Q1: Do any of your classes come out as inconsistent? (They will be show in red in the Class hierarchy tab; you may need to expand to see the red) Explain why and describe a way to resolve the inconsistency. (page 12 of assignment guide)

A1: There is an inconsistency with the MeatyVegetableTopping class. The issue is that it’s super classes, MeatTopping and VegetableTopping are defined to be disjoint, but they both share a subclass, MeatyVegetableTopping. This can be fixed by making the VetableTopping disjoint with TomatoTopping, MozzarellaTopping, and CheeseToppping. Then also make MeatTopping disjoint with TomatoTopping, MozzarellaTopping, and CheeseTopping.

Fig 1 Inconsistent

Text

Description automatically generated

Fig 2 Consistent

Text

Description automatically generated

New Properties:

1. hasSize – Small, Medium, Large (all disjoint). All pizzas must have a size.
2. hasPrice – Cheap, Expensive (both disjoint). All pizzas must have a price.
3. hasPopularity – High, Low (both disjoint). All pizzas must have a popularity.
4. hasSpecial – Sale, Seasonal. Sale and Expensive are disjoint.

New Bases:

1. TomatoBase, given to all but WhitePizza.
2. WhiteBase, given to WhitePizza.

New Toppings:

1. GarlicTopping, given to VeggiePizza and WhitePizza.
2. BasilTopping, Given to VeggiePizza and WhitePizza.

New Pizzas:

1. VeggiePizza - This has all of the vegetables and from America. It is a popular, but expensive dish with no Special.

Text

Description automatically generated

1. WhitePizza - This is an Italian pizza with WhiteSauce, BasilTopping, GarlicTopping, MozzarellaTopping, and ParmezanTopping. It is not very popular and is expensive. There is also no Special for it.

Graphical user interface, text, application

Description automatically generated

DL Query #1: hasPopularity some High and hasSpecial some Sale

This query gets all NamedPizzas that are on sale and have high popularity. It returns one pizza, that is the AmericanPizza.

Graphical user interface, text, application, email

Description automatically generated

DL Query #2: hasPrice some Expensive and hasTopping min 4 PizzaTopping

This returns all expensive pizzas with at least 4 toppings. There are 3 results.

Graphical user interface, text, application, email

Description automatically generated

All pizzas for reference:

Graphical user interface, text, application

Description automatically generatedGraphical user interface, text, application

Description automatically generated with medium confidenceGraphical user interface, text, application

Description automatically generatedGraphical user interface, text, application

Description automatically generatedGraphical user interface, text, application

Description automatically generated