

```
public static String compute(String input, int x) {  
    // initial values: x = 0  
    if (input.length() > x){  
        String result = "";  
        for (int i = 0; i <= x; i++){  
            result = result + input.charAt(x);  
        }  
        return result + compute(input, x+1);  
    }  
    return "";  
}
```

The diagram illustrates the recursive execution of the `compute` function. It shows a sequence of calls and returns represented by colored dots and connecting lines:

- Call Stack (Left):** A vertical chain of dots representing the sequence of function calls. From bottom to top, the dots are purple, orange, yellow, and grey. The top grey dot is positioned at the level of the `if` statement.
- Return Path (Right):** A series of dots connected by lines showing the return of values back up the call stack. The dots are purple, orange, yellow, and grey. The bottom purple dot is at the level of the final `return "";` statement. The top grey dot is at the level of the `if` statement.
- Flow:**
  - An orange line connects the bottom purple dot to the orange dot above it.
  - A yellow line connects the orange dot to the yellow dot above it.
  - A grey line connects the yellow dot to the top grey dot.
  - A purple line connects the top grey dot to the purple dot above it.
  - A red line connects the purple dot to the bottom purple dot.