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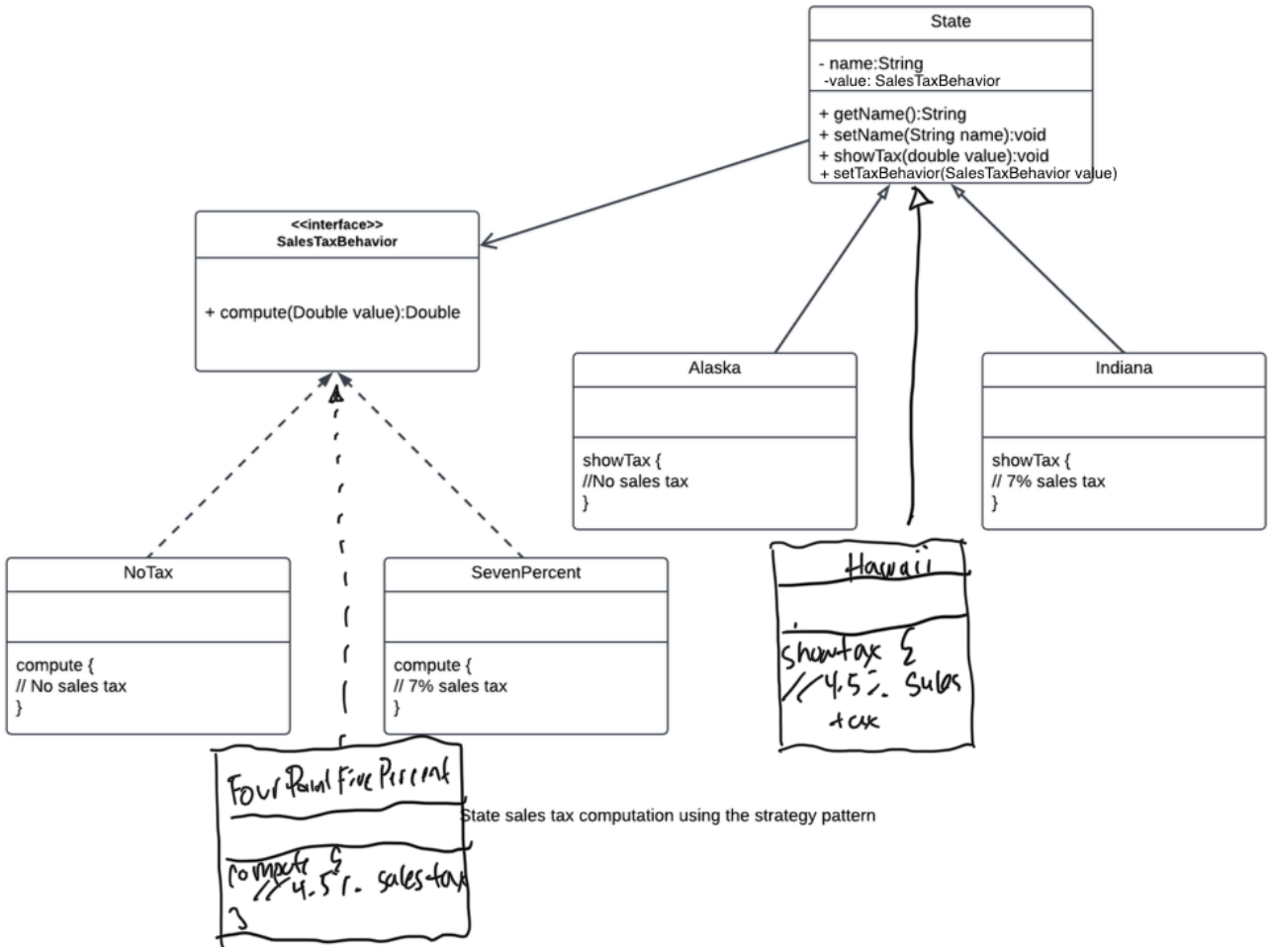
CSCI-C 322

Assignment 1

Problem 1:

Part A: See *.java files on repo.

Part B:



Problem 2: HAS-A and IS-A

1. MallardDuck → Duck: IS-A because MallardDuck inherits from Duck, establishing that a MallardDuck is a type of Duck.
2. RedheadDuck → Duck: IS-A because RedheadDuck inherits from Duck, establishing that a RedheadDuck is a type of Duck.
3. RubberDuck → Duck: IS-A because RubberDuck inherits from Duck, establishing that a RubberDuck is a type of Duck.
4. DecoyDuck → Duck: IS-A because DecoyDuck inherits from Duck, establishing that a DecoyDuck is a type of Duck.
5. Duck → FlyBehavior: HAS-A because Duck contains a FlyBehavior instance variable, representing composition rather than inheritance.
6. Duck → QuackBehavior: HAS-A because Duck contains a QuackBehavior instance variable, representing composition rather than inheritance.

7. Quack → QuackBehavior: IS-A because Quack implements the QuackBehavior interface, establishing that Quack is a type of QuackBehavior.
8. Squeak → QuackBehavior: IS-A because Squeak implements the QuackBehavior interface, establishing that Squeak is a type of QuackBehavior.
9. MuteQuack → QuackBehavior: IS-A because MuteQuack implements the QuackBehavior interface, establishing that MuteQuack is a type of QuackBehavior.

Problem 3: The Observer Design Pattern