

### Answer for G51DBS cw1

(1) Entities: Bottle, Wine, Wine-maker.

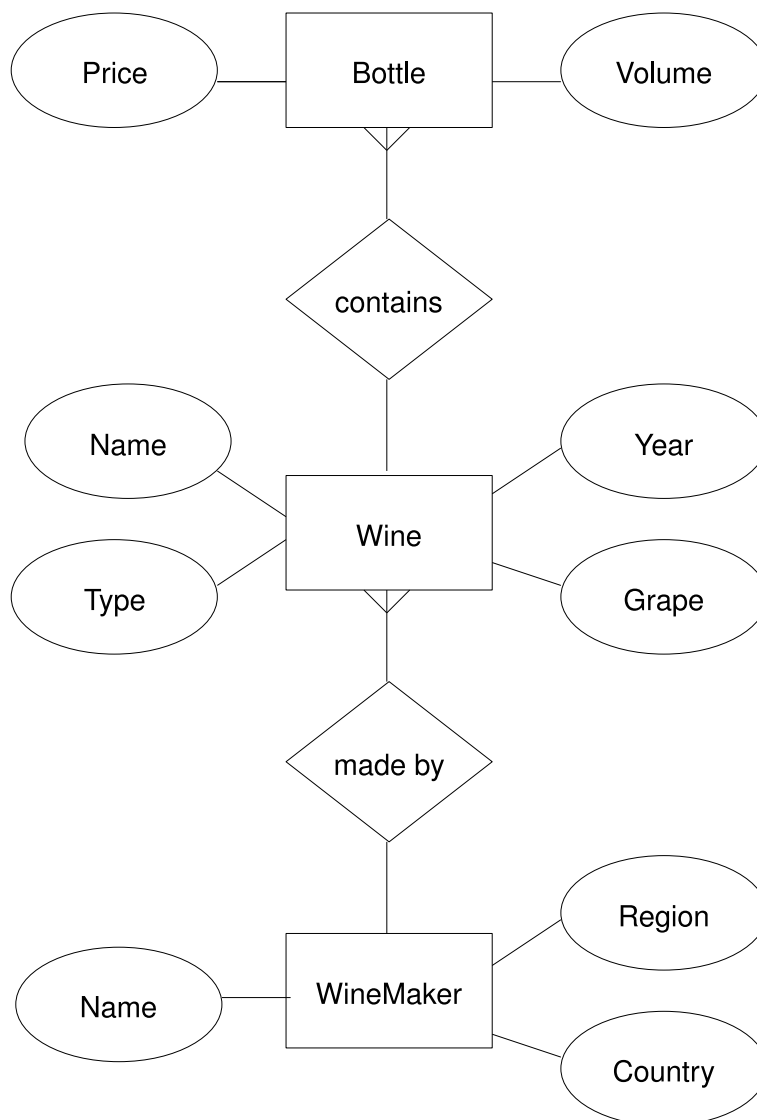
Attributes of Bottle: volume, price.

Attributes of Wine: Name, Type, Year, Grape.

Attributes of Wine-maker: Name, Region, Country. (the latter two can be entities).

Relationships (cardinality ratios): Wine is contained in a bottle (one-to-many).

Wine-maker makes wines (one-to-many).



(2) Tables:

Wine(wID, Name, Type, Year, Grape, pID) where pID is producer's (wine-makers) ID. Both wID and pID are optional - we can use other candidate keys instead, see (3).

Bottle(bID, wID, Volume, Price)

WineMaker(pID, Name, Region, Country).

(3) Wine: wID; {Name,Year,pID}

Bottle: bID (note that to identify *individual bottles* we need something in addition to wine, price and volume: there are lots of different individual bottles with the same contents and price. If we don't want to distinguish bottles, just keep track of stock, we need a number-in-stock field for each kind of bottle).

WineMaker: pID; Name

(4) pID in Wine is a foreign key for WineMaker. wID in Bottle is a foreign key for Wine.