IS1220 - Object Oriented Software Design

Quiz 02

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Learning outcomes:

- Inheritance
- Methods overriding and hiding

Exercise 1. Questions

Q1) Describe the difference between *instance attributes* and *class attributes* as well as *instance methods* and *class methods* (give simple examples of code for explaining).

Answer:

Q2) Explain what is meant by object *composition* and *inheritance*. Why are they good features of OOP paradigm?

Answer:

Q3) explain what is meant by *overloading* and what is meant by *overriding* (give simple examples for both).

Answer:

Q4) Would class A and class B in the following code compile correctly? Explain.

1.
```
class A {
        int x;
        public void method1(int y){y=1;}
        public int method1(int y){return y;}
}
```

2.
```
class B {
        int x;
        public void method1(int y){y=1;}
        public int method1(int y, int z){return y;}
}
```

Answer:

Q5) Would the following code compile correctly? Explain.

1.
```
public class SuperClassA {
        private int x;
        public void setX(int x){this.x=x;}
}

public class SubClassA extends SuperClassA{
        double z;
        public SubClassA(double x){this.z=x;}
}
```

2.
```
public class SuperClassA {
        private int x;
        public SuperClassA(int y){this.x=y;}
        public void setX(int x){this.x=x;}
}

public class SubClassA extends SuperClassA{
        double z;
        public SubClassA(double x){this.z=x;}
}
```

Answer:

Q6) Would the following code compile correctly? Explain.

1.
```
public class MyClass {
        int mymethod(int a, int b, float c)
        int mymethod(int var1, int var2, float var3)
}
```

2.
```
public class MyClass {
        int mymethod(int a, int b)
        int mymethod(float var1, float var2)
}
```

3.
```
public class MyClass {
        int mymethod(int a, int b)
        int mymethod(int num)
}
```

4.
```
public class MyClass {
        float mymethod(int a, float b)
        float mymethod(float var1, int var2)
}
```

5.
```
public class MyClass {
        int mymethod(int a, int b)
        float mymethod(int var1, int var2)

}
```

Answer:

Q7) Would the following code compile correctly? Explain.

1.
```
class A{
    public int myMethod(int num1, int num2){
        System.out.println("First myMethod of class Demo");
        return num1+num2;
    }
    public int myMethod(int var1, int var2){
        System.out.println("Second myMethod of class Demo");
        return var1−var2;
    }
}
class Test{
    public static void main(String args[]){
        A obj1= new A();
        obj1.myMethod(10,10);
        obj1.myMethod(20,12);
    }
}
```

2.
```
class A{
    public double myMethod(int num1, int num2){
```

```
        System.out.println("First myMethod of class Demo");
        return num1+num2;
    }
    public int myMethod(int var1, int var2){
        System.out.println("Second myMethod of class Demo");
        return var1-var2;
    }
}
class Test{
    public static void main(String args[]){
        A obj2= new A();
        obj2.myMethod(10,10);
        obj2.myMethod(20,12);
    }
}
```

Answer: