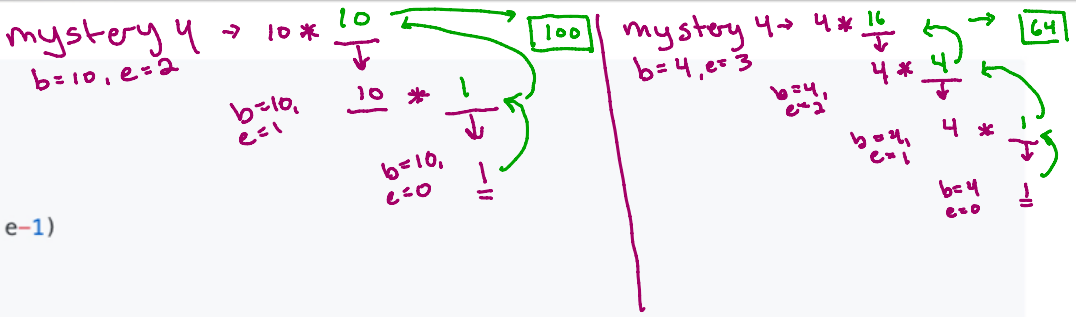
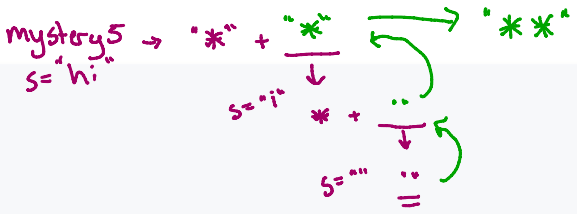
Trace #4




```
def mystery4(b, e)
  if e == 0
    return 1
  else
    return b * mystery4(b, e-1)
  end
end
```

- What is mystery4(10, 2)? 100
- What is mystery4(4, 3)? 64
- What is mystery4(5, 0)? 1
- What is the time complexity of mystery4(b, e)? O(e)
- What is the space complexity of mystery4(b, e)? O(e)

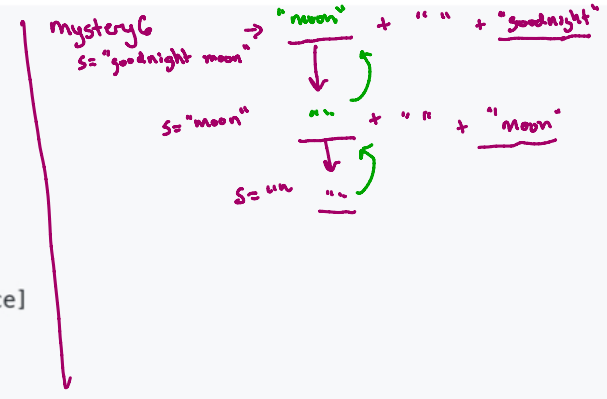
Trace #5




```
def mystery5(s)
  if s.length == 0
    return ""
  else
    return "*" + mystery5(s[1..-1])
  end
end
```

- What is mystery5("hi")? "**"
- What is mystery5("")? ""
- What is mystery5("Hi, there!")? "**********"
- What is the time complexity of mystery5(s)? O(s)
- What is the space complexity of mystery5(s)? O(s)
- *Added Fun: How could we make only alphabetic characters to be changed to stars?* . match

Trace #6




```
def mystery6(s)
  if s == nil || s.length == 0
    return ""
  else
    space = 0
    until space >= s.length || s[space] == " "
      space += 1
    end
    return mystery6(s[(space+1)..-1]) + " " + s[0...space]
  end
end
```

- What is mystery6("goodnight moon")? "_noon goodnight" (space?)
- What is mystery6("Ada Developers Academy")? "_Academy Developers Ada" (space)
- What is mystery6("Hi, there!")? "_there! Hi" (space)
- What is the time complexity of mystery6(s)? O(m) where m is the length of s
- What is the space complexity of mystery6(s)? O(m) for this reason
- *Added Fun: How could we make the reversal happen by letter, instead of by word (i.e. Make it so that mystery6("goodnight moon") returned "noom thgindoog")?* go by index