Question 3

The hierarchical representation of instruments includes 4 categories of instruments and each category includes two specific instruments. There's a few properties that every single instrument must have so I decided to create an interface called "Instruments" that describe three functions which tell the name of the instrument, the price and a famous musician who plays the given instruments. Every single instrument in the system implements this interface.

Each category of instruments is a super class which holds all the properties that an instrument of that type must have. Then, the two given example instruments from each category inherit the category superclass.

For example, brass instruments must specify the brass family they belong to or whether the given brass instrument is cylindrical or not. These properties are not related to the other categories of instruments so all these properties are placed only in the Brass parent class and only the trumpet and tuba instruments inherit from that class.

Each individual instrument might have special properties that are not necessarily shared with other instruments in the same category. These properties are placed in each specific instrument class.

For example, the triangle instrument has a property called metalType that describes the type of metal used for that instrument. Other instruments in the category of the triangle instrument don't have metal so this variable is irrelevant to the other members of the category.