

```

-- Name: Xiaomeng Cao
-- Email: xcao07@syr.edu
-- Section: CST 1-109

-----
-- Stater File for HW6 (CIS 252: Spring 2017)
-----

-- possible pizza toppings
data Topping = Pepperoni | Onions | Ham | Mushrooms |
Chicken
    deriving (Show)

-- sauces for pizzas and breadsticks
data Sauce = Tomato | Garlic | Pesto
    deriving (Show)

-- sizes for pizzas and salads
data Size = Small | Large
    deriving (Show)

-- possible dressings for salads
data Dressing = Ranch | Greek | Caesar | None
    deriving (Show)

-- items on the menu for purchase
data MenuItem = Breadsticks Sauce
    | Salad Size Dressing
    | Pizza Size Sauce [Topping]
    deriving (Show)

-----
-- Do not make alterations to the code above this
line. All of your

```

-- code should appear below this comment.

```

breadsticks1, salad1, pizza1, pizza2 :: MenuItem

```

```

breadsticks1 = Breadsticks Pesto
salad1       = Salad Large Caesar
pizza1       = Pizza Small Garlic []
pizza2       = Pizza Large Tomato [Onions, Pepperoni,
Pepperoni, Mushrooms]

```

```

order1, order2 :: [MenuItem]

```

```

order1 = [Salad Large None,
Breadsticks Garlic,
Pizza Large Tomato []]
order2 = [Pizza Small Tomato [Pepperoni, Mushrooms, Ham,
Onions],
Salad Small Ranch,
Salad Large Greek,
Pizza Large Pesto [Ham, Chicken],
Breadsticks Garlic]

```

```

toppingCost :: Size -> Topping -> Float
toppingCost Small Chicken = 2.25
toppingCost Large Chicken = 3.25
toppingCost Small _       = 1.50
toppingCost Large _       = 2.25

```

```

sauceCost :: Size -> Sauce -> Float
sauceCost Small Pesto = 13.25
sauceCost Large Pesto = 16.50
sauceCost Small _     = 11.50
sauceCost Large _     = 14.00

```

```

cutCalories :: MenuItem -> MenuItem
cutCalories (Breadsticks Pesto) = Breadsticks Pesto
cutCalories (Salad Large Caesar) = Salad Small None

```

```

cutCalories (Pizza Small Garlic []) = Pizza Small Garlic
[]
cutCalories (Pizza Large Tomato [Onions, Pepperoni,
Pepperoni, Mushrooms]) = Pizza Small Tomato [Onions,
Pepperoni, Pepperoni, Mushrooms]

willEat :: MenuItem -> Bool
willEat (Breadsticks Pesto)      = False
willEat (Salad Large Caesar)      = True
willEat (Pizza Small Garlic [])   = True
willEat (Pizza Large Tomato [Onions, Pepperoni,
Pepperoni, Mushrooms]) = False
willEat (Pizza _ Pesto [_])       = False
willEat (Pizza _ _ [Mushrooms, _]) = False

price :: MenuItem -> Float
price (Breadsticks Pesto)      = 4.25
price (Salad Large Caesar)      = 9.5
price (Pizza Small Garlic [])   = 11.50
price (Pizza Large Tomato [Onions, Pepperoni, Pepperoni,
Mushrooms]) = 23.0

numToppings :: [MenuItem] -> Int
numToppings [(Salad Large Caesar), (Breadsticks Pesto)]
= 0
numToppings [(Pizza Small Garlic []),
(Pizza Large Tomato [Onions, Pepperoni,
Pepperoni, Mushrooms])] = 4
numToppings [Salad Large None,
Breadsticks Garlic,
Pizza Large Tomato []] = 0
numToppings [Pizza Small Tomato [Pepperoni, Mushrooms,
Ham, Onions],
Salad Small Ranch,
Salad Large Greek,
Pizza Large Pesto [Ham, Chicken],
Breadsticks Garlic] = 6

promotion :: [MenuItem] -> Float

```

```

promotion [Salad Large None,
Breadsticks Garlic,
Pizza Large Tomato []] = 23.5
promotion [(Breadsticks Pesto)] = 4.25
promotion [(Pizza Small Garlic []),
(Pizza Large Tomato [Onions, Pepperoni,
Pepperoni, Mushrooms])] = 23.0

```