CS 447 Assignment 01

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Question 1.   10pts
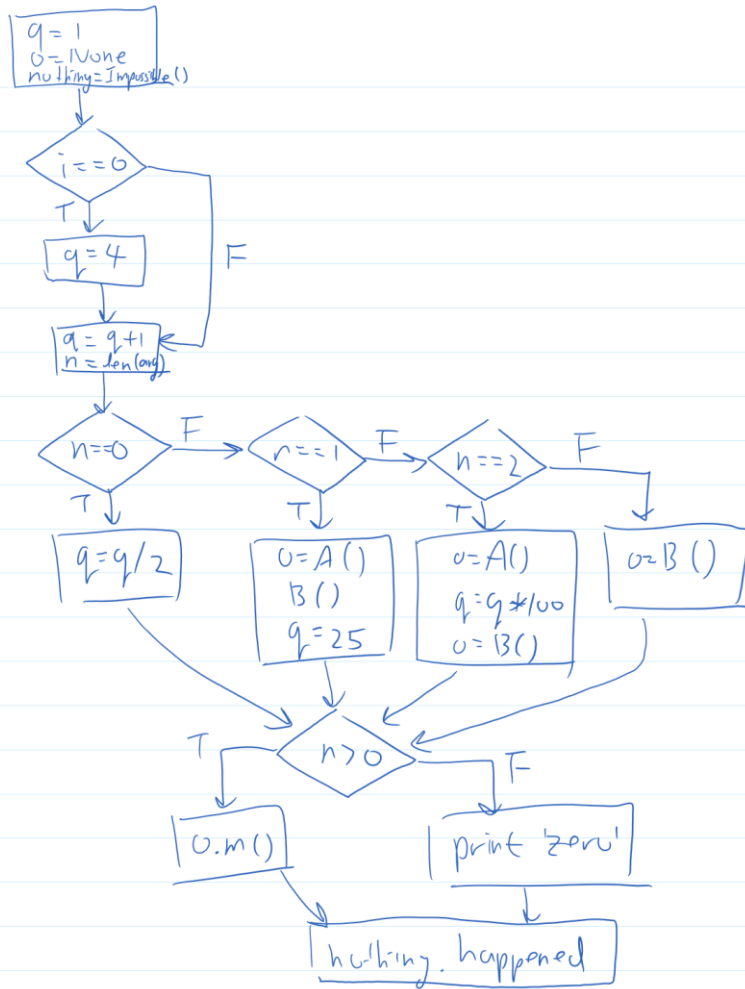
a) x = []
b) x = [3]
c) x = [1, 3, 5, 7]
d) x = [-10, -9, 0, 99, 100]
    I = 1
    cnt = 1
    PC = second iteration after cnt = cnt + 1

Question 2.   10pts

```
1    class ForStmt(Stmt):
2        def __init__(self, var, aexp_i, aexp_j, stmt):
3            self.var = var
4            self.aexp_i = aexp_i
5            self.aexp_j = aexp_j
6            self.stmt = Stmt
```

a)

$$\frac{< x<=j, q>\downarrow false}{<\text{for } x=i \text{ to } j \text{ do } S, q>\downarrow q} \qquad \frac{< x<=j, q>\downarrow true \quad <S; \text{for } x=i \text{ to } j \text{ do } S, q>\downarrow q'}{<\text{for } x=i \text{ to } j \text{ do } S, q>\downarrow q'}$$

b)

Question 3.   20pts

```
q = 1
o = None
nothing = Impossible()

    │
    ▼
  i == 0 ──F──┐
    │         │
    T         │
    ▼         │
  q = 4   F   │
    │         │
    ▼         │
  q = q+1 ◄───┘
  n = len(o g)
    │
    ▼
  n == 0 ──F──► n == 1 ──F──► n == 2 ──F──┐
    │            │             │           │
    T            T             T           │
    ▼            ▼             ▼           ▼
  q = q/2      o = A()       o = A()     o = B()
               B()           q = q*100
               q = 25        o = B()
    │            │             │           │
    └──────┐     ▼             ▼           │
           ▼   n > 0 ◄─────────┘           │
    T  ────►                 F             │
       │                     │             │
       ▼                     ▼             │
     o.m()              print 'zero'       │
       │                     │             │
       └────────┐            ▼             │
                ▼                          │
           nothing. happened ◄────────────┘
```

a)

b)

Question 4.   30pts