

```
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 control flow of the provided Java code. Nodes are represented by colored circles, and lines represent the flow of execution. Purple nodes are connected to the entry point, the 'if' condition, and the 'return' statement. Yellow nodes are connected to the 'for' loop header and the 'result' variable. Orange nodes are connected to the loop body. A black node is located near the 'String result' declaration.