

```
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 a control flow graph for the provided Java code. Nodes are represented by colored circles (purple, orange, yellow, red, grey) and are connected by lines of the same color, indicating the flow of execution. The nodes are distributed across the code, marking entry points, loop iterations, and exit points. The flow starts at the function signature, proceeds to the initialization of 'result', then enters the 'if' block. Inside the 'if' block, it enters a 'for' loop. The flow continues through the loop body, which concatenates characters from 'word1' and 'word2' into 'result'. After the loop, the flow exits the 'if' block and proceeds to the 'return' statement, finally exiting the function.