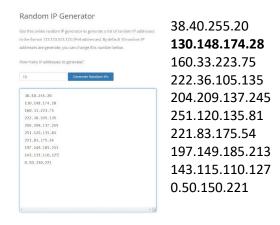# Lab 00 – Binary Conversion

Raymond Ng
IS 3413 – 008 - Fall 2022
August 22, 2022

Generate and select a random IP address from https://www.ipvoid.com/random-ip/.

1. What addresses were generated?

38.40.255.20
130.148.174.28
160.33.223.75
222.36.105.135
204.209.137.245
251.120.135.81
221.83.175.54
197.149.185.213
143.115.110.127
0.50.150.221

2. Select one of these by bolding it in the list above.

130.148.174.28

3. Now, convert each of the four octets from decimal to binary using the method above. Show your work.

130	148	174	28
130 / 2 = 65 R **0**	148 / 2 = 74 R **0**	174 / 2 = 87 R **0**	28 / 2 = 14 R **0**
65 / 2 = 32 R **1**	74 / 2 = 37 R **0**	87 / 2 = 43 R **1**	14 / 2 = 7 R **0**
32 / 2 = 16 R **0**	37 / 2 = 18 R **1**	43 / 2 = 21 R **1**	7 / 2 = 3 R **1**
16 / 2 = 8 R **0**	18 / 2 = 9 R **0**	21 / 2 = 10 R **1**	3 / 2 = 1 R **1**
8 / 2 = 4 R **0**	9 / 2 = 4 R **1**	10 / 2 = 5 R **0**	1 / 2 = 0 R **1**
4 / 2 = 2 R **0**	4 / 2 = 2 R **0**	5 / 2 = 2 R **1**	
2 / 2 = 1 R **0**	2 / 2 = 1 R **0**	2 / 2 = 1 R **0**	
1 / 2 = 0 R **1**	1 / 2 = 0 R **1**	1 / 2 = 0 R **1**	
100000010	**10010100**	**10101110**	**00011100**

10000010.10010100.10101110.00011100

4. Then, convert each of the decimal values back to binary. Show your work.

10000010	(1 * 128) + (0 * 64) + (0 * 32) + (0 * 16) + (0 * 8) + (0 * 4) + (1 * 2) + (0 * 1) 128 + 2 = **130**
10010100	(1 * 128) + (0 * 64) + (0 * 32) + (1 * 16) + (0 * 8) + (1 * 4) +(0 * 2) + (0 * 1) 128 + 16 + 4 = **148**
10101110	(1 * 128) + (0 * 64) + (1 * 32) + (0 * 16) + (1 * 8) + (1 * 4) +(1 * 2) + (0 * 1) 128 + 32 + 8 + 4 + 2 = **174**
00011100	(0 * 128) + (0 * 64) + (0* 32) + (1 * 16) + (1 * 8) + (1 * 4) +(0 * 2) + (0 * 1) 16 + 8 + 4 = **28**

130.148.174.28