

1. circle.java

class circle을 선언하고 생성자를 2가지 만들어 하나는 값이 아무것도 들어오지 않았을 때, 나머지는 반지름이 주어졌을 때로 구분되었습니다. getArea, getPerimeter로 면적, 둘레의 길이를 리턴하게 했습니다.

main에서는 반지름을 설정한 circle (R = 5)과 설정하지 않은 circle을 생성하여 반지름, 면적을 출력해 보았습니다.

```
class circle {
    int radius;
    double pi;

    public circle() {
        radius = 10;
        pi = 3.1415;
    }

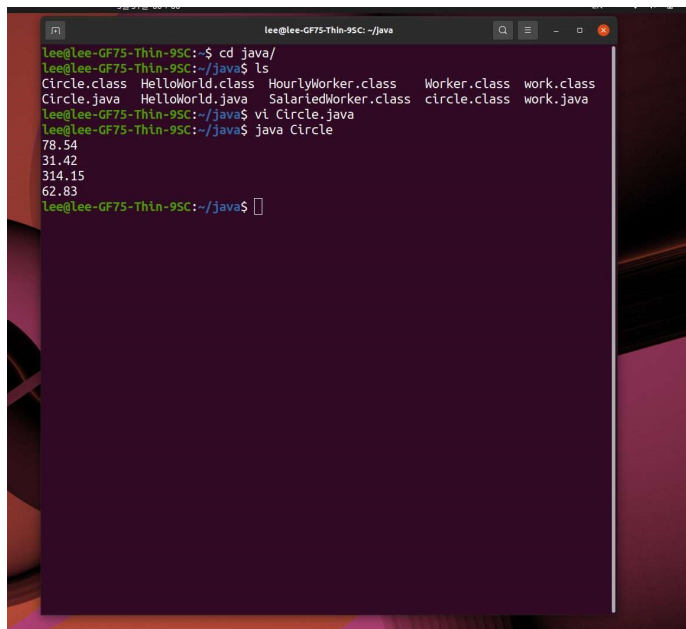
    public circle(int R) {
        radius = R;
        pi = 3.1415;
    }

    public double getArea() {
        return Math.round((double)(radius * radius) * pi * 100) / 100.0;
    }

    public double getPerimeter() {
        return Math.round((double)(radius * 2) * pi * 100) / 100.0;
    }
}

public class Circle {
    public static void main(String[] args) {
        circle c1 = new circle(5);
        System.out.println(c1.getArea());
        System.out.println(c1.getPerimeter());

        circle c2 = new circle();
        System.out.println(c2.getArea());
        System.out.println(c2.getPerimeter());
    }
}
```



```
lee@lee-GF75-Thin-95C: ~/java
lee@lee-GF75-Thin-95C:~$ cd java/
lee@lee-GF75-Thin-95C:~/java$ ls
Circle.class HelloWorld.class HourlyWorker.class Worker.class work.class
Circle.java HelloWorld.java SalariedWorker.class circle.class work.java
lee@lee-GF75-Thin-95C:~/java$ vi Circle.java
lee@lee-GF75-Thin-95C:~/java$ java Circle
78.54
31.42
314.15
62.83
lee@lee-GF75-Thin-95C:~/java$
```

2. class worker를 정의하고, 그안의 함수들을 정의하였습니다. toString에서는 Worker + name + salary_rate is + salary_rate를 출력하게 하였습니다. worker를 상속받는 HourlyWorker와 SalariedWorker의 toString은 각각 HourlyWorker + name + salary_rate is + salary_rate와 SalariedWorker + name + salary_rate is + salary_rate override하였습니다.

또한 HourlyWorker와 SalariedWorker의 computePay도 다르게 적용되므로 override하였습니다. HourlyWorker는 40시간 이상일하면, 초과분의 반 * salary_rate로 적용하였고, SalariedWorker는 40시간 이상일해도 40시간만큼의 급여를 return하게 했습니다.

Main문에서는 worker, HourlyWorker, SalariedWorker를 각각 w1, w2, w3로 설정하고 100시간 일한 급여와 toString을 출력하게 하였습니다.

```
class Worker {
    String name;
    int salary_rate;

    public Worker() {
        name = "NO_Name";
        salary_rate = 10;
    }
    public Worker(String a, int value) {
        name = a;
        salary_rate = value;
    }

    public void setName(String a) {
        name = a;
    }
    public String getName() {
        return name;
    }

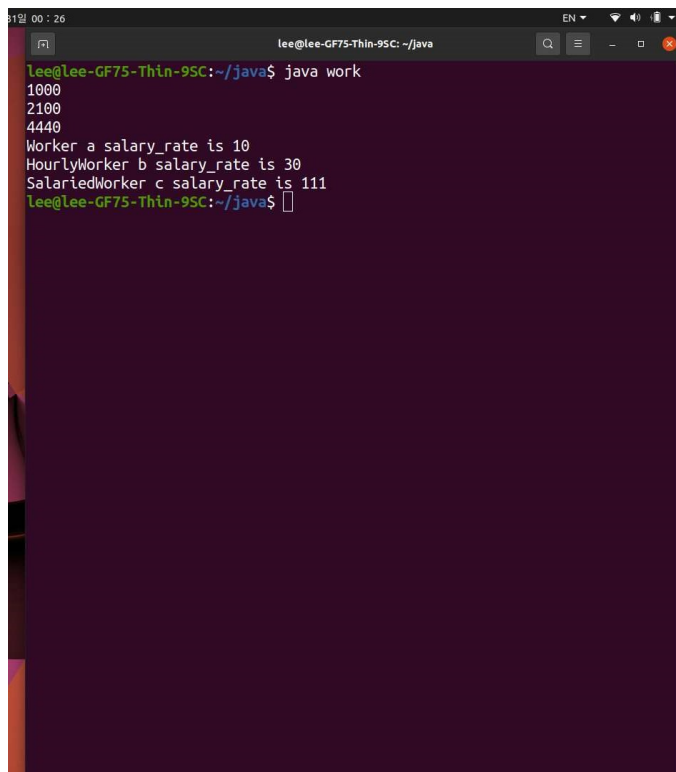
    public void setsalary_rate(int value) {
        salary_rate = value;
    }
    public int getsalary_rate() {
        return salary_rate;
    }

    public int computePay(int hours) {
        return salary_rate * hours;
    }
    public String toString() {
        return "Worker " + name + " salary_rate is " + salary_rate;
    }
}
```

```
class HourlyWorker extends Worker {
    public HourlyWorker() {
        super();
    }
    public HourlyWorker(String a, int value) {
        super(a,value);
    }
    public int computePay(int hours) {
        if(hours > 40){
            int ret = 40 * salary_rate;
            hours -= 40;
            ret += ((hours / 2) * salary_rate);
            return ret;
        } else {
            return salary_rate * hours;
        }
    }
    public String toString() {
        return "HourlyWorker " + name + " salary_rate is " + salary_rate;
    }
}

class SalariedWorker extends Worker {
    public SalariedWorker() {
        super();
    }
    public SalariedWorker(String a, int value) {
        super(a,value);
    }
    public int computePay(int hours) {
        if(hours > 40){
            return salary_rate * 40;
        } else {
            return salary_rate * hours;
        }
    }
    public String toString() {
        return "SalariedWorker " + name + " salary_rate is " + salary_rate;
    }
}
```

```
public class work {  
    public static void main(String[] args) {  
        Worker w1 = new Worker("a", 10);  
        HourlyWorker w2 = new HourlyWorker("b", 30);  
        SalariedWorker w3 = new SalariedWorker("c", 111);  
        System.out.println(w1.computePay(100));  
        System.out.println(w2.computePay(100));  
        System.out.println(w3.computePay(100));  
        System.out.println(w1);  
        System.out.println(w2);  
        System.out.println(w3);  
    }  
}
```

A terminal window titled 'lee@lee-GF75-Thin-9SC: ~/java' showing the execution of the 'work' class. The output displays the computed pay for three worker objects: 1000, 2100, and 4440. It also prints the objects themselves, showing their class names and salary rates: 'Worker a salary_rate is 10', 'HourlyWorker b salary_rate is 30', and 'SalariedWorker c salary_rate is 111'.

```
lee@lee-GF75-Thin-9SC:~/java$ java work  
1000  
2100  
4440  
Worker a salary_rate is 10  
HourlyWorker b salary_rate is 30  
SalariedWorker c salary_rate is 111  
lee@lee-GF75-Thin-9SC:~/java$
```