

Homework 3: Test for Stutter

Use "Stutter.py" for questions a-d. (A compilable version is available in <https://cs.gmu.edu/~offutt/softwaretest/java/Stutter.java>. A line-numbered version is in <https://cs.gmu.edu/~offutt/softwaretest/java/Stutter.num>.)

- (a) Draw control flow graphs for all the methods in "Stutter.py" .
- (b) List all the call sites.
- (c) List all coupling du-pairs for each call site.
- (d) Create test data to satisfy All-Coupling Uses Coverage for "Stutter.py ". (Informally, to cover all coupling du-pairs in (c).)

> ...

> Then we make sure that every def reaches all possible uses

> All-uses coverage (AUC): For each set of du-paths to uses $S = \text{du}(n_i, n_j, v)$, TR c contains at least one path d in S .

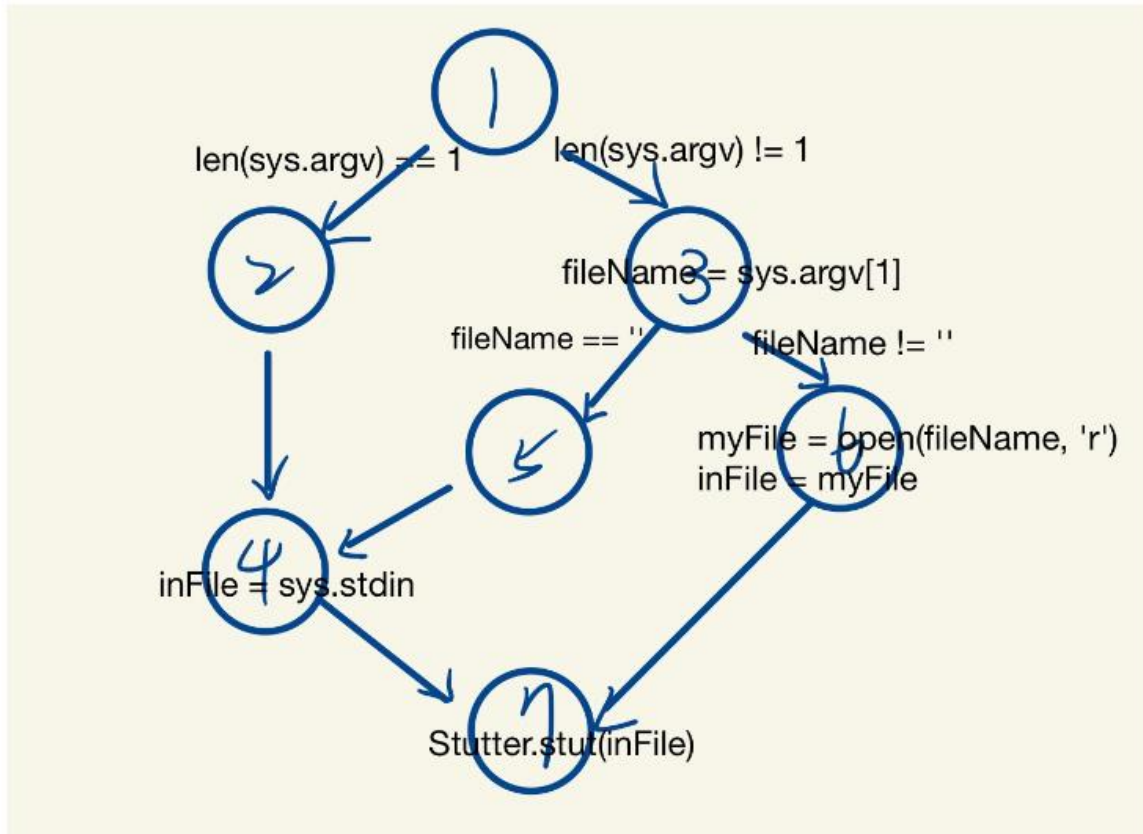
> ...

> From Ch07-1 "Data Flow Test Criteria"

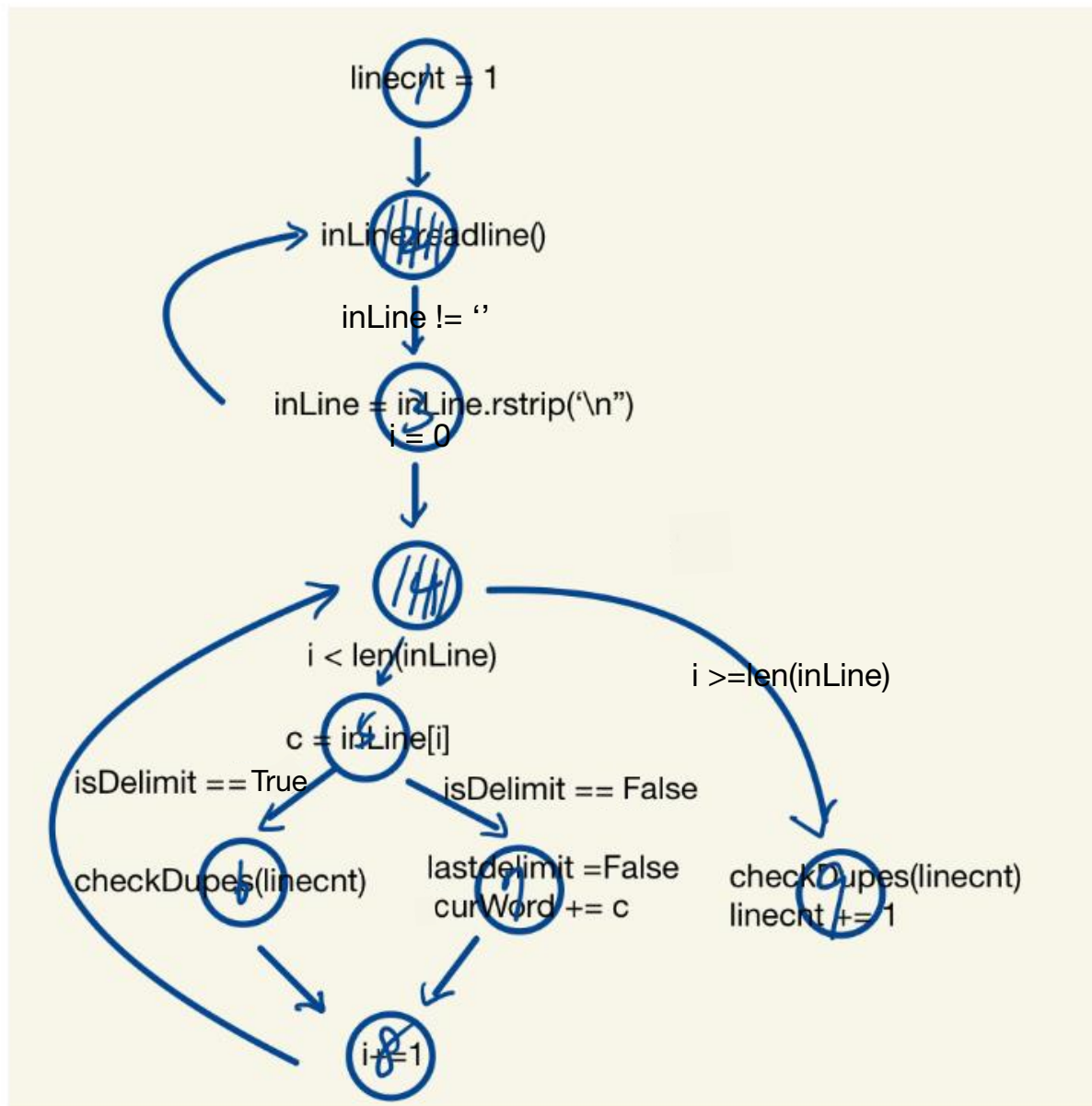
Hint: Please refer to ch07-4.

(a) Draw control flow graphs for all the methods in "Stutter.py"

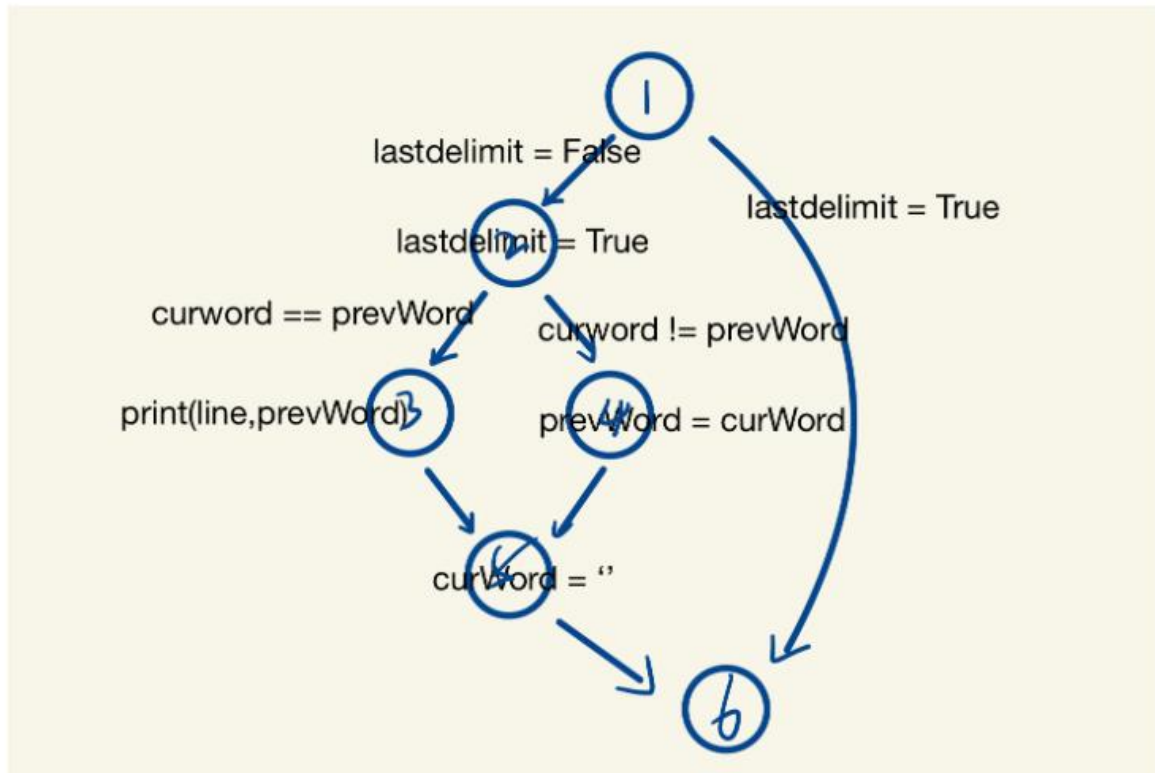
def main():



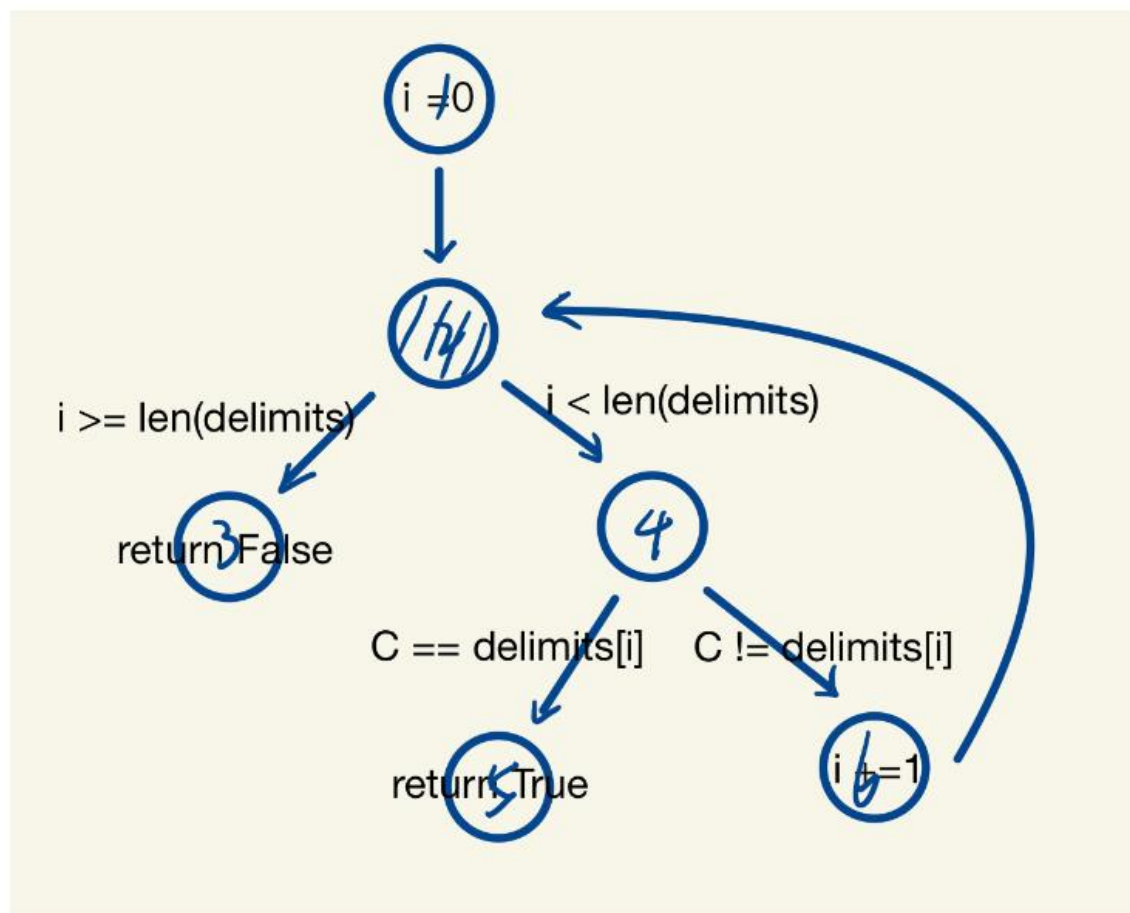
def stut(inFile):



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def checkDupes(line):
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```
def isDelimit(C):
```



(b) List all the call sites.

行數	call site
103	stut(inFile)
46	isDelimit(c)
47	checkDupes(linecnt)
52	checkDupes(linecnt)

(c) List all coupling du-pairs for each call site.

Pairs of locations(method name, variable name, statement)

def stut(inFile):

last def	first use
(main(), inFile, 95)	(stut(), inFile, 41)
(main(), inFile, 99)	(stut(), inFile, 41)
(main(), inFile, 102)	(stut(), inFile, 41)

def isDelimit(C):

last def	first use
(stut(), c, 45)	(isDelimit(), C, 82)

def checkDupes(line):

last def	first use
(stut(), linecnt, 40)	(checkDupes(), line, 68)
(stut(), linecnt, 53)	(checkDupes(), line, 68)

(d) Create test data to satisfy All-Coupling Uses Coverage for “Stutter.py”. (Informally, to cover all coupling du-pairs in (c).)

len(sys.argv)	sys.argv[1]	content in inFile	coupling du-pairs	
1		“SoftwareTesting” //sys.stdin	95 # no file, use stdin	41 # while (inLine := inFile.readline()) != “”;
2	“”	“SoftwareTesting” //sys.stdin	99 # no file name, use stdin	41 # while (inLine := inFile.readline()) != “”;
2	“test.txt”	“Software Testing”	102 # file name, open the file	41 # while (inLine := inFile.readline()) != “”;
2	“test.txt”	“Software;Testing”	45 # c = inLine[i]	82 # if C == Stutter.delimits[i];
2	“test.txt”	“Software,Testing,Testing”	40 # linecnt = 1	68 # print(“Repeated word on line ‘, line, ‘: ‘, Stutter.prevWord, ‘ ’, Stutter.curWord, sep=”)
2	“test.txt”	“Software\n Testing,Testing”	53 #換行 # linecnt += 1	68 # print(“Repeated word on line ‘, line, ‘: ‘, Stutter.prevWord, ‘ ’, Stutter.curWord, sep=”)
2	“test.txt”	“Software!Testing”		82 # if C == Stutter.delimits[i];