```
main calls: fibonacci(4)
Stack diagram:
    $sp ---->
                        $ra
                                  <-- backup $ra
                                                             main scope
                        $t0
                                  <-- backup $t0
                                                             main scope
                        $t1
                                  <-- backup $t1
                                                             main scope
                                  <-- argument IN
                        $t0
                                                             main scope
                                  <-- araument OUT
                                                             main scope
                                  <-- backup $ra
                                                             fibonacci(4) scope <<-----l
fibonacci(4) scope
                        $ra
                 4 =>
                        $t0
                                  <-- backup $t0
                                                             fibonacci(4) scope >>----
fibonacci(4) scope |
               10 \Rightarrow | $t1
                                  <-- backup $t1
          4-1 = 3 \Rightarrow
                        $t0
                                  <-- arauemnt IN
                                                             fibonacci(4) scope
     (1 + 2) + 2 \Rightarrow
                                  <-- argument OUT
                        ?
                                  <-- backup $ra
                                                             fibonacci(3) scope
                        $ra |
                                  <-- backup $t0
                 3 =>
                        $t0
                                                             fibonacci(3) scope
                                  <-- backup $t1
               10 => |
                        $t1
                                                             fibonacci(3) scope <<---
          3-1 = 2 \Rightarrow
                        $t0
                                  <-- arguemnt IN
                                                             fibonacci(3) scope
fibonacci(2) = 2 \Rightarrow
                                  <-- argument OUT
                                                             fibonacci(3) scope
                         ?
                        $ra |
                                  <-- backup $ra
                                                             fibonacci(3) scope fibonacci(3) scope
                 3 =>
                        $±0
                                  <-- backup $t0
                        $t1
                                  <-- backup $t1
                                                             fibonacci(3) scope
               10 => |
                                  <-- arguemnt IN
                                                             fibonacci(3) scope
          3-2 = 1 =>
                        $t0
fibonacci(1) = 1 =>
                         ?
                                  <-- argument OUT
                                                             fibonacci(3) scope
                                                             fibonacci(2) scope
fibonacci(2) scope
                        $ra
                                  <-- backup $ra
                        $t0
                                  <-- backup $t0
                                                             fibonacci(2) scope <<---
fibonacci(2) scope
               10 => | $t1
                                  <-- backup $t1
          4-2 = 2 \Rightarrow 1
                        $t0 |
                                  <-- arguemnt IN
fibonacci(2) = 2 \Rightarrow 1
                                                             fibonacci(2) scope
                                  <-- argument OUT
                       stack
Alaorithm:
    fibonacci(int value) {
            if(term <= 2) {
                 return term;
            return fibonacci(value - 1) + fibonacci(value - 2);
```

Note:

 $<sup>\</sup>dot{st}$  scope is an object oriented term, stack frame might be a better synonym