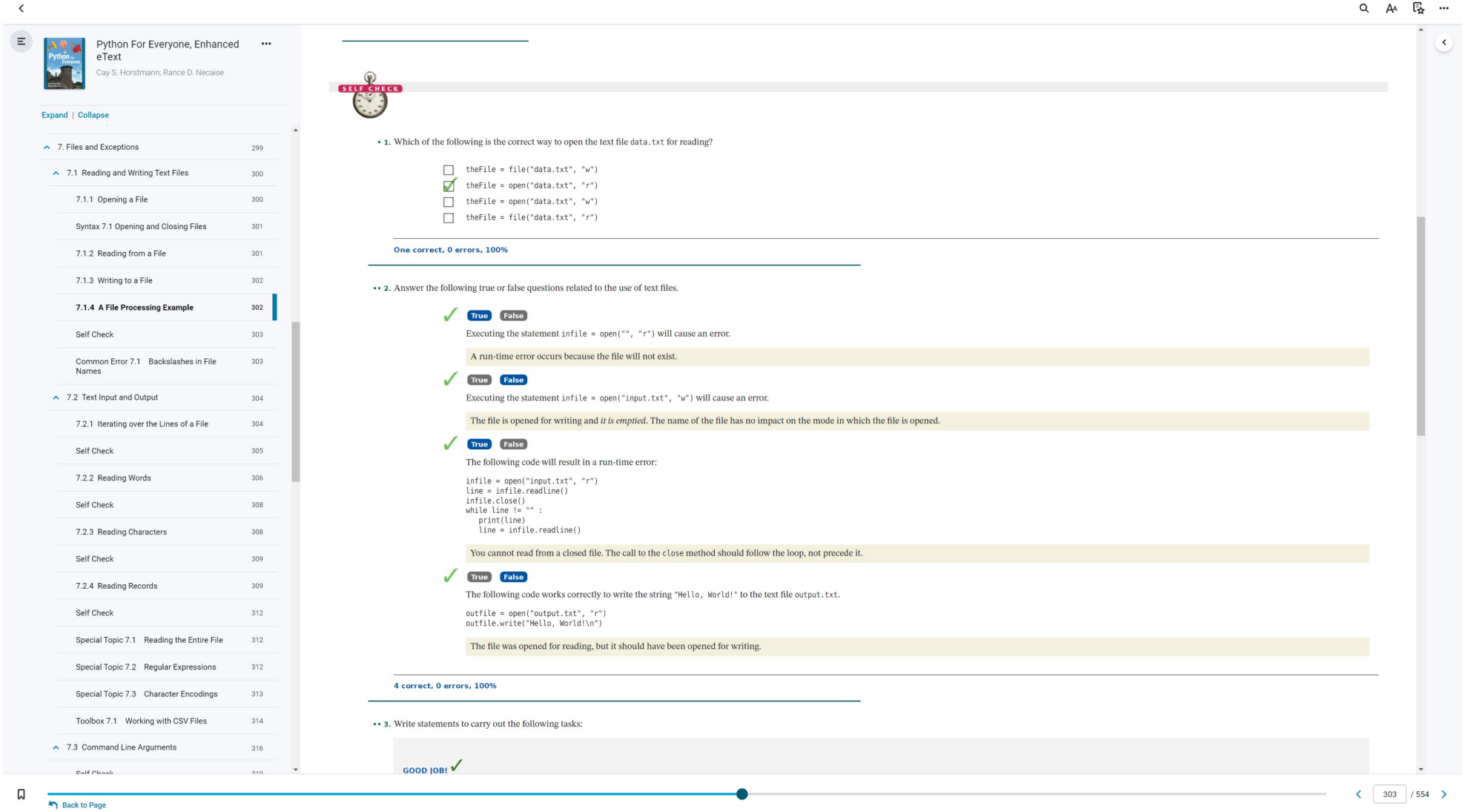
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SELF CHECK
• 1. Which of the following is the correct way to open the text file data.txt for reading?
theFile = file("data.txt", "w")
theFile = open("data.txt", "r")
theFile = open("data.txt", "w")
theFile = file("data.txt", "r")
One correct, 0 errors, 100%
•• 2. Answer the following true or false questions related to the use of text files.
True False
Executing the statement infile = open("", "r") will cause an error.
A run-time error occurs because the file will not exist.
True False
Executing the statement infile = open("input.txt", "w") will cause an error.
The file is opened for writing and it is emptied. The name of the file has no impact on the mode in which the file is opened.
True False
The following code will result in a run-time error:
infile = open("input.txt", "r")
line = infile.readline()
infile.close()
while line != "" :
print(line)
line = infile.readline()
You cannot read from a closed file. The call to the close method should follow the loop, not precede it.
True False
The following code works correctly to write the string "Hello, World!" to the text file output.txt.
outfile = open("output.txt", "r")
outfile.write("Hello, World!\n")
The file was opened for reading, but it should have been opened for writing.
4 correct, 0 errors, 100%
•• 3. Write statements to carry out the following tasks:
GOOD JOB!
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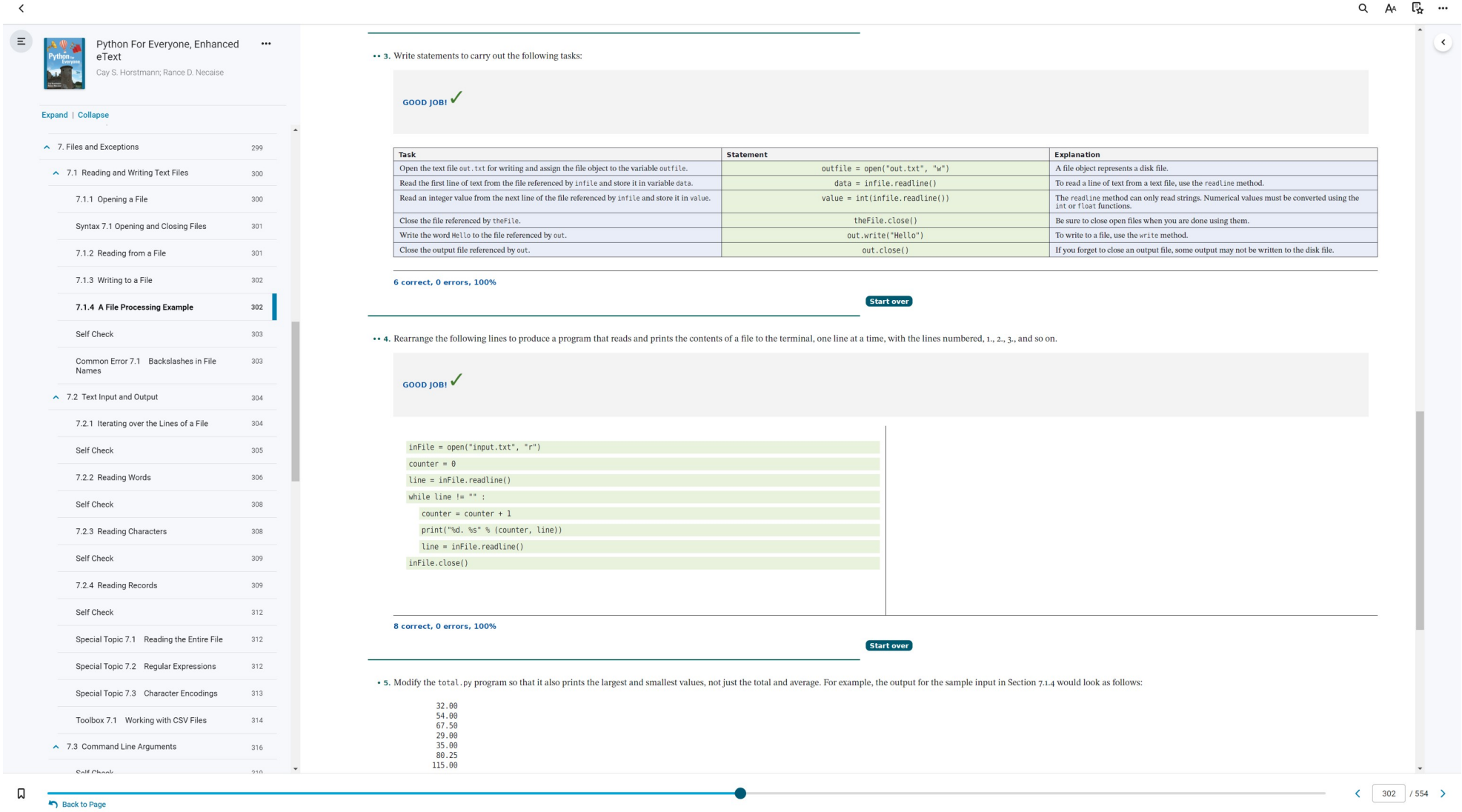

7.1 (p.2) - A File Processing Example (3, 4)

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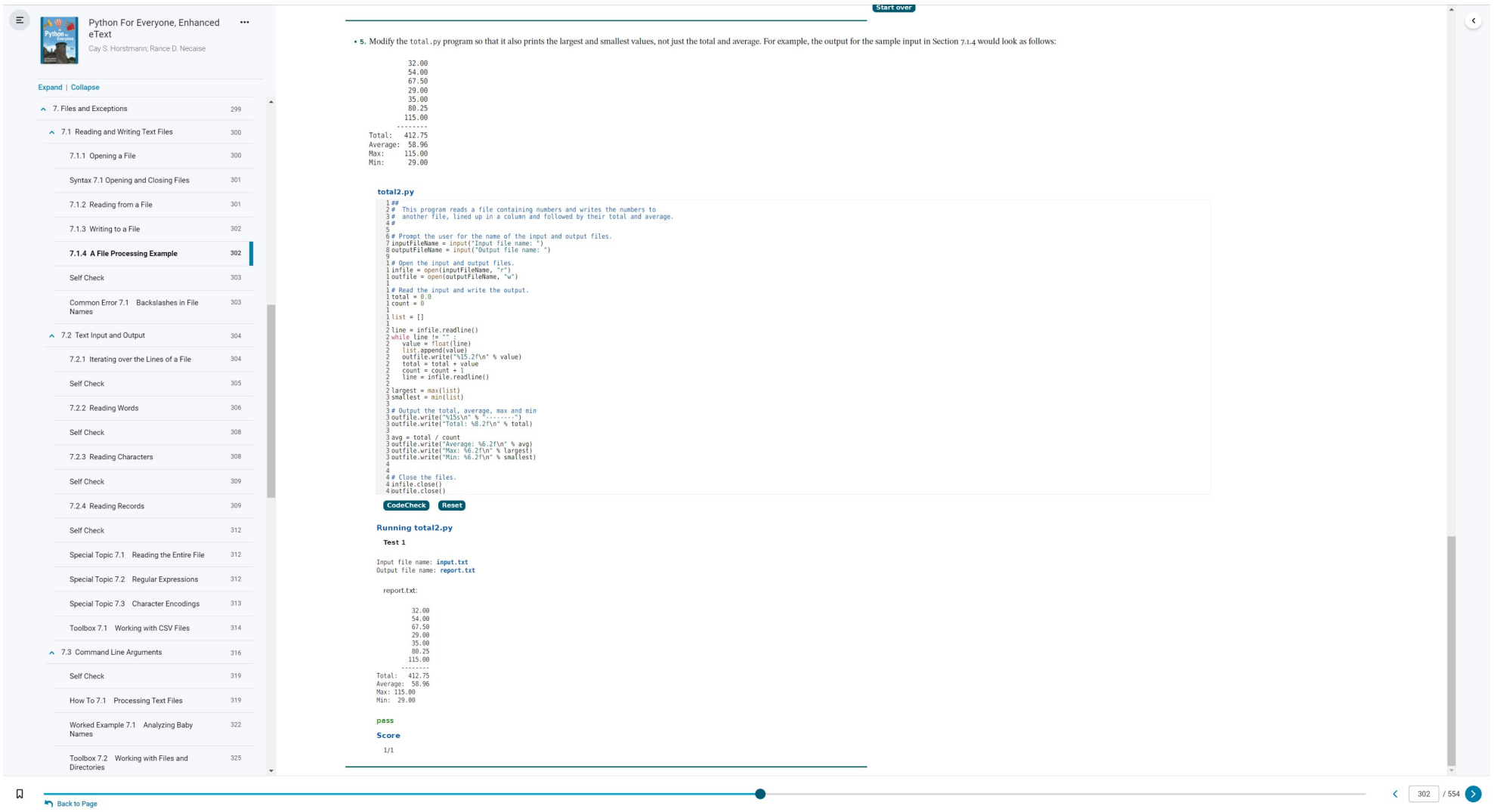
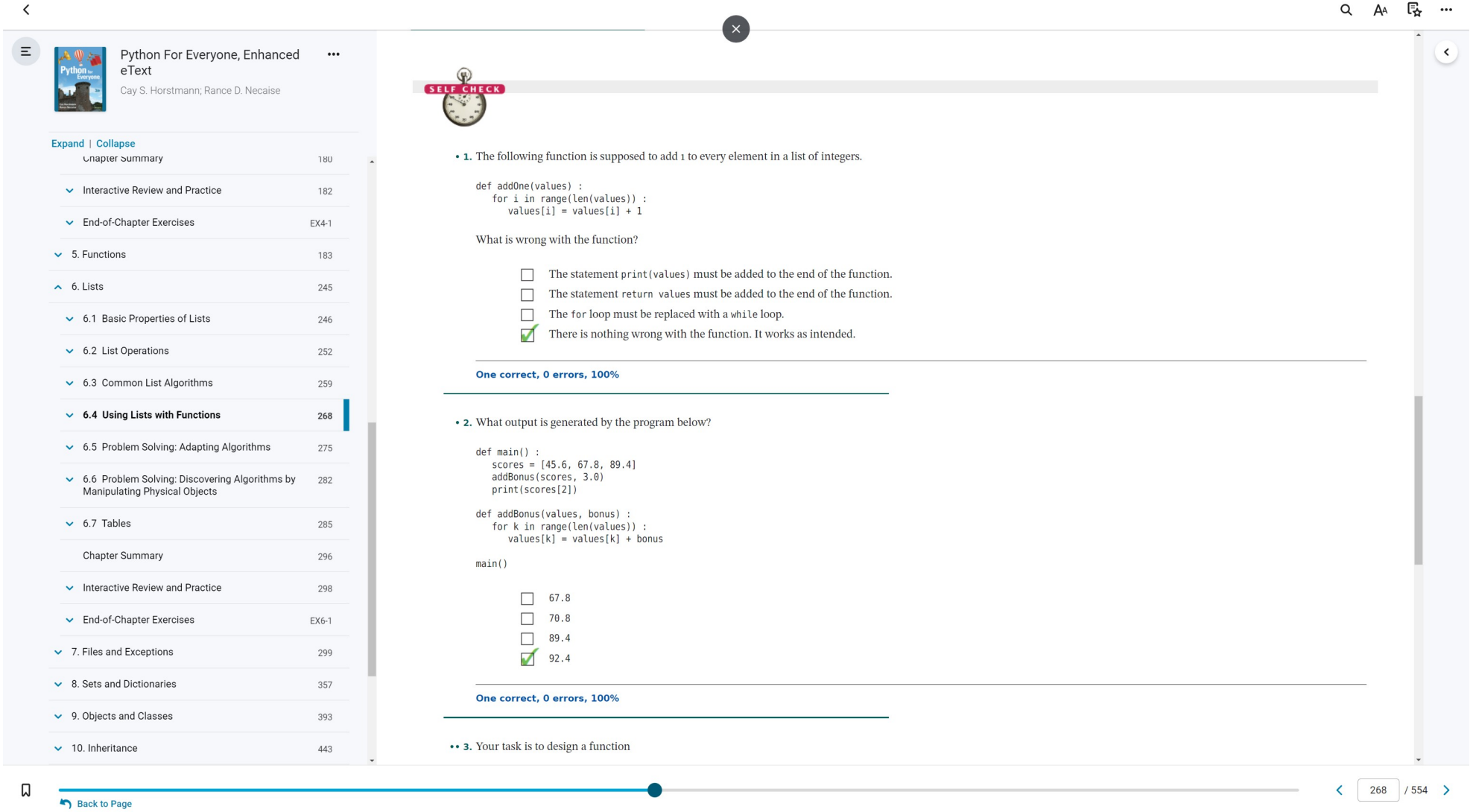
Chapter 7 Homework – 7.1 – 7.6



7.1 (p.3)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SELF CHECK
• 1. The following function is supposed to add 1 to every element in a list of integers.
def addOne(values) :
for i in range(len(values)) :
values[i] = values[i] + 1
What is wrong with the function?
The statement print(values) must be added to the end of the function.
The statement return values must be added to the end of the function.
The for loop must be replaced with a while loop.
There is nothing wrong with the function. It works as intended.
One correct, 0 errors, 100%
• 2. What output is generated by the program below?
def main() :
scores = [45.6, 67.8, 89.4]
addBonus(scores, 3.0)
print(scores[2])
def addBonus(values, bonus) :
for k in range(len(values)) :
values[k] = values[k] + bonus
main()
67.8
70.8
89.4
92.4
One correct, 0 errors, 100%
•• 3. Your task is to design a function
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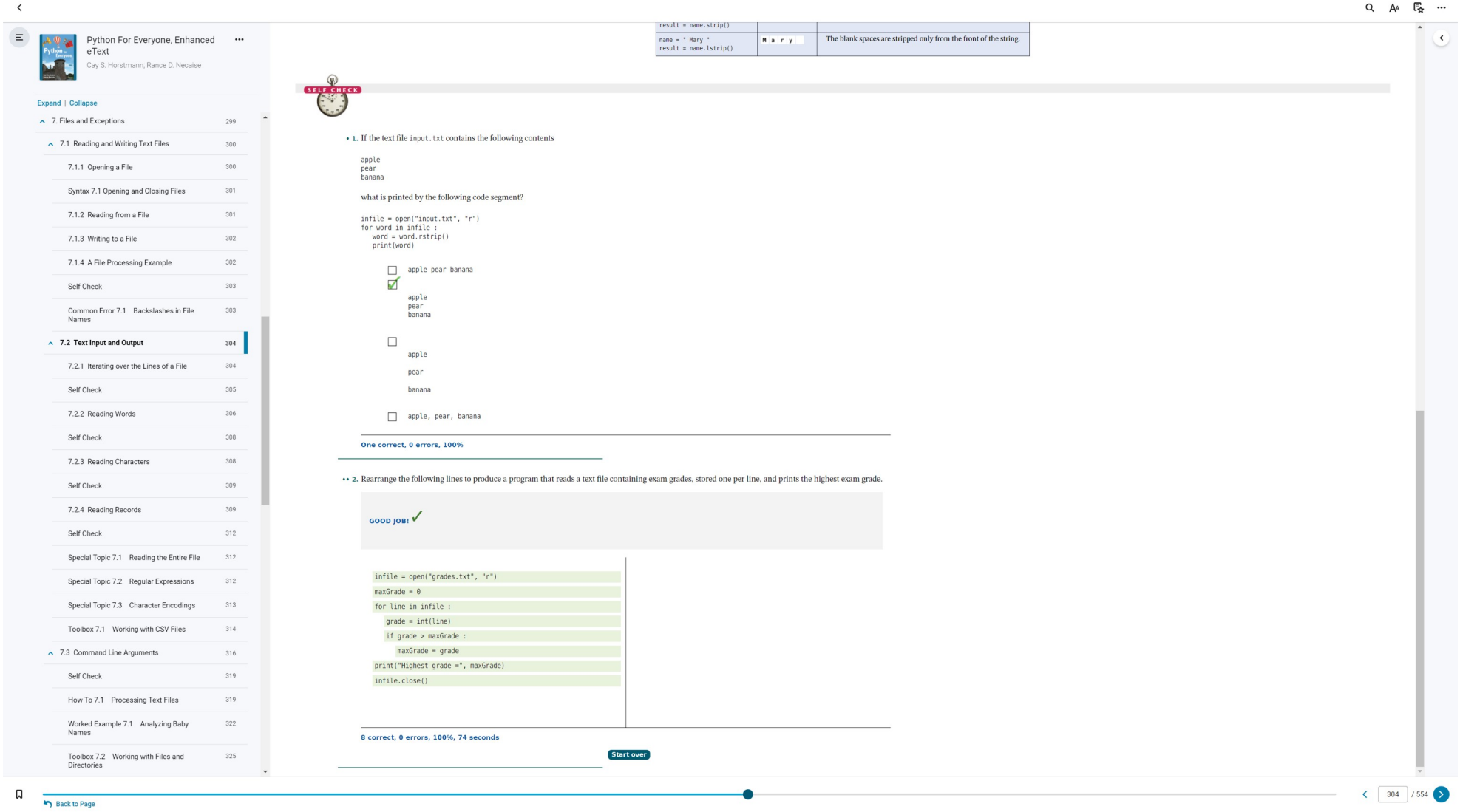
6.4 (p.1)



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Expand | Collapse

`result = name.strip()`		
`name = " Mary "` `result = name.lstrip()`	`M a r y`	The blank spaces are stripped only from the front of the string.

SELF CHECK

• 1. If the text file `input.txt` contains the following contents

```
apple
pear
banana
```

what is printed by the following code segment?

```
infile = open("input.txt", "r")
for word in infile :
   word = word.rstrip()
   print(word)
```

- ☐ `apple pear banana`
- ☑
```
apple
pear
banana
```
- ☐
```
apple

pear

banana
```
- ☐ `apple, pear, banana`

One correct, 0 errors, 100%

•• 2. Rearrange the following lines to produce a program that reads a text file containing exam grades, stored one per line, and prints the highest exam grade.

GOOD JOB! ✓

```
infile = open("grades.txt", "r")
maxGrade = 0
for line in infile :
   grade = int(line)
   if grade > maxGrade :
      maxGrade = grade
print("Highest grade =", maxGrade)
infile.close()
```

8 correct, 0 errors, 100%, 74 seconds

Start over

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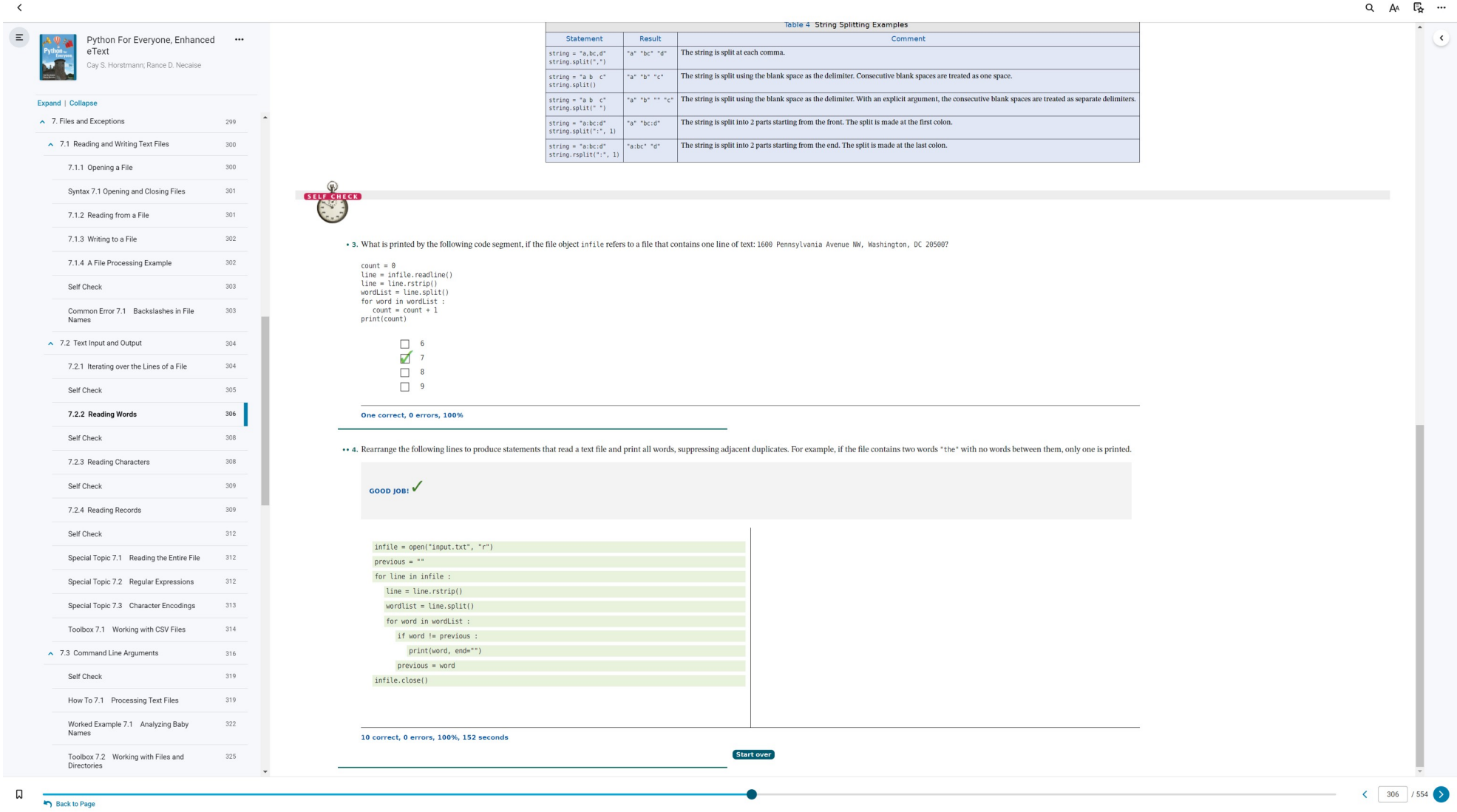
7.2.1



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Expand | Collapse

Table 4 String Splitting Examples

Statement	Result	Comment
`string = "a,bc,d"` `string.split(",")`	`"a" "bc" "d"`	The string is split at each comma.
`string = "a b  c"` `string.split()`	`"a" "b" "c"`	The string is split using the blank space as the delimiter. Consecutive blank spaces are treated as one space.
`string = "a b  c"` `string.split(" ")`	`"a" "b" "" "c"`	The string is split using the blank space as the delimiter. With an explicit argument, the consecutive blank spaces are treated as separate delimiters.
`string = "a:bc:d"` `string.split(":", 1)`	`"a" "bc:d"`	The string is split into 2 parts starting from the front. The split is made at the first colon.
`string = "a:bc:d"` `string.rsplit(":", 1)`	`"a:bc" "d"`	The string is split into 2 parts starting from the end. The split is made at the last colon.

SELF CHECK

• 3. What is printed by the following code segment, if the file object `infile` refers to a file that contains one line of text: `1600 Pennsylvania Avenue NW, Washington, DC 20500`?

```
count = 0
line = infile.readline()
line = line.rstrip()
wordList = line.split()
for word in wordList :
   count = count + 1
print(count)
```

- [ ] 6
- [x] 7
- [ ] 8
- [ ] 9

One correct, 0 errors, 100%

•• 4. Rearrange the following lines to produce statements that read a text file and print all words, suppressing adjacent duplicates. For example, if the file contains two words `"the"` with no words between them, only one is printed.

GOOD JOB! ✓

```
infile = open("input.txt", "r")
previous = ""
for line in infile :
   line = line.rstrip()
   wordlist = line.split()
   for word in wordList :
      if word != previous :
         print(word, end="")
      previous = word
infile.close()
```

10 correct, 0 errors, 100%, 152 seconds

Start over

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7.2.2

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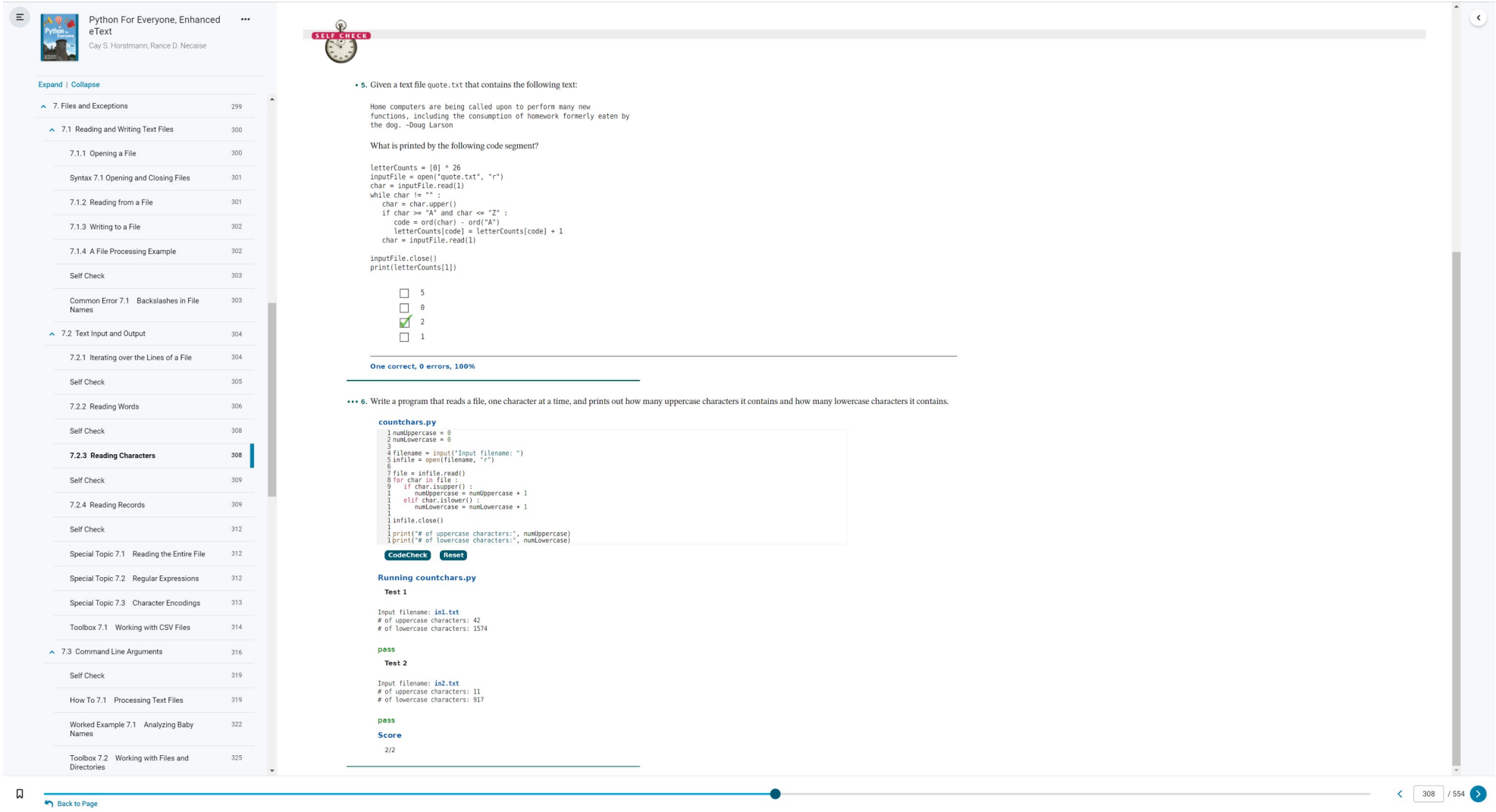

7.2.3

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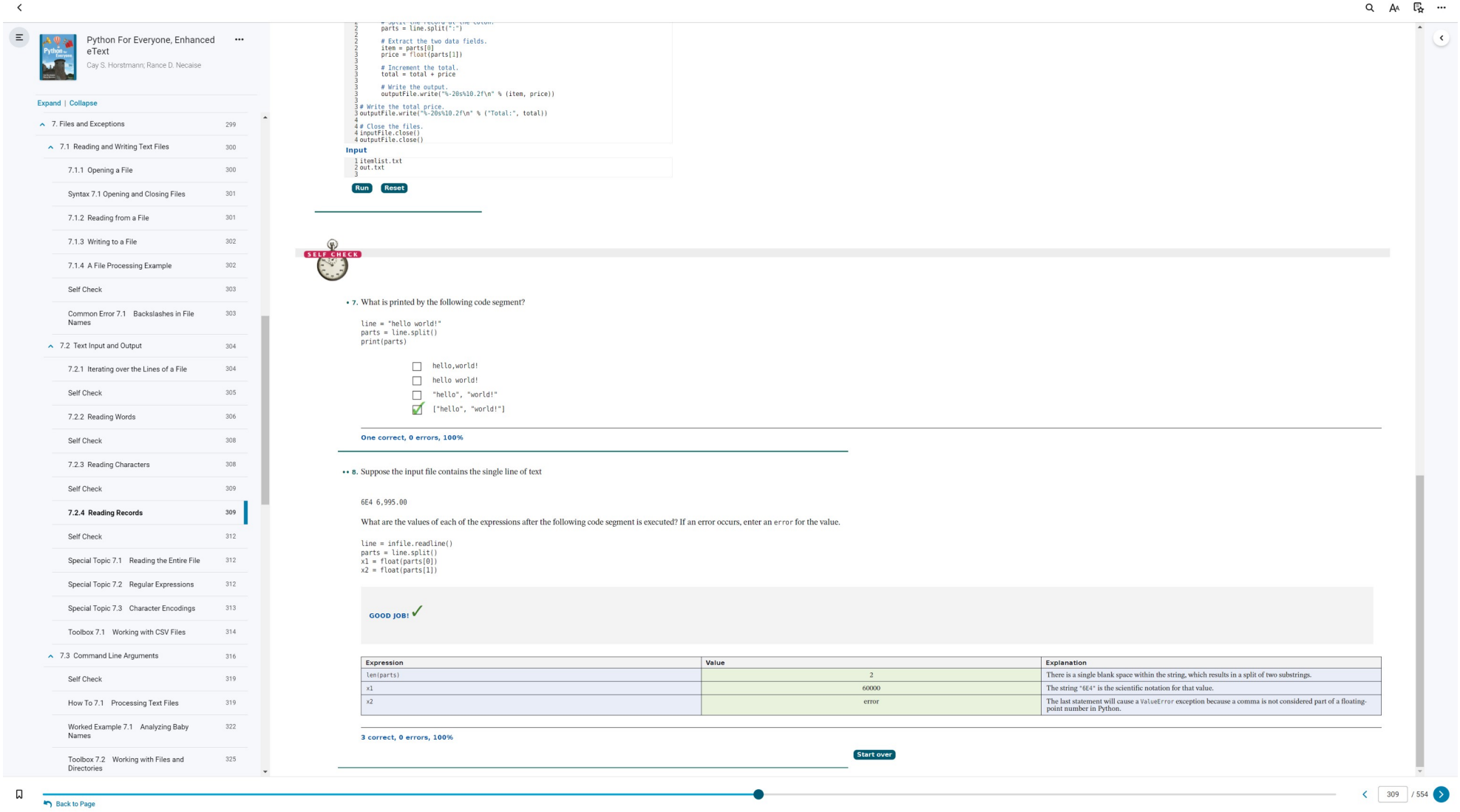
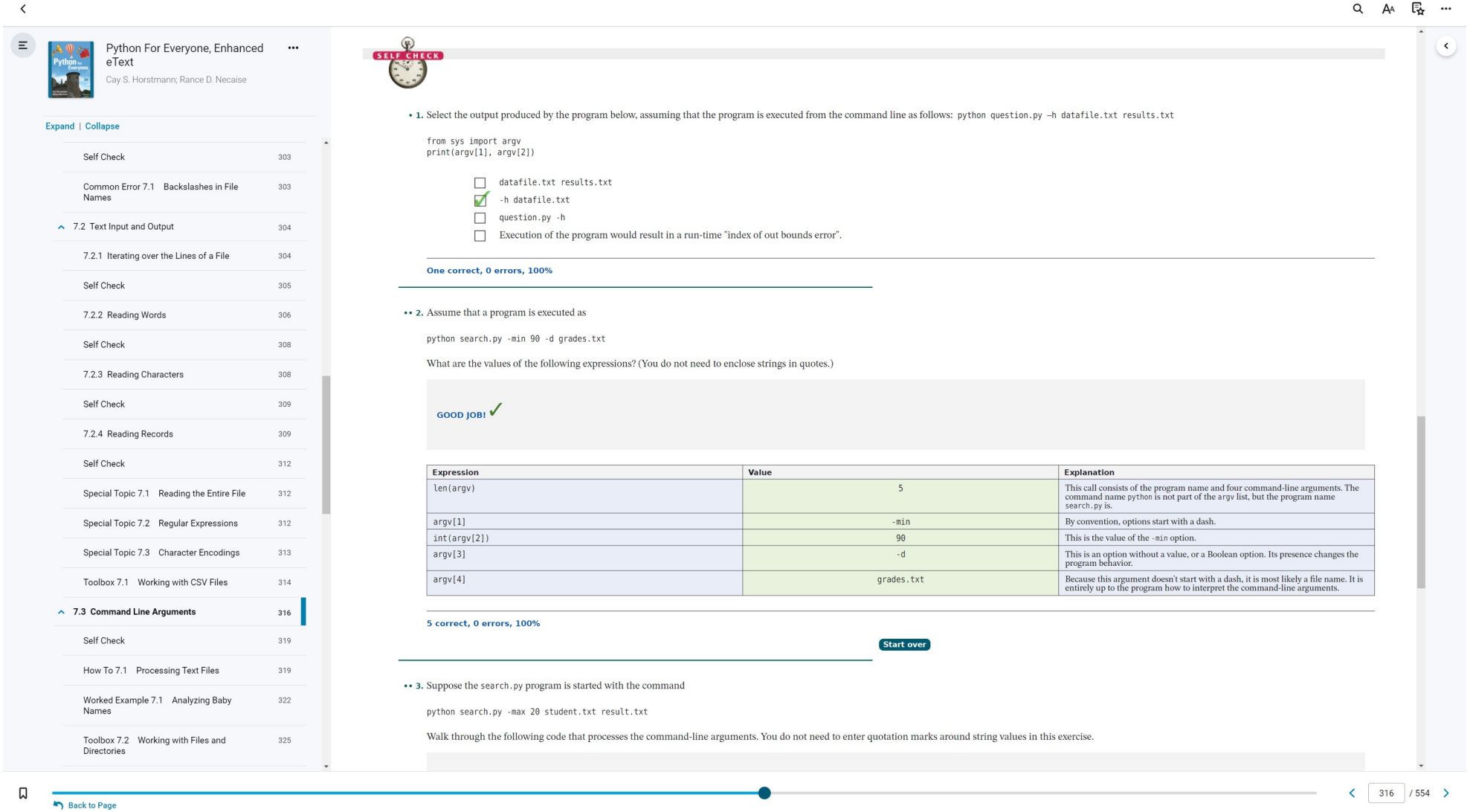
Chapter 7 Homework – 7.1 – 7.6



7.2.4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SELF CHECK
• 1. Select the output produced by the program below, assuming that the program is executed from the command line as follows: python question.py –h datafile.txt results.txt
from sys import argv
print(argv[1], argv[2])
datafile.txt results.txt
-h datafile.txt
question.py -h
Execution of the program would result in a run-time "index of out bounds error".
One correct, 0 errors, 100%
•• 2. Assume that a program is executed as
python search.py -min 90 -d grades.txt
What are the values of the following expressions? (You do not need to enclose strings in quotes.)
GOOD JOB!
Expression
Value
Explanation
len(argv)
5
This call consists of the program name and four command-line arguments. The command name python is not part of the argv list, but the program name search.py is.
argv[1]
-min
By convention, options start with a dash.
int(argv[2])
90
This is the value of the -min option.
argv[3]
-d
This is an option without a value, or a Boolean option. Its presence changes the program behavior.
argv[4]
grades.txt
Because this argument doesn't start with a dash, it is most likely a file name. It is entirely up to the program how to interpret the command-line arguments.
5 correct, 0 errors, 100%
Start over
•• 3. Suppose the search.py program is started with the command
python search.py -max 20 student.txt result.txt
Walk through the following code that processes the command-line arguments. You do not need to enter quotation marks around string values in this exercise.
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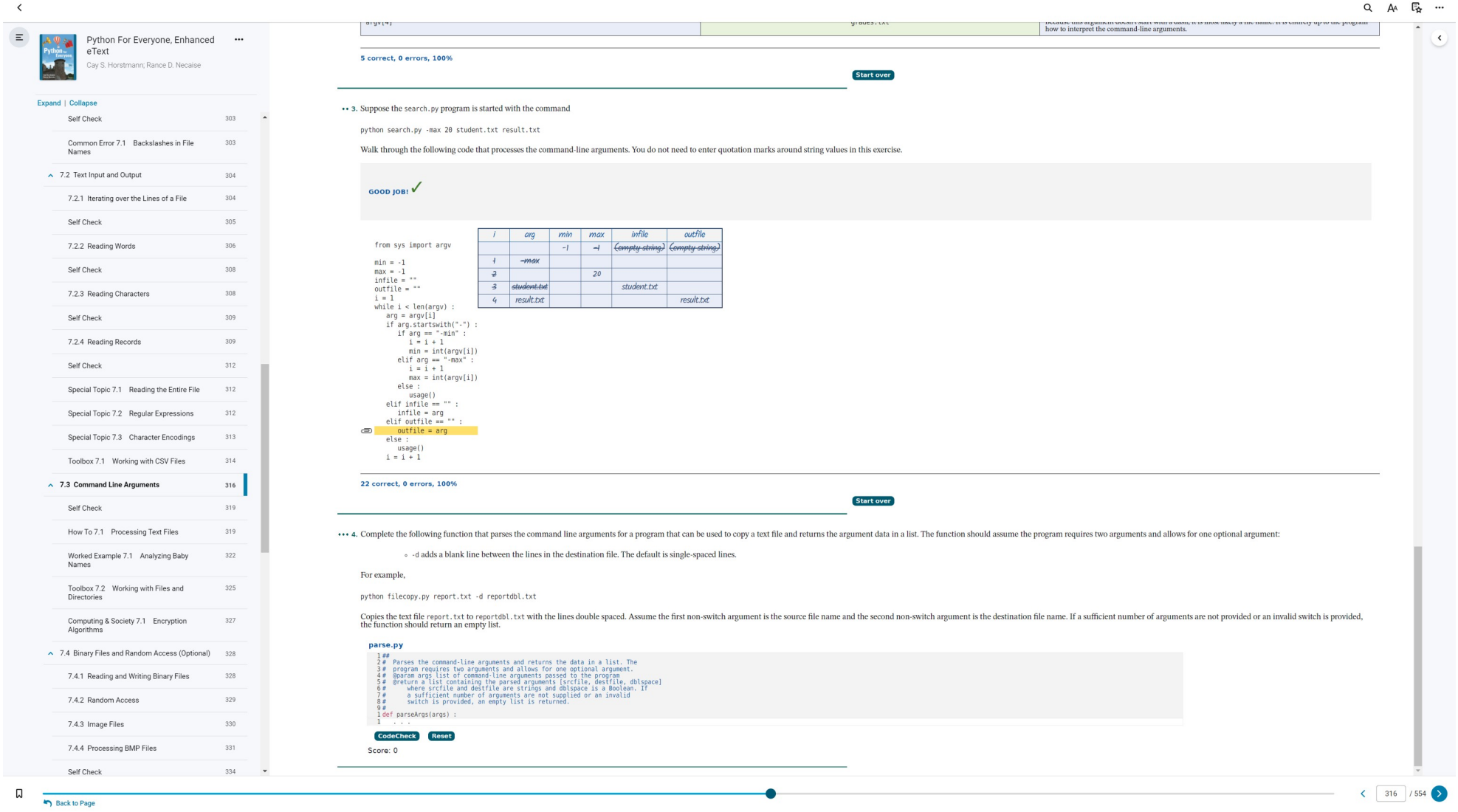
7.3 (p.1)



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Expand | Collapse

how to interpret the command-line arguments.

5 correct, 0 errors, 100%

Start over

•• 3. Suppose the `search.py` program is started with the command

```
python search.py -max 20 student.txt result.txt
```

Walk through the following code that processes the command-line arguments. You do not need to enter quotation marks around string values in this exercise.

GOOD JOB! ✓

```
from sys import argv

min = -1
max = -1
infile = ""
outfile = ""
i = 1
while i < len(argv) :
   arg = argv[i]
   if arg.startswith("-") :
      if arg == "-min" :
         i = i + 1
         min = int(argv[i])
      elif arg == "-max" :
         i = i + 1
         max = int(argv[i])
      else :
         usage()
   elif infile == "" :
      infile = arg
   elif outfile == "" :
      outfile = arg
   else :
      usage()
   i = i + 1
```

i	arg	min	max	infile	outfile
		-1	-1	(empty string)	(empty string)
1	-max				
2			20		
3	student.txt			student.txt	
4	result.txt				result.txt

22 correct, 0 errors, 100%

Start over

••• 4. Complete the following function that parses the command line arguments for a program that can be used to copy a text file and returns the argument data in a list. The function should assume the program requires two arguments and allows for one optional argument:

- `-d` adds a blank line between the lines in the destination file. The default is single-spaced lines.

For example,

```
python filecopy.py report.txt -d reportdbl.txt
```

Copies the text file `report.txt` to `reportdbl.txt` with the lines double spaced. Assume the first non-switch argument is the source file name and the second non-switch argument is the destination file name. If a sufficient number of arguments are not provided or an invalid switch is provided, the function should return an empty list.

parse.py

```
##
#  Parses the command-line arguments and returns the data in a list. The
#  program requires two arguments and allows for one optional argument.
#  @param args list of command-line arguments passed to the program
#  @return a list containing the parsed arguments [srcfile, destfile, dblspace]
#      where srcfile and destfile are strings and dblspace is a Boolean. If
#      a sufficient number of arguments are not supplied or an invalid
#      switch is provided, an empty list is returned.
#
def parseArgs(args) :
   . . .
```

CodeCheck Reset

Score: 0

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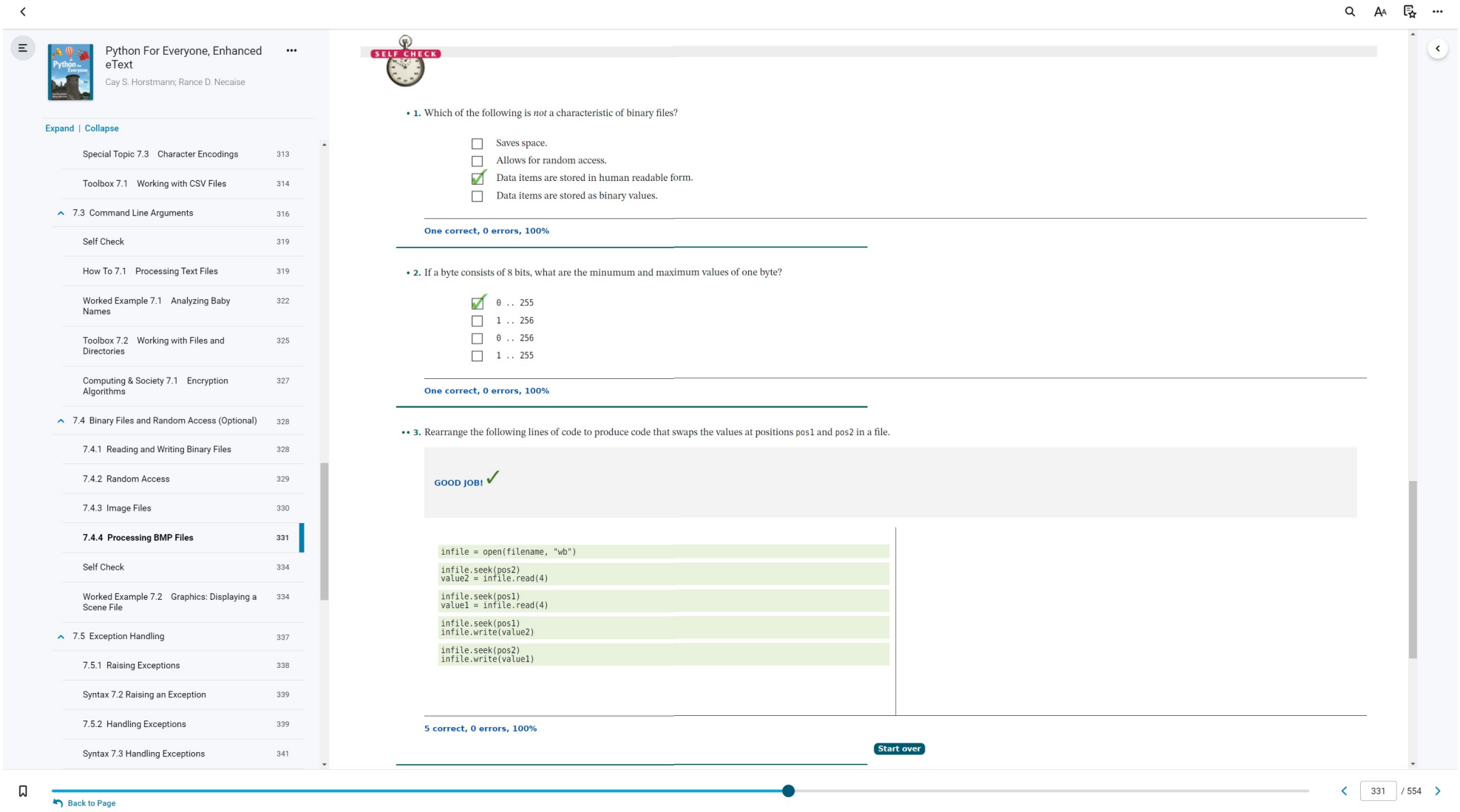
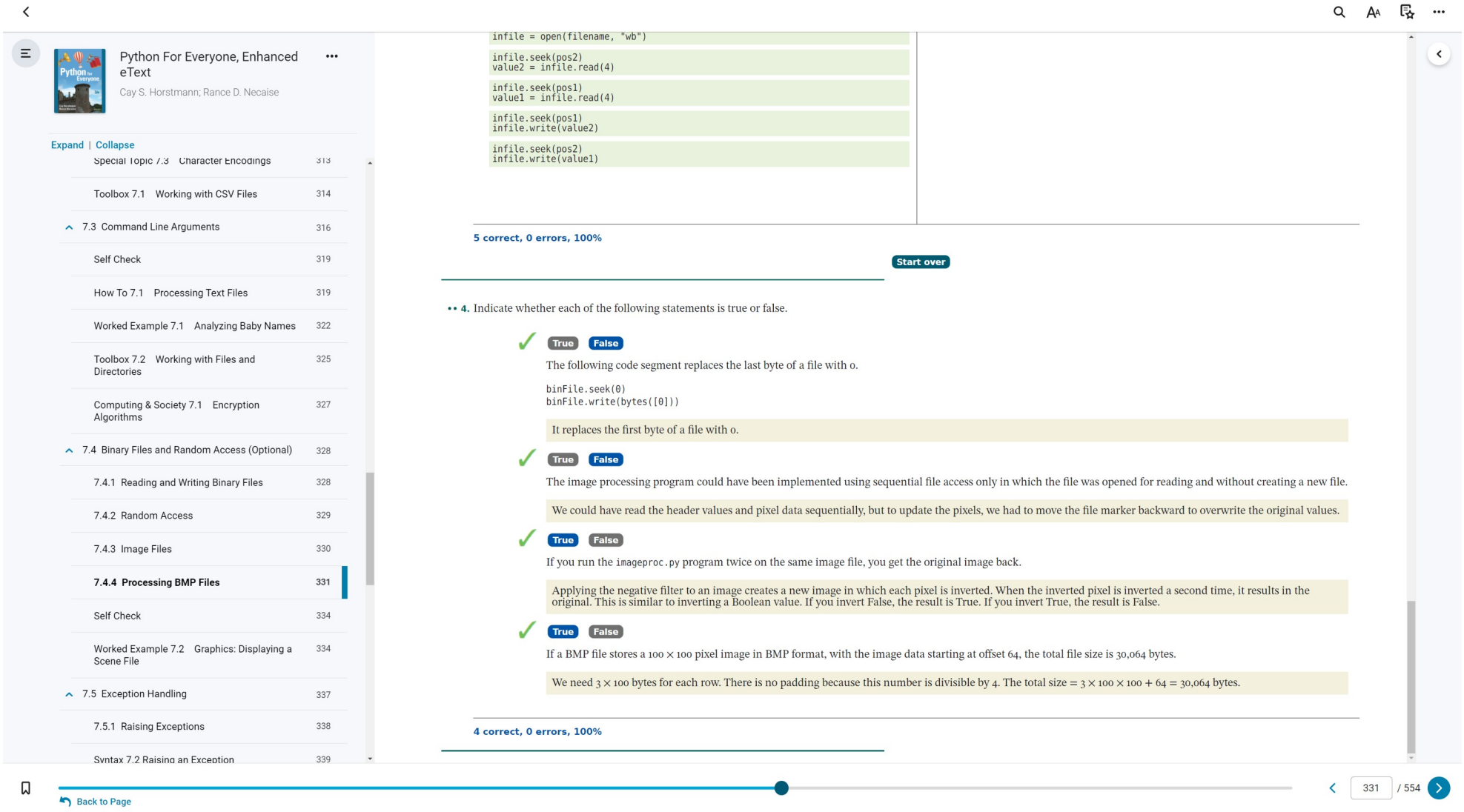


7.4 (p.1)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infile = open(filename, "wb")
infile.seek(pos2)
value2 = infile.read(4)
infile.seek(pos1)
value1 = infile.read(4)
infile.seek(pos1)
infile.write(value2)
infile.seek(pos2)
infile.write(value1)
5 correct, 0 errors, 100%
Start over
•• 4. Indicate whether each of the following statements is true or false.
True False
The following code segment replaces the last byte of a file with 0.
binFile.seek(0)
binFile.write(bytes([0]))
It replaces the first byte of a file with 0.
True False
The image processing program could have been implemented using sequential file access only in which the file was opened for reading and without creating a new file.
We could have read the header values and pixel data sequentially, but to update the pixels, we had to move the file marker backward to overwrite the original values.
True False
If you run the imageproc.py program twice on the same image file, you get the original image back.
Applying the negative filter to an image creates a new image in which each pixel is inverted. When the inverted pixel is inverted a second time, it results in the original. This is similar to inverting a Boolean value. If you invert False, the result is True. If you invert True, the result is False.
True False
If a BMP file stores a 100 × 100 pixel image in BMP format, with the image data starting at offset 64, the total file size is 30,064 bytes.
We need 3 × 100 bytes for each row. There is no padding because this number is divisible by 4. The total size = 3 × 100 × 100 + 64 = 30,064 bytes.
4 correct, 0 errors, 100%
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7.4 (p.2)

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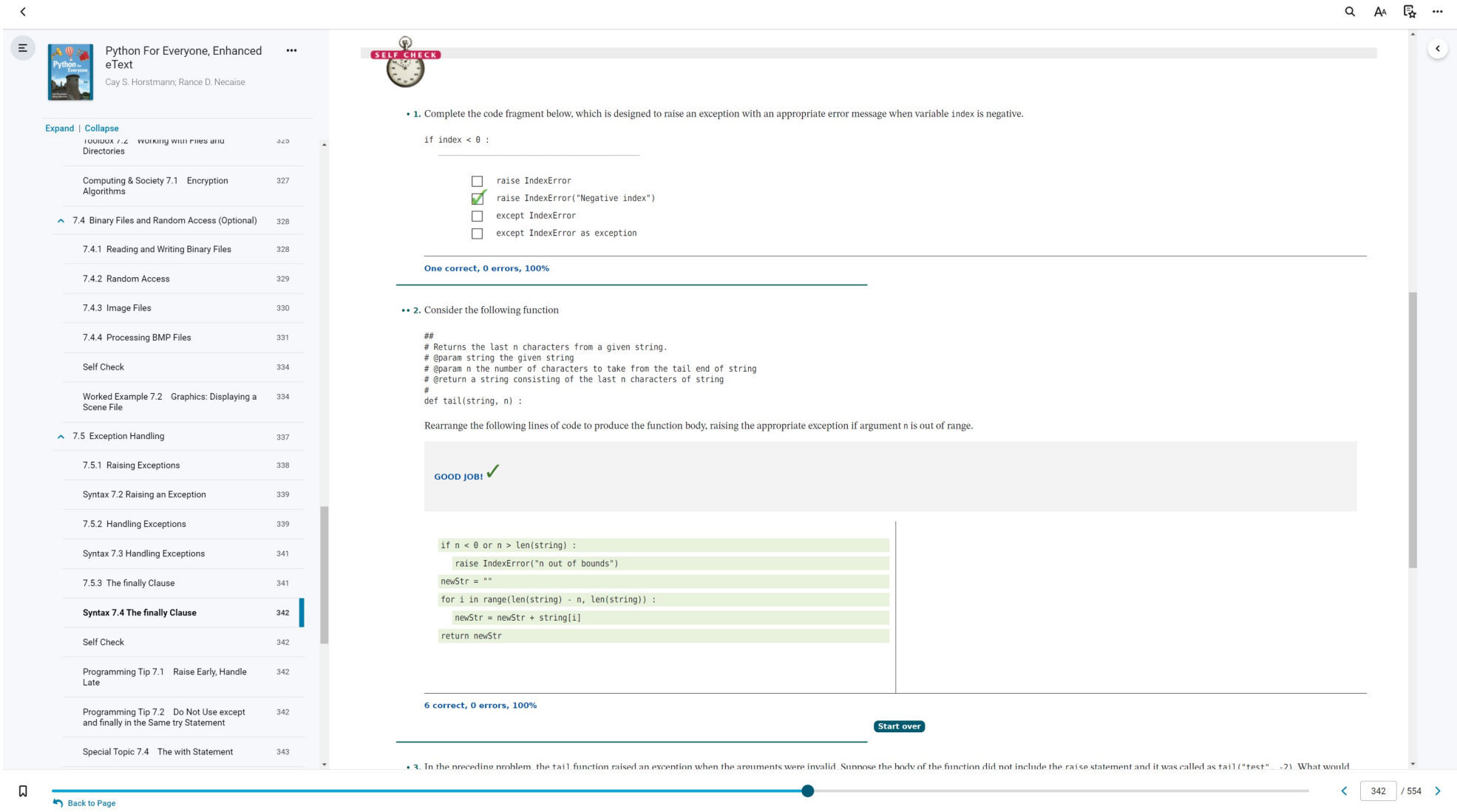
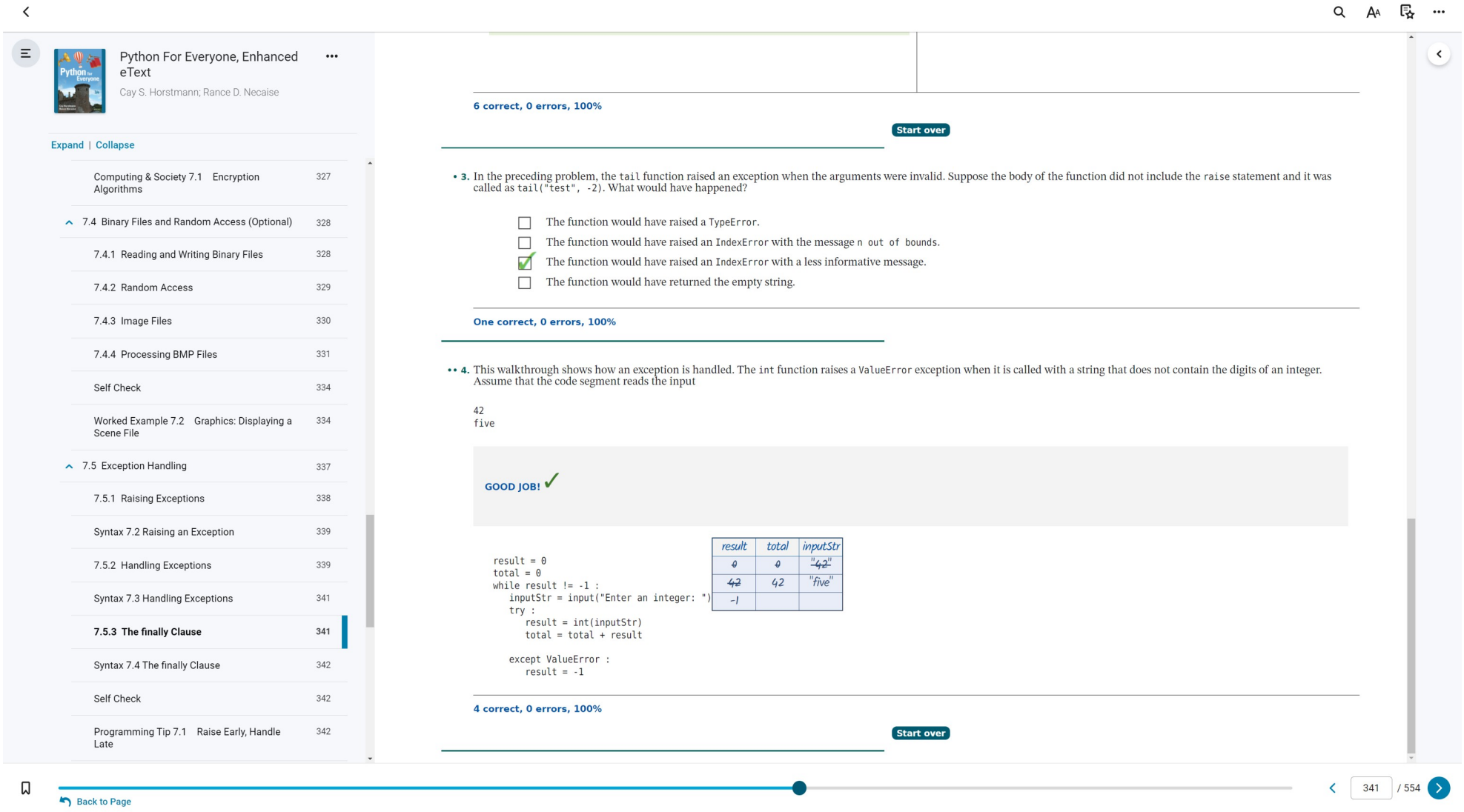


7.5 (p. 1)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6 correct, 0 errors, 100%
Start over
• 3. In the preceding problem, the tail function raised an exception when the arguments were invalid. Suppose the body of the function did not include the raise statement and it was called as tail("test", -2). What would have happened?
The function would have raised a TypeError.
The function would have raised an IndexError with the message n out of bounds.
The function would have raised an IndexError with a less informative message.
The function would have returned the empty string.
One correct, 0 errors, 100%
•• 4. This walkthrough shows how an exception is handled. The int function raises a ValueError exception when it is called with a string that does not contain the digits of an integer. Assume that the code segment reads the input
42
five
GOOD JOB!
result = 0
total = 0
while result != -1 :
inputStr = input("Enter an integer: ")
try :
result = int(inputStr)
total = total + result
except ValueError :
result = -1
result
total
inputStr
0
0
"42"
42
42
"five"
-1
4 correct, 0 errors, 100%
Start over
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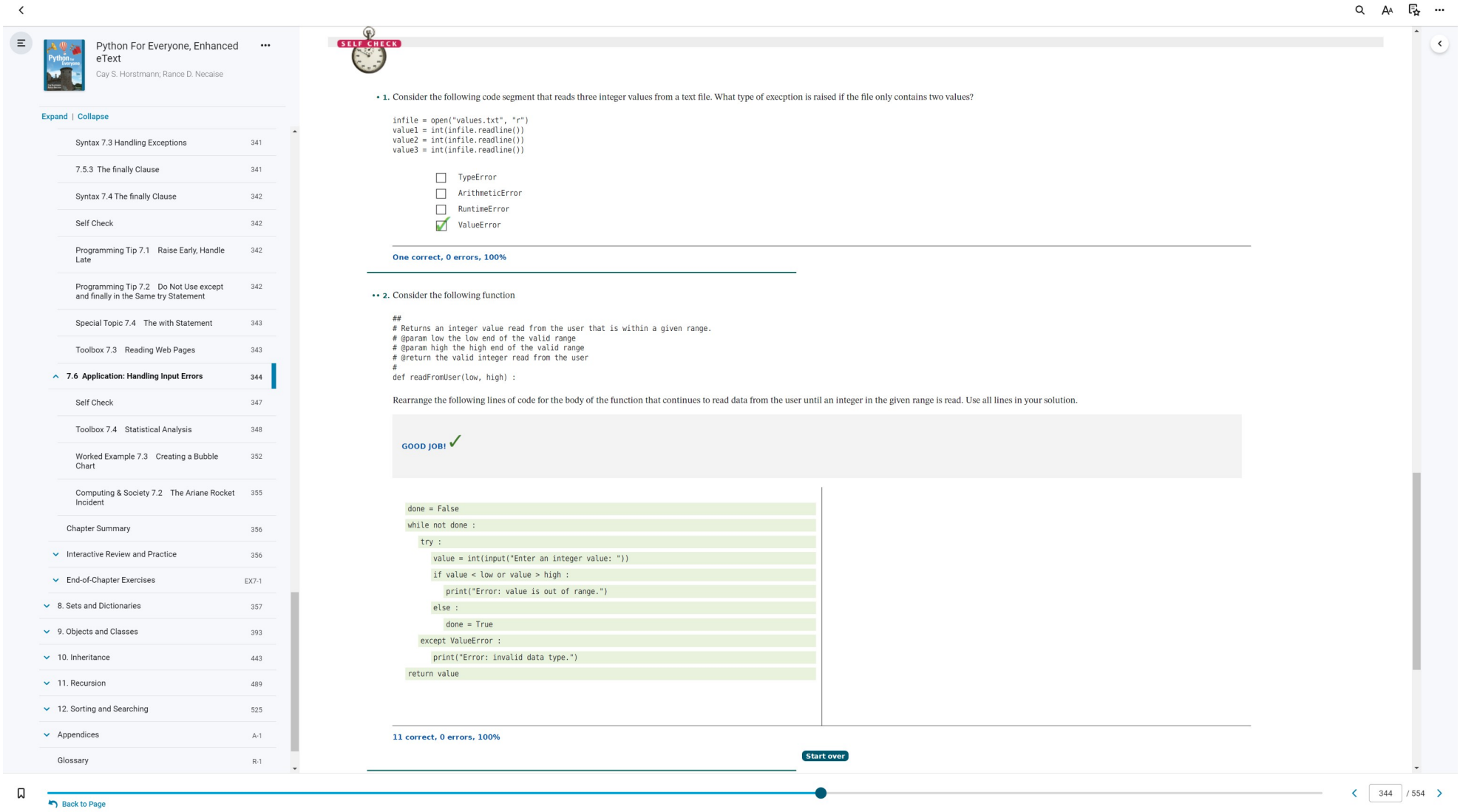
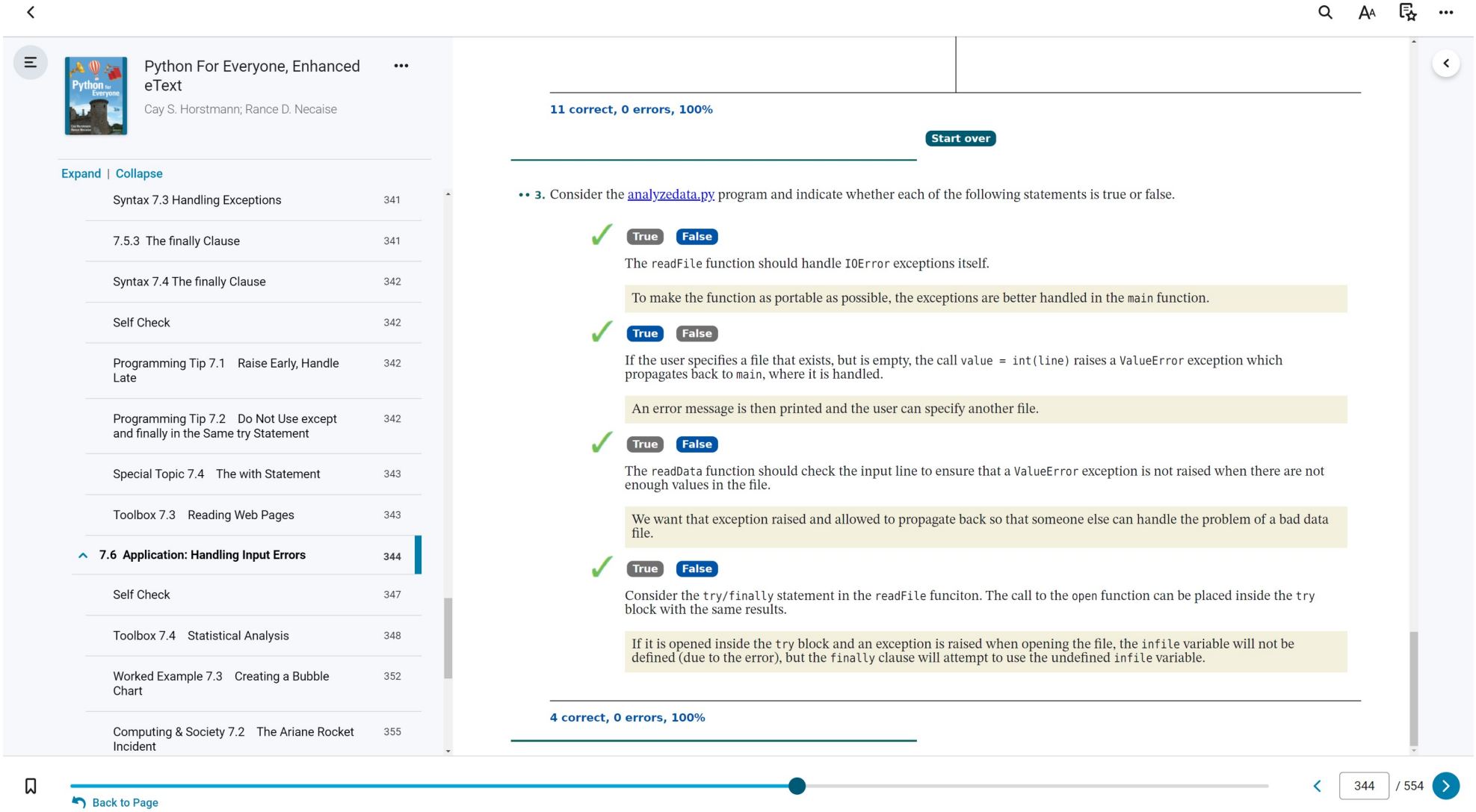


7.6 (p. 1)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11 correct, 0 errors, 100%
Start over
•• 3. Consider the analyzedata.py program and indicate whether each of the following statements is true or false.
True False
The readFile function should handle IOError exceptions itself.
To make the function as portable as possible, the exceptions are better handled in the main function.
True False
If the user specifies a file that exists, but is empty, the call value = int(line) raises a ValueError exception which propagates back to main, where it is handled.
An error message is then printed and the user can specify another file.
True False
The readData function should check the input line to ensure that a ValueError exception is not raised when there are not enough values in the file.
We want that exception raised and allowed to propagate back so that someone else can handle the problem of a bad data file.
True False
Consider the try/finally statement in the readFile funciton. The call to the open function can be placed inside the try block with the same results.
If it is opened inside the try block and an exception is raised when opening the file, the infile variable will not be defined (due to the error), but the finally clause will attempt to use the undefined infile variable.
4 correct, 0 errors, 100%
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