20-8-27

(1) innerTest1.java

```
package a20_8_27;

class Outer {
	int outData=100;
	public void show() {
		System.out.println("------");
	}

	class Inner{
		int inData=200;
		public void print() {
			System.out.println(outData);;
			show();
		}
	}
}


public class innerTest1 {

	public static void main(String[] args) {
		Outer out=new Outer();		//바깥쪽 클래스로 out객체생성
		Outer.Inner in=out.new Inner(); //안쪽클래스로 in 객체생성
		in.print();
	}
}
```

(2) innerTest2.java

```
package a20_8_27;

class circle {
	private int r;
	private double res;
	public circle() {
	}
	public circle(int r) {
		this.r=r;
	}
	public void cal() {
		res=r*r*Math.PI;
	}
	public void show() {
		System.out.println(res);
	}

	public static circle instance=new circle(5);
    public static circle getInstance() {
	return instance;
    }

}


class rectangle {
	int w,h,res;
	public void cal() {
		res=w*h;
	}
	public void show() {
		System.out.println(res);
	}
	public static rectangle rec=new rectangle();
	public static rectangle getRec() {
		return rec;
	}

}

public class innerTest2 {
	public static void main(String[] args) {
		circle c=new circle(5); //1)
		c.cal();
		c.show();
		circle c1=circle.getInstance();   //2)
		c1.cal();
```

```
                        c1.show();

                        circle cx=circle.getInstance();   //2)
                        cx.cal();
                        cx.show();

                        rectangle r=rectangle.getRec();
                        r.cal();
                        r.show();

}

}
```

(3) innerTest3.java

```
package a20_8_27;
class triangle{
        int w,h;
        double res;
        public void cal() {
                res=w*h/2.;
        }
        public void show() {
                System.out.println(res);
        }
}
public class innerTest3 {
        public static void main(String[] args) {
                triangle t=new triangle() {
                        public void cal() {
                                res=w*h/2.+0.5;
                        }
                        public void show() {
                                System.out.println("삼각형의넓이="+res);
                        }
                };
                t.cal();
                t.show();
        }
}
```

(4) innerTest4.java

```
package a20_8_27;
class Outer1 {                      //바깥클래스
        private int outdata=100;     //바깥클래스>변수
        public Object method() {     //바깥클래스>메소드
            final int data=200;       //바깥클래스>메소드>변수
            class Inner {
                        public String toString() {
                                return "결과="+(outdata+data);
                        }               //바깥클래스>메소드>클래스
            }
        return new Inner();           //바깥클래스>메소드에서 리턴
        }
}

public class innerTest4 {
        public static void main(String[] args) {
                Outer1 out=new Outer1();
                Object obj=out.method();
                System.out.println(obj.toString());
        }
}
```

예외처리

(1)excepTest1.java

```
package a20_8_27;
//익셉션
public class excepTest1 {
        public static void main(String[] args) {
                int a,res=0;
                try {
                        a=10;
                        res=a/0;
```

```
                } catch(Exception e) {
                        e.printStackTrace();   //예외추적
                }
                System.out.println(res);
        }

}
```

(2)excepTest2.java

```
package a20_8_27;

public class excepTest2 {
        public static void main(String args[]) {
                String name=null;
                int a=10;
                int b=0;
                int c=0;
                try {
                        // c=a/b;
                        name=name.toString()+"연습";
                } catch (ArithmeticException e) {
                        System.out.println("산술에러"+e);
                } catch (NullPointerException e) {
                        System.out.println("널포인트 에러"+e);
                } catch (Exception e) {
                        System.out.println("에러"+e);
                }
                finally {
                        System.out.println("종료될 예정");
                }
                System.out.println(name);
                System.out.println(c);
        }
}
```

(3)excepTest3.java

```
package a20_8_27;

public class excepTest3 {

        public static void main(String[] args) {
                try {
                        Exception e=new Exception("연습용");
                        throw e;    //e객체 던져서 발생시킴

                }catch(Exception e) {
                        System.out.println("끝"+e);
                }

        }

}
```

(4)excepTest4.java

```
package a20_8_27;

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.util.Scanner;

public class excepTest4 {
        public static void main(String[] args) throws Exception{
                //콘솔로 문자열을 입력받는 방법(버퍼 이용)
                InputStreamReader is=new InputStreamReader(System.in);
                BufferedReader br=new BufferedReader(is);
                String name=br.readLine();
                System.out.println("당신의이름은 "+name);

                //콘솔로 문자열을 입력받는 방법(스캐너 이용)
                Scanner sc=new Scanner(System.in);
                String str=sc.next();
                System.out.println(str);
        }
```

```
}
```