2. **Method declaration:** The method's first line contains a declaration of the method access level, return type, method name, and method parameters.
   Example: *public static void main(String[] args)*
   Method body: The statements within the block of statements within the brackets *{ }* of the code that give the contents of what the method actually does.

3. An access modifier (e.g. *public* or *private*)

4. Another word is **Visibility**

5. *var1* - Declared in *main()*. Scope: from its declaration to the end of *main()*.

   var2 - Declared inside the *for* loop in *main()*. Scope: only within that *for* loop.

   var3 - Declared in *method1()*. Scope: from its declaration to the end of *method1()*.

   var4 - Declared in the *for* loop in *method1()*. Scope: only within that *for* loop.

   Error note: *var3* is used before being initialized *(var3 += 1;),* which causes a compilation error.

6a. public static int getVowels(String text)
6b. public static int extractDigit(int number)
6c. public static String insertString(String text, int position)

7a. The compiler differentiates the methods by number, order and types of parameters.
7b. Yes, two different methods in the same class may share the same name; this is termed method overloading, provided that the parameter lists of the two methods are different.

8a. *return* statement returns a value from a method back to the calling statement.
8b. A *return* can only be made on a single value.
8c. A method that returns a value must state the type of return (e.g. *int*, *double*), and a method that does not return a value must use the keyword *void*.

9. The error in the code is that the *main()* method is outside the class. All methods in Java are to be declared inside the body of the class between the opening and closing braces of the class. The closing brace after *doSomething()* in the given code is too early to close the class, which is why the *main()* method is not a part of the *MethodCallExample* class.

As a way of correcting this mistake, the *main()* method should be transferred into the class before the final closing brace.

11a. True
11b. False
11c. False
11d. False
11e. True
11f. False
11g. False
11h. False
11i. False
11j. True
11k. False
11l. False

https://chatgpt.com/share/691652b0-2c9c-800f-9015-51ed52fd30c1