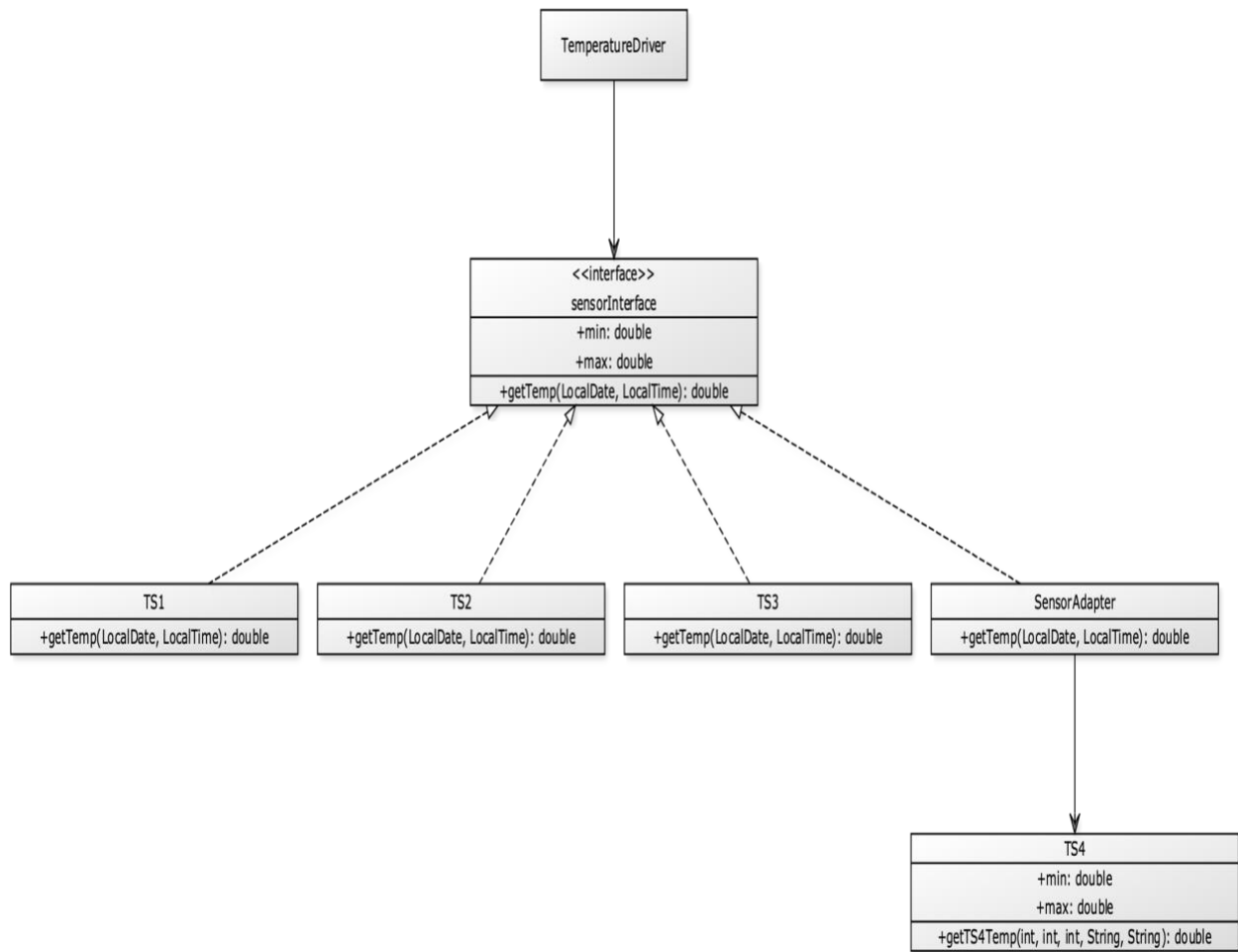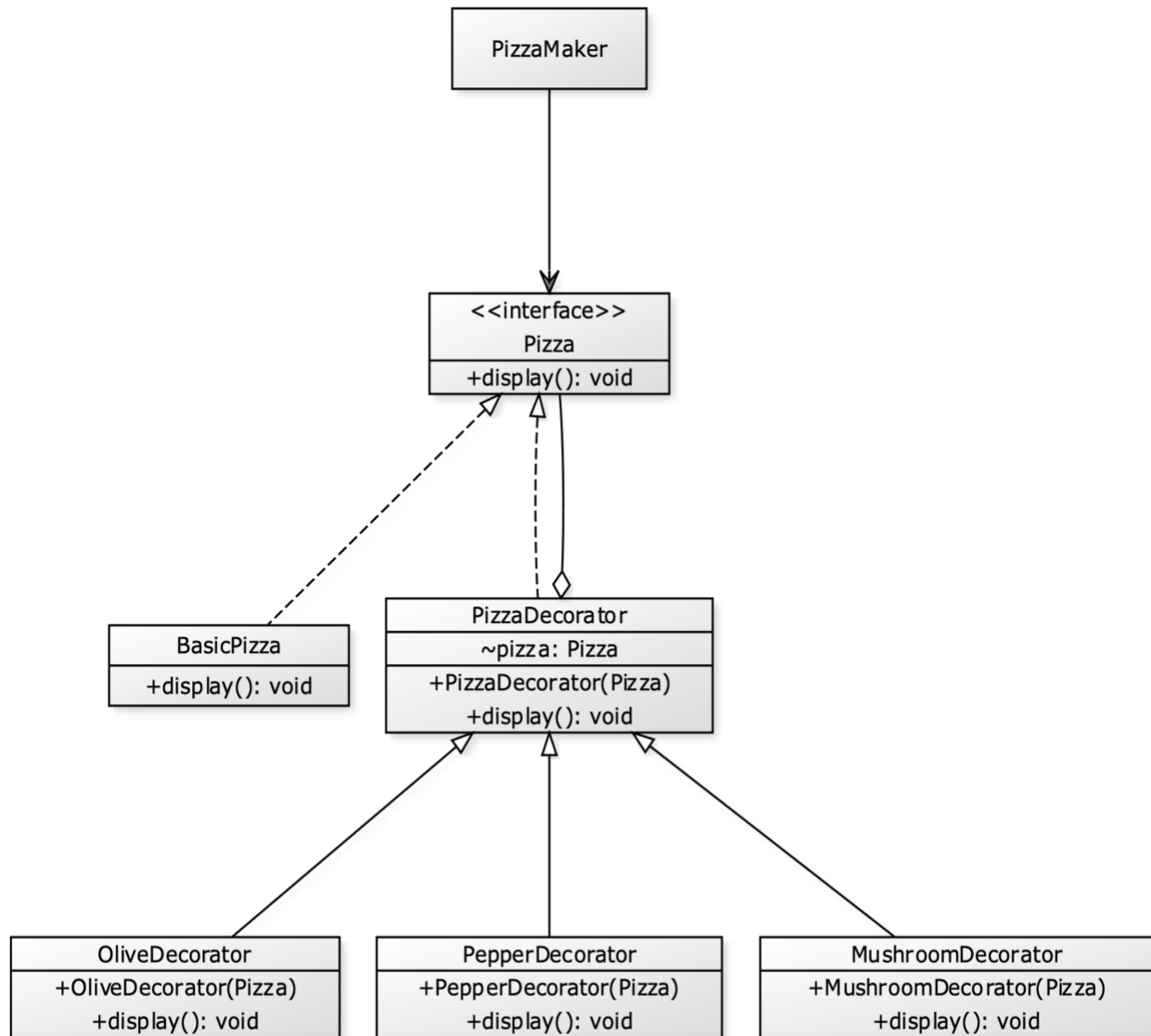# Final Exam

## Question 1

1. UML Class Diagram:



CREATED WITH YUML

2. Sources files are in src/Q1

- ➔ SensorAdapter.java
- ➔ sensorInterface.java
- ➔ TemperatureDriver.java
- ➔ TS1
- ➔ TS2
- ➔ TS3
- ➔ TS4

## Question 2

1. UML Class Diagram:

```
                        ┌─────────────────┐
                        │   PizzaMaker    │
                        └─────────────────┘
                                 │
                                 ▼
                        ┌─────────────────┐
                        │  <<interface>>  │
                        │      Pizza      │
                        ├─────────────────┤
                        │ +display(): void│
                        └─────────────────┘
                           ╱▲        ▲◇
                          ╱ ┊        ┊ ╲
                         ╱  ┊        ┊  ╲
        ┌───────────────┐   ┊   ┌──────────────────────┐
        │   BasicPizza  │   ┊   │    PizzaDecorator    │
        ├───────────────┤       ├──────────────────────┤
        │+display(): void│      │ ~pizza: Pizza        │
        └───────────────┘       ├──────────────────────┤
                                │ +PizzaDecorator(Pizza)│
                                │ +display(): void     │
                                └──────────────────────┘
                                 ▲       ▲        ▲
                       ┌─────────┘       │        └─────────┐
```

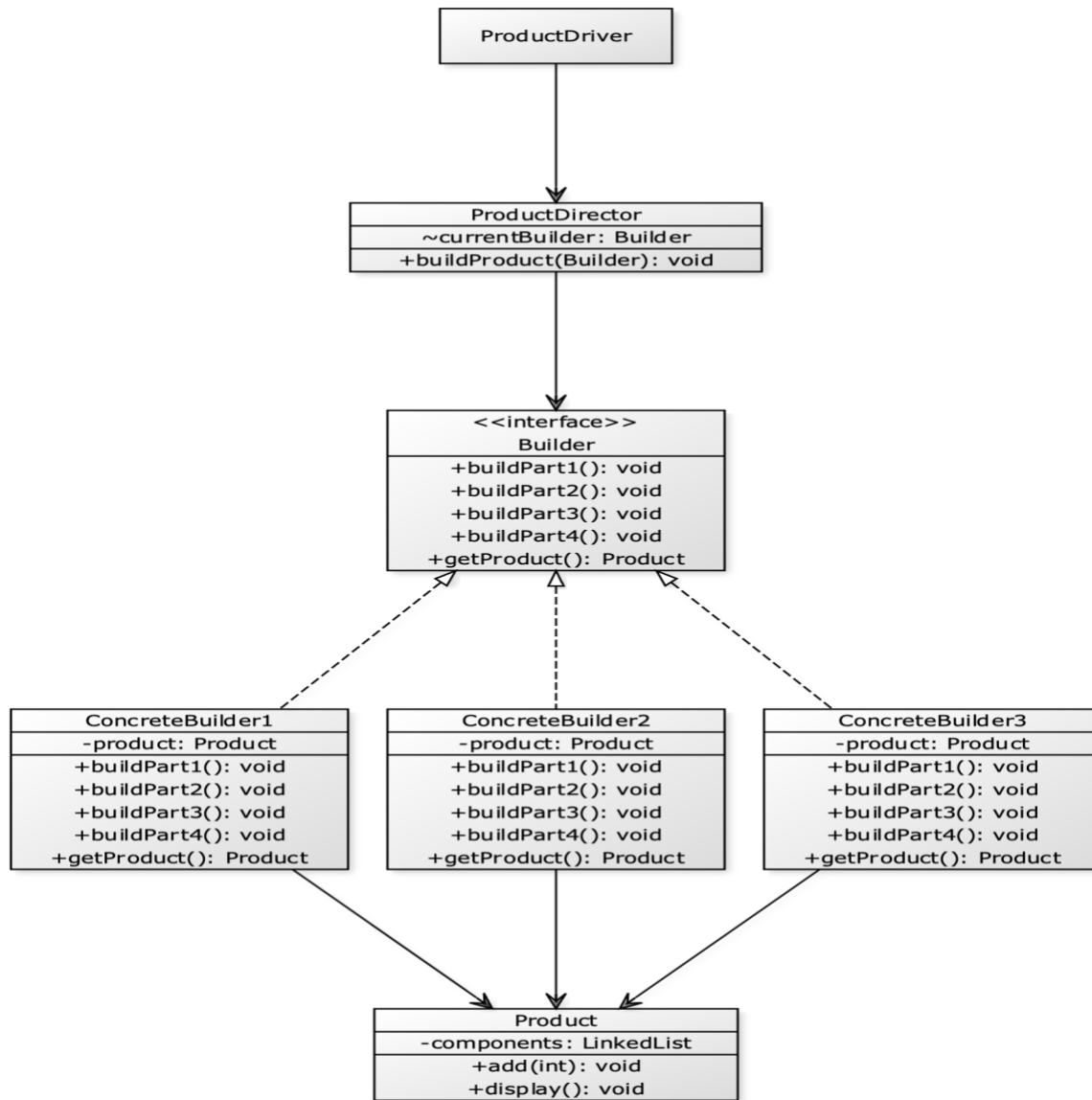| OliveDecorator | PepperDecorator | MushroomDecorator |
|---|---|---|
| +OliveDecorator(Pizza) | +PepperDecorator(Pizza) | +MushroomDecorator(Pizza) |
| +display(): void | +display(): void | +display(): void |

2. Sources files are in src/Q2

- ➔ BasicPizza.java
- ➔ MushroomDecorator.java
- ➔ OliveDecorator.java
- ➔ PepperDecorator.java
- ➔ Pizza.java
- ➔ PizzaDecorator.java
- ➔ PizzaMaker.java

## Question 3

1. UML Class Diagram:

```
                        ┌─────────────────┐
                        │  ProductDriver  │
                        └─────────────────┘
                                 │
                                 ▼
                  ┌──────────────────────────────┐
                  │       ProductDirector        │
                  ├──────────────────────────────┤
                  │  ~currentBuilder: Builder    │
                  ├──────────────────────────────┤
                  │  +buildProduct(Builder): void│
                  └──────────────────────────────┘
                                 │
                                 ▼
                  ┌──────────────────────────────┐
                  │        <<interface>>         │
                  │           Builder            │
                  ├──────────────────────────────┤
                  │  +buildPart1(): void         │
                  │  +buildPart2(): void         │
                  │  +buildPart3(): void         │
                  │  +buildPart4(): void         │
                  │  +getProduct(): Product      │
                  └──────────────────────────────┘
                        △       △       △
```

| ConcreteBuilder1 | ConcreteBuilder2 | ConcreteBuilder3 |
|---|---|---|
| -product: Product | -product: Product | -product: Product |
| +buildPart1(): void | +buildPart1(): void | +buildPart1(): void |
| +buildPart2(): void | +buildPart2(): void | +buildPart2(): void |
| +buildPart3(): void | +buildPart3(): void | +buildPart3(): void |
| +buildPart4(): void | +buildPart4(): void | +buildPart4(): void |
| +getProduct(): Product | +getProduct(): Product | +getProduct(): Product |

```
                  ┌──────────────────────────────┐
                  │           Product            │
                  ├──────────────────────────────┤
                  │  -components: LinkedList     │
                  ├──────────────────────────────┤
                  │  +add(int): void             │
                  │  +display(): void            │
                  └──────────────────────────────┘
```

CREATED WITH YUML

2. Sources files are in src/Q3

➔ Builder.java
➔ ConcreteBuilder1.java
➔ ConcreteBuilder2.java
➔ ConcreteBuilder3.java
➔ Product.java
➔ ProductDirector.java
➔ ProductDriver.java