Factory Method Pattern

하위 클래스에서 인스턴스 작성

- 상위 클래스에서 인스턴스 작성법의 뼈대를 세우고, 구체적인 작성은 하위 클래스에서 실행.

Architecture, Modeling, DesignPattern, Creational

인스턴스 생성을 위한 Framework(골격) 측

```
package framework;

/* Product */
public abstract class Product {
    public abstract void use();
}
```

```
package framework;

/* Creator */
public abstract class Factory {
    public final Product create(String owner) {
        Product p = createProduct(owner);
        registerProduct(p);
        return p;
    }

    protected abstract Product createProduct(String owner);
    protected abstract void registerProduct(Product product);
}
```

구체적인 구현하고 있는 측

```
package product;

import framework.Product;

public class IDCard extends Product {

    private String owner;
    public IDCard(String owner) {
        this.owner = owner;
```

```
    }
    @Override
    public void use() {
        System.out.println(owner + "의 카드 사용");
    }
    public String getOwner() {
        return this.owner;
    }
}
```

```
package product;

import java.util.ArrayList;
import java.util.List;

import framework.Factory;
import framework.Product;

public class IDCardFactory extends Factory {

    private List<String> owners = new ArrayList<>();
    @Override
    protected Product createProduct(String owner) {
        return new IDCard(owner);
    }

    @Override
    protected void registerProduct(Product product) {
        if(!(product instanceof IDCard))
            return;
        owners.add(((IDCard) product).getOwner());
    }
}
```

실행

```
import framework.*;
import product.*;

public class Main {
    public static void main(String[] args) {
        Factory factory = new IDCardFactory();
        Product card1 = factory.create("철수");
```

```
        Product card2 = factory.create("영희");
        card1.use();
        card2.use();
    }
}

/*
철수의 카드 사용
영희의 카드 사용
*/
```

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