2. Explain the difference between method declaration and method body.

Method declaration specifies the method’s name, return type, and parameters (the method’s header or signature).
Example:

```
public int addNumbers(int a, int b)
```

Method body contains the statements that define what the method does, enclosed in `{ }`.
Example:

```
{
    return a + b;
}
```

3. What type of keyword is used to change the access level of a method?
Access modifiers such as `public`, `private`, or `protected` are used to change the access level of a method.

4. What is another word used for describing the access level of a method?:
Another word for access level is visibility.

5. Explain the scope of each of the variables in the code below:

```
public class ScopeExample {
    public static void main(String[] args) {
        for (int var2 = 0; var2 < 5; var2++) {
            int var3 = 10;
        }
    }

    public static void method1() {
        int var4 = 0;
    }
}
```

- `args`: available throughout the `main` method.
- `var2`: only accessible within the `for` loop.
- `var3`: only accessible inside the loop block (between `{ }`).
- `var4`: only accessible inside the `method1` method.

6. Write a method declaration for each of the following descriptions:

a) A class method named getVowels that can be called by any other method, requires a String parameter, and returns an integer value.

```
public static int getVowels(String text)
```

b) A class method named extractDigit that can be called by any other method, requires an integer parameter, and returns an integer value.

```
public static int extractDigit(int number)
```

c) A class method named insertString that can be called by any other method, requires a String parameter and an integer parameter, and returns a String.

```
public static String insertString(String text, int position)
```

7. a) How does the compiler distinguish one method from another?

By the method signature, which includes the method name and the number, type, and order of parameters.

b) Can two methods in the same class have the same name? Explain.
r:
Yes, through method overloading as long as their parameter lists differ in number or type.

8. a) What is the return statement used for?

The `return` statement sends a value from a method back to the caller and ends the method’s execution.

b) How many values can a return statement send back?

Only one value per method call.

c) How is the declaration of a method return type different from that of a method that does not return a value?

A method that returns a value declares its return type (e.g., `int`, `String`), while a method that does not return a value uses the keyword `void`.

9. Find and explain the error in the code below:

```
public class MethodCallExample {
    public static void main(String[] args) {
        doSomething();
    }

    public static int doSomething() {
        return(15);
    }
}
```

The error is that `doSomething()` is declared to return an `int`, but `main` is not using or storing that returned value.
To fix it, either:

Capture the return value:

```
int result = doSomething();
```

11. Determine if each of the following is true or false:

a) True
b) False

c) False
d) False
e) True
f) False

g) False
h) True

i) False
j) True
k) False

l) False