

```
public static String compute(String word1, String word2) {  
    String result = "";  
  
    if (word1.length() == word2.length()) {  
        for (int i = 0; i < word1.length(); i++) {  
            result = result + word1.charAt(i) + word2.charAt(i);  
        }  
    }  
  
    return result;  
}
```

The diagram illustrates the execution flow of the `compute` method. It uses colored dots and lines to trace the path through the code blocks:

- Yellow dots and line:** Represent the initial state and the `return` statement. A yellow dot is placed at the `return` statement, and a yellow line connects it to the start of the `for` loop.
- Orange dots and line:** Represent the loop body. An orange dot is placed at the `for` loop header, and an orange line connects it to the `result = result + word1.charAt(i) + word2.charAt(i);` statement.
- Purple dots and line:** Represent the loop body and the `return` statement. A purple dot is placed at the `for` loop header, and a purple line connects it to the `return` statement.