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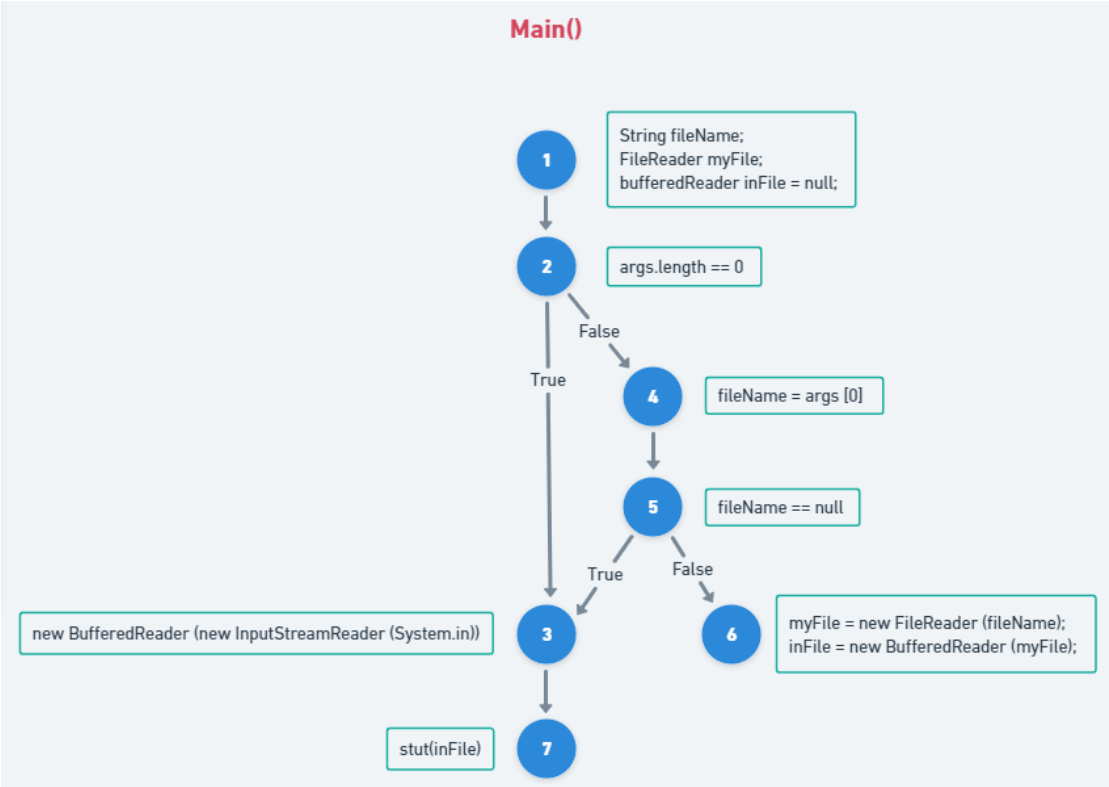
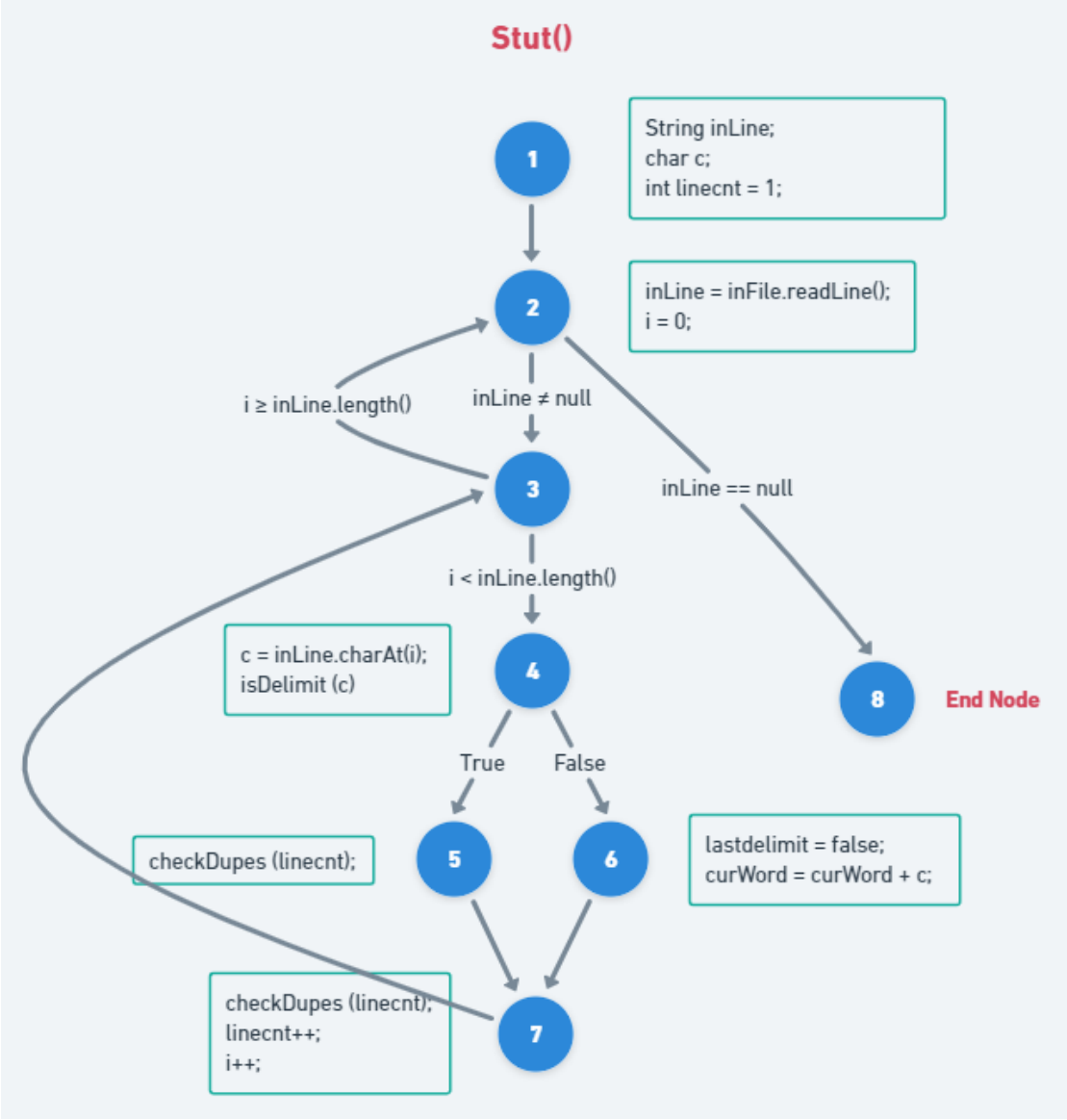
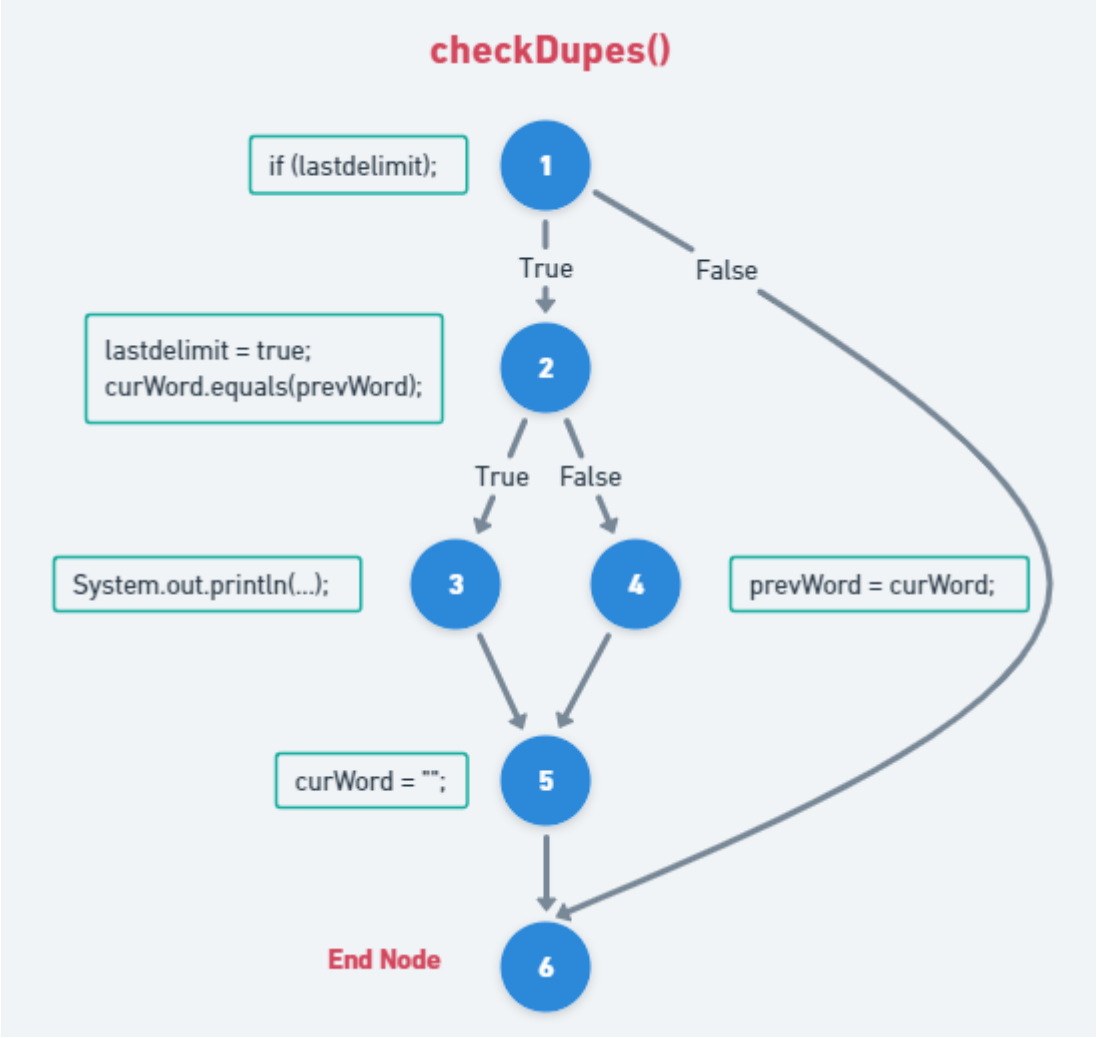
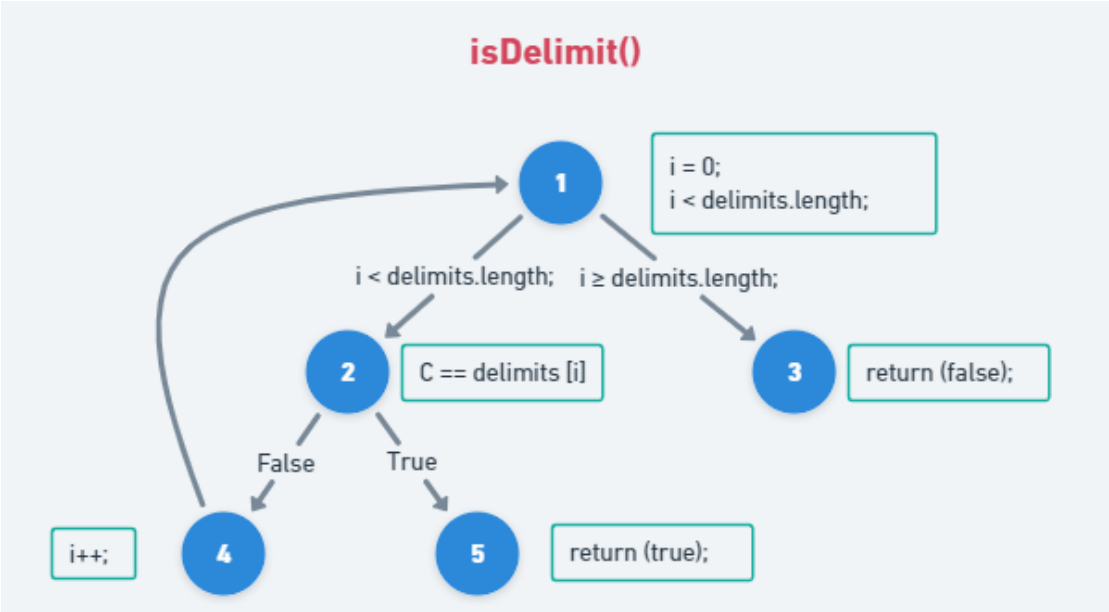
Homework 3

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




Stut()
1
String inLine;
char c;
int linecnt = 1;
2
inLine = inFile.readLine();
i = 0;
i ≥ inLine.length()
inLine ≠ null
inLine == null
3
i < inLine.length()
c = inLine.charAt(i);
isDelimit (c)
4
8
End Node
True
False
checkDupes (linecnt);
5
6
lastdelimit = false;
curWord = curWord + c;
checkDupes (linecnt);
linecnt++;
i++;
7


checkDupes()
if (lastdelimit);
1
True
False
lastdelimit = true;
curWord.equals(prevWord);
2
True
False
System.out.println(...);
3
4
prevWord = curWord;
curWord = "";
5
End Node
6


isDelimit()
1
i = 0;
i < delimits.length;
i < delimits.length;
i ≥ delimits.length;
2
C == delimits [i]
3
return (false);
False
True
i++;
4
5
return (true);

(b) List all the call sites.

call sites	line
stut (inFile);	46
sDelimit (c)	63
checkDupes (linecnt);	65
checkDupes (linecnt);	73

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

last-def (method name, variable name, line)	first-use (method name, variable name, line)
(main, inFile, 30)	(stut, inFile, 56)
(main, inFile, 37)	(stut, inFile, 56)
(main, inFile, 42)	(stut, inFile, 56)
(stut, linecnt, 55)	(checkDupes, line, 88)
(stut, linecnt, 74)	(checkDupes, line, 88)
(stut, c, 61)	(isDelimit, C, 102)
(isDelimit, **no variable** , 103)	(isDelimit, **no variable** , 63)
(isDelimit, **no variable** , 104)	(isDelimit, **no variable** , 63)

(d) Create test data to satisfy All-Coupling Use Coverage for Stutter.

args.length	args[0]	inFile
0		“HelloWorld” (System.in)
1	Null	“HelloWorld” (System.in)
1	fileName	“HelloWorld” (file content)
1	fileName	“Hello;Hello”
1	fileName	“Hello\nHello”
1	fileName	“Hello;Hello”
1	fileName	“Hello;Hello”
1	fileName	“Hello;Hello”