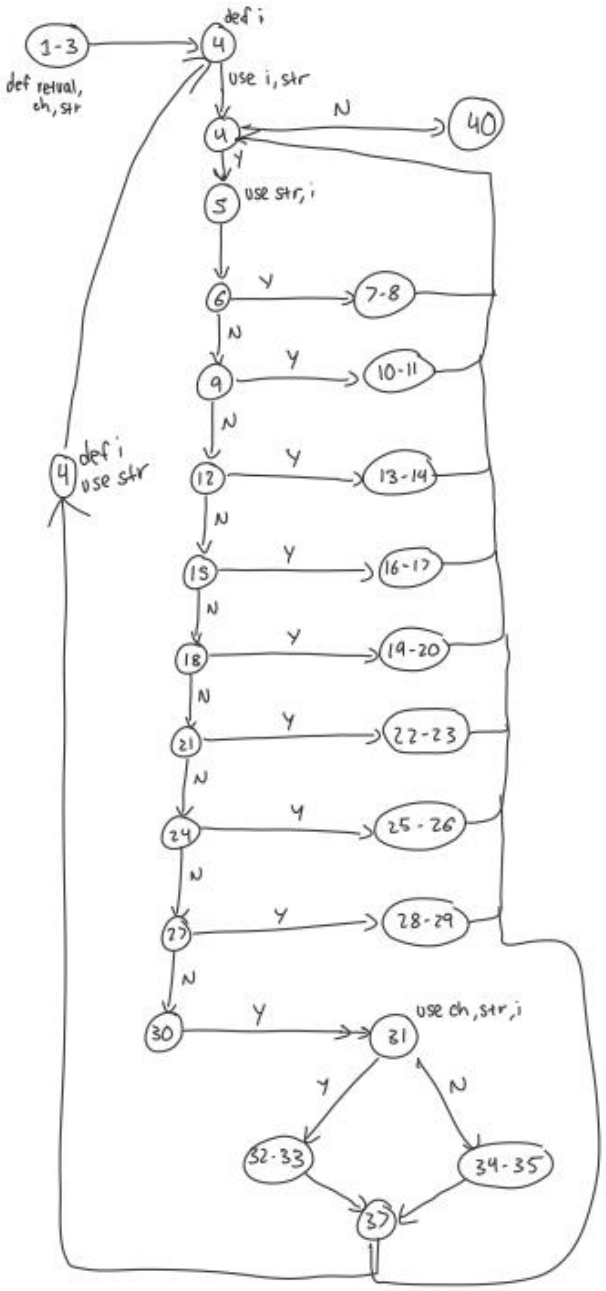
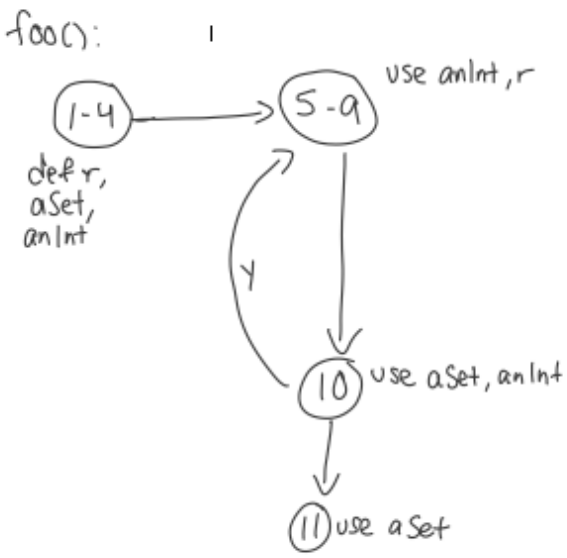
SYSC 4101: Lab 6
Juanita Rodelo
101141857

Exercise 1

1. First program:



2. Second program:



Exercise 2

1. Round trips:
   [(2, 3, 5, 6, 2), (2, 3, 4, 6, 2), (6, 2, 3, 4, 6), (6, 2, 3, 5, 6)]

2. Simple-Round-Trip test requirements
   TR = [(2, 3, 5, 6, 2), (2, 3, 4, 6, 2), (6, 2, 3, 4, 6), 6, 2, 3, 5, 6)]

3. Simple-Round-Trip test paths
   TP = [(1, 2, 3, 5, 6, 2, 7), (1, 2, 3, 4, 6, 2, 7)]

4. No, since it does not include every round trip in the graph. The following test paths are missing: [(6, 2, 3, 4, 6), 6, 2, 3, 5, 6)]

5. All-Defs test requirements:
   For var x: TR = [(1, 2, 7), (4, 6, 2)]
   For var y: TR = [1, 2, 7), (5, 6, 2, 7)]

6. All-Defs test paths:
   TP = [(1, 2, 7), (1, 2, 3, 4, 6, 2, 7), (1, 2, 3, 5, 6, 2, 7)]

7. All-Uses test requirement:
   For var x: TR = [(1, 2, 3), (4, 6, 2, 7)]
   - First path covers one use of x
   - Second path covers two uses of x (one on edge between nodes 2 and 7, one on node 7)

   For var y: TR = [(1, 2, 7)(5, 6, 2, 3, 4)]
   - First path covers two uses of y (one on edge between nodes 2 and 7, one on node 7)
   - Second path covers three uses of y (one between nodes 2 and 3, one between nodes 3 and 4, one on node 4)

8. All-Uses adequate test paths:
   TP = [(1, 2, 3, 4, 6, 2, 7), (1, 2, 7), (1, 2, 3, 5, 6, 2, 7)]

9. All-DU test requirements
   For var x:
   - These are all the uses for the definition at node 1:

     TR = [[(1, 2, 7), (1, 2, 3), (1, 2, 3, 4), (1, 2, 3, 5)]
   - These are all the uses for the definition at node 4:
     TR = [(4, 6, 2, 7), (4, 6, 2, 3), (4, 6, 2, 3, 5), (4, 6, 2, 3, 4)]

   For var y:
   - These are all the uses for the definition at node 1:

TR = [[(1, 2, 7), (1, 2, 3), (1, 2, 3, 4), (1, 2, 3, 5)]

- These are all the uses for the definition at node 5:
  TR = [(5, 6, 2, 7), (5, 6, 2, 3), (5, 6, 2, 3, 4), (5, 6, 2, 3, 5)]

10. All-DU paths:
    For var x:
    TP = [(1, 2, 7), (1, 2, 3, 4, 6, 2, 7), (1, 2, 3, 5, 6, 2, 7)]

    For var y:
    TP = [(1, 2, 3), (1, 2, 3, 5, 6, 2, 3, 4), (1, 2, 7)]