Question 1. Basics of Java [8 MARKS]

Part (a) [1 MARK] As discussed in lecture, Java programs are compiled and then run on the Java Virtual Machine (JVM). Briefly explain the benefit of Java being designed like this.

Solution:
JVM: an application that is something like an operating system Java programs are compiled to an intermediate state called byte code: machine code for the JVM – this allows the program to be less tightly coupled to the details of the underlying operating system. The JVM is the one who worries about that!

Being compiled, there is also the benefit of any error checking that the compiler provides.

Part (b) [1 MARK] Fill in the two blanks to be consistent with the lines of code that follow it.

```
List<_____> myList = new _____; // create an empty list
myList.add("item1");
myList.add(4);
```

Solution:
- new ArrayList<>() (any other class implementing the List interface could work too; <Object> also fine to include.
- type needs to be Object (a superclass of both types contained in the list)