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- 1. Work in groups of 2–4 people. List the members of your group below. Underline your name.
- 2. The following regular expressions use Python syntax. Write equivalent ones using the textbook's syntax.
 - (a) a+b|c(da)+
 - (b) a?(a+b)|cda(da)*
- 3. Describe the strings matched by each of the regular expressions of Question 2 informally but as precisely as possible.

4. Prove or disprove: The two regular expressions of Question 2 are equivalent.

5. What is the output (or error) produced by the following Python program? Explain your answer.

```
def main():
1
           def f(x):
2
               def g(x):
3
                    return 1
4
5
               def h(y):
6
                    return x + y
7
8
               print(g(x))
9
               return h
10
11
           print(f(42)(3))
12
13
14
      main()
15
```

6. Depict the sequence of distinct states of the call stack (runtime stack) when the program of Question 5 is run.

7. Provide JCoCo assembly code for function ${\tt h}$ of the program of Question 5.