes, this will be Syntax error

Q5) UML DIAGRAM



Q10) UML DIAGRAM