

```
public static int compute(String word) {  
    char[] letters = {'a', 'e', 'i', 'o', 'u'};  
    int result = 0;  
  
    for (int i = 0; i < word.length(); i++) {  
        for (int j = 0; j < letters.length; j++) {  
            if (word.charAt(i) == letters[j]) {  
                result++;  
            }  
        }  
    }  
  
    return result;  
}
```

The diagram consists of numerous nodes represented by colored circles (purple, orange, yellow, grey) and edges represented by colored lines (purple, orange, yellow). The nodes are distributed across the code, with a high concentration in the nested loops. Edges connect nodes that represent sequential execution, loop iterations, and conditional branching, illustrating the program's control flow.