***Assignment – 2 Solutions***

**Solution - 1**

**a)** A class variable is a variable defined in a class with just one copy, regardless of the number of instances of the class. The static keyword is used to create a class variable.

The class variable x is used in the example above.

**b)** ab instance variable is a variable specified in a class that has a distinct copy, or instance, for each instantiated object of the class.

The instance variable in the above class is y.

**c)**

a.y = 5

b.y = 6

a.x = 2

b.x = 2

IdentifyMyParts.x = 2

**Solution-2**

**Output :-**

Read it.

Ship it.

Buy it.

Read it.

Box it.

Read it.

**Solution-3**

When a method call is made in a Java application, the dynamic dispatch algorithm selects which method will be called. The algorithm initially checks to see if the class from which it was summoned includes a method with the provided method signature. Whether that class does not have a method with the required method signature, the algorithm will seek to see if the superclass has one, and if it does, it will be executed. The process of looking for the method, and if it is not found, looking in the superclass, continues until the method is discovered and executed, or until the topmost class has no matching method, in which case a run-time error is thrown. With the structure of Java class hierarchies, the dynamic dispatch algorithm cannot get into an infinite loop. Any method call will either eventually locate the desired method in the class hierarchy, or the algorithm will arrive at the topmost class, the Object class. If the method is not found in the topmost class, no further searching is done, and a run-time error is thrown. The dynamic dispatch technique cannot become stuck in an endless loop because of the nature of Java class hierarchies. Any method call will either find the requested method in the class hierarchy or bring the algorithm to the highest class, the Object class. If the method isn't discovered in the topmost class, no more searching is done, and a run-time error is given.

**Solution-4**

**Output :-**

The dog local variable = 5

The dog field = 2

**Solution-5**

**Output :-**

Purple() running and i = 0  
Violet(i) running and i = 0  
Purple() running and i = 0  
Violet(i) running and i = 1

**Solution-6**

**Output :-**

Type of T is java.lang.Integer  
value: 88  
Type of T is java.lang.Double  
value: 8.8

Type of T is java.lang.String  
value: Generics Test