

OBJECT-ORIENTED PROGRAMMING

06 Quiz 1

1. Select the four (4) statements that can be inserted at line n1.

```
employee.salary = 50000;  
director.salary = 80000;  
employee.budget = 20000;  
manager.budget = 100000;  
manager.stockOptions = 500;  
director.stockOptions = 1000;
```

```
public class Employee {  
    public int salary;  
}  
public class Manager extends Employee {  
    public int budget;  
}  
public class Director extends Manager {  
    public int stockOptions;  
}  
  
    public static void main(String[] args) {  
        Employee employee = new Employee();  
        Manager manager = new Manager();  
        Director director = new Director();  
        //line n1  
    }  
}
```

The 4 statement that can be inserted at line n1 that is valid is:

- **employee.salary = 50000;** - The salary field is defined in the Employee class, and employee is an instance of Employee
- **director.salary = 80000;** - The Director extends Manager, which in turn extends Employee, the Director instance (director) can access the salary field inherited from Employee.
- **manager.budget = 100000;** - The budget field is defined in the Manager class, and manager is an instance of Manager.
- **director.stockOptions = 1000;** - The stockOptions field is defined in the Director class, and director is an instance of Director.

I am going to attach a java file that will print the 4 valid statement.

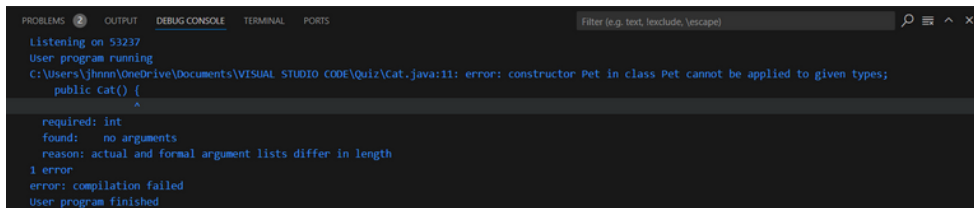
OBJECT-ORIENTED PROGRAMMING

06 Quiz 1

2. Will the code compile? If yes, determine the output. If no, state why.

```
class Pet {  
    public Pet(int age) {  
        System.out.print("Pet");  
    }  
}  
  
public class Cat extends Pet {  
    public Cat() {  
        System.out.print("Cat");  
    }  
    public static void main(String[] args) {  
        new Pet(5);  
    }  
}
```

The code will not compile because if you run the code the result will be this:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
Listening on 53237  
User program running  
c:\Users\jhhnn\OneDrive\Documents\VISUAL STUDIO CODE\Quiz\Cat.java:11: error: constructor Pet in class Pet cannot be applied to given types;  
    public Cat() {  
        ^  
    required: int  
    found:    no arguments  
    reason: actual and formal argument lists differ in length  
1 error  
error: compilation failed  
User program finished
```

On this matter the Class (Cat) extends to the class (Pet) but it doesn't specifically call the superclass (Pet) because in Java if a subclass does not call a superclass constructor, the compiler tries to insert a call to the no-argument constructor of the superclass.

In conclusion, The code will not compile due to the class (Cat) not properly calling the superclass (Pet) the code will run if you put a integer parameter in the (Cat) class like this:

```
public class Cat extends Pet {  
    public Cat(int age) {  
        super(age);  
        System.out.print("Cat");  
    }  
}  
Run main | Debug main  
public static void main(String[] args) {  
    new Pet(5);  
}
```

or

```
public class Cat extends Pet {  
    public Cat() {  
        super(5);  
        System.out.print("Cat");  
    }  
}  
Run main | Debug main  
public static void main(String[] args) {  
    new Pet(5);  
}
```