29-07-2024

INHERITANCE

write a java program that create class hierarchy for a employee of company the base class should be employee with subclasses manager developer and programmer each subclass should have the properties such as name address salary and job title implement method for calculating bonus generate the performance report.

```
class Employee {
    protected String name;
    protected String address;
    protected double salary;
    protected String jobTitle;
    public Employee(String name, String address, double salary, String jobTitle) {
        this.name = name;
        this.address = address;
        this.salary = salary;
        this.jobTitle = jobTitle;
    }
    public double calculateBonus() {
        return salary * 0.1;
    }
    public void generatePerformanceReport() {
        System.out.println("Employee Name: " + name);
        System.out.println("Job Title: " + jobTitle);
        System.out.println("Salary: " + salary);
    }
}
class Manager extends Employee {
    private String department;
    public Manager(String name, String address, double salary, String jobTitle, String
department) {
        super(name, address, salary, jobTitle);
        this.department = department;
    }
    public double calculateBonus() {
```

```
        return super.calculateBonus() * 1.5;
    }
    public void generatePerformanceReport() {
        super.generatePerformanceReport();
        System.out.println("Department: " + department);
    }
}
class Developer extends Employee {
    private String programmingLanguage;
    public Developer(String name, String address, double salary, String jobTitle, String
programmingLanguage) {
        super(name, address, salary, jobTitle);
        this.programmingLanguage = programmingLanguage;
    }
    public void generatePerformanceReport() {
        super.generatePerformanceReport();
        System.out.println("Programming Language: " + programmingLanguage);
    }
}
class Programmer extends Developer {
    public Programmer(String name, String address, double salary, String jobTitle, String
programmingLanguage) {
        super(name, address, salary, jobTitle, programmingLanguage);
    }
    public double calculateBonus() {
        return super.calculateBonus() * 1.2;
    }
}
public class Main {
    public static void main(String[] args) {
        Manager manager = new Manager("John Doe", "123 Main St", 100000, "Manager",
"IT");
        manager.generatePerformanceReport();
```

```
        System.out.println("Bonus: " + manager.calculateBonus());


        Developer developer = new Developer("Jane Smith", "456 Elm St", 80000,
"Developer", "Java");
        developer.generatePerformanceReport();
        System.out.println("Bonus: " + developer.calculateBonus());
        Programmer programmer = new Programmer("Bob Johnson", "789 Oak St", 70000,
"Programmer", "Python");
        programmer.generatePerformanceReport();
        System.out.println("Bonus: " + programmer.calculateBonus());
    }
}
```

Output

```
java -cp /tmp/ygDI0OnuYL/Main
Employee Name: John Doe
Job Title: Manager
Salary: 100000.0
Department: IT
Bonus: 15000.0
Employee Name: Jane Smith
Job Title: Developer
Salary: 80000.0
Programming Language: Java
Bonus: 8000.0
Employee Name: Bob Johnson
Job Title: Programmer
Salary: 70000.0
Programming Language: Python
Bonus: 8400.0

=== Code Execution Successful ===
```

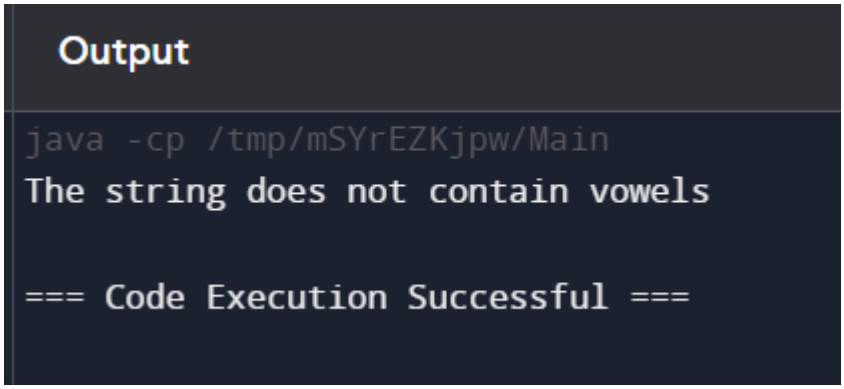
Exception Handling

Write a java program To create method that take string as input that string doesn't contain vowels if all contains vowels prove the exception.

```
public class Main {
    public static void main(String[] args) {
        try {
            checkVowels("bcd");
        } catch (NoVowelsException e) {
            System.out.println(e.getMessage());
        }
    }

    public static void checkVowels(String input) throws NoVowelsException {
        String vowels = "aeiouAEIOU";
        for (char c : input.toCharArray()) {
            if (vowels.indexOf(c) != -1) {
                return;
            }
        }
        throw new NoVowelsException("The string does not contain vowels");
    }
}

class NoVowelsException extends Exception {
    public NoVowelsException(String message) {
        super(message);
    }
}
```

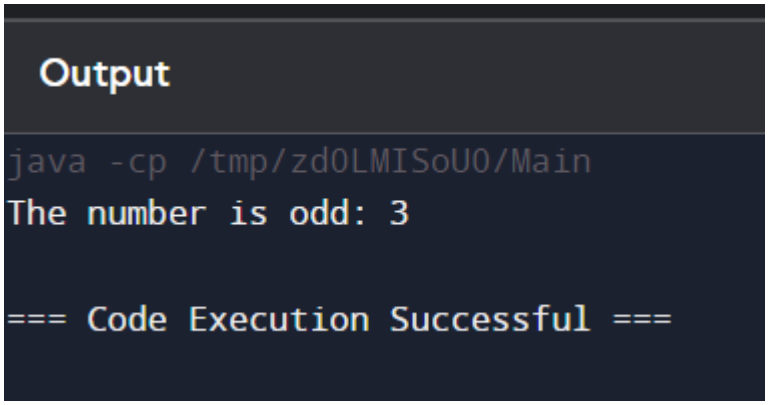


Exception Handling

Write a java program to create method that take on integers as parameter throws exception if the number is odd

```
public class Main {
    public static void checkEven(int number) throws Exception {
        if (number % 2 != 0) {
            throw new Exception("The number is odd: " + number);
        } else {
            System.out.println("The number is even: " + number);
        }
    }

    public static void main(String[] args) {
        try {
            checkEven(3);
        } catch (Exception e) {
            System.err.println(e.getMessage());
}
}
}
```


Output
java -cp /tmp/zdOLMISoUO/Main
The number is odd: 3
=== Code Execution Successful ===