

```
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 flow of variable references in the provided Java code. Purple dots are connected to the 'word1' parameter in the function signature and the 'word1.length()' and 'word1.charAt(i)' calls within the loop. Orange dots are connected to the 'word2' parameter and the 'word2.length()' and 'word2.charAt(i)' calls. Yellow dots are connected to the 'result' variable, showing its initialization and subsequent updates within the loop. A grey dot is also present at the top, connected to the first 'word1' reference.