

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

- **Method Declaration:** Defines the method's name, return type, and parameters.
- **Method Body:** Contains the code that defines what the method does.

**3. What type of keyword is used to change the access level of a method?**

- **Access Modifier:** Keywords like public, protected, and private are used to change a method's access level.

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

- **Visibility.**

**5. Explain the scope of each of the variables in the code provided.**

- var1: Scope is within the main method.
- var2: Scope is within the main method, specifically inside the for loop.
- var3: Scope is within the method1 method.
- var4: Scope is within the method1 method, specifically inside the for loop.

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

- a) public static int getVowels(String input);
- b) public static int extractDigit(int number);
- c) public static String insertString(String str, int index);

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

- By the method name and the number, type, and order of its parameters (method signature).

**7. b) Can two methods in the same class have the same name? Explain.**

- Yes they can, this is called **method overloading**, where methods have the same name but different parameters.

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

- To send a value back to the calling method.

**8. b) How many values can a return statement send back to the calling statement?**

- One value.

**8. c) How is the declaration of a method returning a value different from the declaration of a method that does not return a value?**

- A method that returns a value specifies a return type (e.g., int), while a method that doesn't return a value uses void.

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

- doSomething() is declared to return an int, but it does not return a value when called in main. This will cause an error; it should either return an int or be declared as void.