**Assignment 4 - Generics**

1. Describe the problem generics address

Generics address the problem of code duplication and type safety in collections and other data structures. By allowing the creation of classes, methods, and interfaces with a placeholder for the data type, generics enable the development of reusable and type-safe code that can work with any data type without the need for casting or boxing.

2. How would you create a list of strings, using the generic List class?

List<string> stringList = new List<string>();

3. How many generic type parameters does the Dictionary class have?

The `Dictionary` class has two generic type parameters: ‘TKey’ and ‘TValue’.

4. False. Each generic type parameter can be of a different type.

5. What method is used to add items to a List object?

The ‘Add’ method is used to add items to a ‘List’ object. It goes as - list.Add(item);

6. Name two methods that cause items to be removed from a List.

- ‘Remove(T item)’

- ‘RemoveAt(int index)’

7. How do you indicate that a class has a generic type parameter?

By using angle brackets (‘<T>’) after the class name.

public class MyClass<T>

{

// Class implementation

}

8. False. Generic classes can have multiple generic type parameters.

public class MyClass<T1, T2>

{

// Class implementation

}

9. True. Constraints restrict the types that can be used as generic arguments.

10. True. Constraints allow you to use the methods and properties of the type you are constraining to, such as ‘new()’ for a default constructor or ‘where T : SomeClass’ to use methods of ‘SomeClass’