CSE 201 Homework 8

* 1. Sum = 4+X+1+2+2 = 9+X 🡪 For 0 ≤ X ≤ 9: **Y = {1,0,9,8,7,6,5,4,3,2}**
  2. Possible ZIP code extensions: {2233} {4466} {5500}

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Card Number** | 5 | 5 | X | 8 | 3 | 2 | 0 | 1 | 2 | 3 | 4 | 6 | 7 | 8 | 3 |
| **X2, add digits** | 5 | 1 | X | 7 | 3 | 4 | 0 | 2 | 2 | 6 | 4 | 3 | 7 | 7 | 3 |

Sum of all digits = 54+X. (54+X) mod 10 = 0 🡪 **X = 6**

* 1. Sum of all digits = 52+X 🡪 X = **X = 8**
  2. Routing Number: 2**X**24**Y**9663
  3. Check sum = 2(3)+X(7)+2(1)+4(3)+Y(7)+9(1)+6(3)+6(7)+3(1) = 92+7(X+Y)
     1. 7(X+Y) = 28 🡪 {X,Y} = **{1,3}, {2,2}, {0,4}**
     2. 7(X+Y) = 98 🡪 {X,Y} = **{9,5}**

1. Current ISBN = 87-11-07559-7
   1. Target check sum = 8(10)+7(9)+1(8)+1(7)+0(6)+7(5)+5(4)+5(3)+9(2) = 246
      1. 7(9) + 5(3) = 78 🡪 9x+3y = 78
         * Let x = 6 🡪 y = 8 🡪 **86-11-07589-7**
           + 8(10)+6(9)+1(8)+1(7)+0(6)+7(5)+5(4)+8(3)+9(2) = 246
         * Let x = 8 🡪 y = 2 🡪 **88-11-07529-7**
           + 8(10)+8(9)+1(8)+1(7)+0(6)+7(5)+5(4)+2(3)+9(2) = 246
      2. 7(9) + 0(6) = 63 🡪 9x+6y = 63
         * Let x = 3 🡪 y = 6 🡪 **83-11-67559**
           + 8(10)+8(9)+1(8)+1(7)+0(6)+7(5)+5(4)+2(3)+9(2) = 246