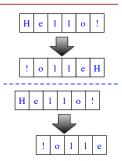
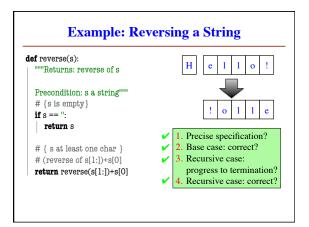


- a smaller string (e.g. less one character) Can we use that solution to reverse whole string?
- · Often easy to understand first without Python
 - Then sit down and code





Example: Palindromes

- String with ≥ 2 characters is a palindrome if:
 - its first and last characters are equal, and
 - the rest of the characters form a palindrome
- Example:

have to be the same **AMANAPLANACANALPANAMA** has to be a palindrome

• Precise Specification:

def ispalindrome(s):

"""Returns: True if s is a palindrome"""

Example: Palindromes

- String with ≥ 2 characters is a palindrome if:
 - its first and last characters are equal, and
 - the rest of the characters form a palindrome
- Recursive Function:

Recursive def ispalindrome(s): "Returns: True if s is a palindrome""" if len(s) < 2: Base case return True // { s has at least two characters } Recursive case return s[0] == s[-1] and ispalindrome(s[1:-1])

Example: More Palindromes def ispalindrome2(s): """Returns: True if s is a palindrome Case of characters is ignored.""" if len(s) < 2: Precise Specification return True // { s has at least two characters } return (equals_ignore_case(s[0],s[-1]) and ispalindrome2(s[1:-1])) def equals_ignore_case (a, b): """Returns: True if a and b are same ignoring case""" return a.upper() == b.upper()

```
Example: More Palindromes
def ispalindrome3(s):
  """Returns: True if s is a palindrome
  Case of characters and non-letters ignored."""
  return ispalindrome2(depunct(s))
                                          Use helper functions!
def depunct(s):
                                            Often easy to break a
   """Returns: s with non-letters removed""
                                             problem into two
  if g == ".
                                             Can use recursion more
  return s
                                            than once to solve
  # use string.letters to isolate letters
  return (s[0]+deblank(s[1:]) if s[0] in string.letters
          else deblank(s[1:]))
```

