**Polymorphism & Composition Homework - Quiz**

**Polymorphism**

1. What does the ***word*** 'polymorphism' mean?

* Polymorphism is a state of occurrence in several different forms.

1. What does it mean when we apply polymorphism to OO design? Give a simple Java example.

* It is the concept where different classes can use the same interface. In java, it is when classes are related through inheritance. Like an insect class with several sub-classes of insect who are related via a specific insect attribute.

1. What can we use to implement polymorphism in Java?

* In java, this can be achieved by method overloading & overriding.

1. How many 'forms' can an object take when using polymorphism?

* In java, polymorphism takes two forms. Static polymorphism i.e overloading and a more dynamic overriding method.

1. Give an example of when you could use polymorphism.

* When we need an object to perform with different behaviours.

**Composition**

1. What do we mean by 'composition' in reference to object-oriented programming?

* Composition allows for the modelling of objects that comprises of other objects.

1. When would you use composition? Provide a simple example in Java.

* When there is need to reuse codes to implement ‘has a’ type of relationship. Example is a book and library class with a library having several books.

1. What is/are the advantage(s) of using composition?

* Ability to reuse codes on a need by basis.
* Implement a ‘has a’ relationship between two classes.
* Change program behaviour dynamically.