

Introduction to Computing

CPIT 201 - Homework 1

1. Convert the **decimal number to binary** using your own KAU ID.

- KAU ID: 2237836
- Add number 2 in front of the KAU ID: 22237836
- Now, split this number into two decimal digits

22	23	78	36
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- Convert every two decimal digits to binary using multiples of 2

	128	64	32	16	8	4	2	1	
00100100	0	0	1	0	0	1	0	0	36
01001110	0	1	0	0	1	1	1	0	78
00010111	0	0	0	1	0	1	1	1	23
00010110	0	0	0	1	0	1	1	0	22

2. Convert the **binary numbers to hexadecimal numbers** using your own KAU ID binary numbers form question 1.

- KAU ID binary numbers:

00010110	00010111	01001110	00100100
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- Convert every 4 binary digits to hexadecimal digit

00010110		00010111		01001110		00100100	
0001	0110	0001	0111	0100	1110	0010	0100
1	6	1	7	4	E	2	4
16		17		4E		24	

3. Convert the **binary numbers to hexadecimal numbers** using your own KAU ID binary numbers form question 1.

- KAU ID binary numbers:

00010110	00010111	01001110	00100100
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- Convert every 3 binary digits to hexadecimal digit

00010110			00010111			01001110			00100100		
000	010	110	000	010	111	001	001	110	000	100	100
0	2	6	0	2	7	1	1	6	0	4	4
26			027			116			044		

4. Convert the **fractional decimal numbers to binary numbers** using your own KAU ID decimal numbers from question 1.

- KAU ID decimal numbers:

22	23	78	36
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- Add a dot to every decimal number to make it fraction

0.22	0.23	0.78	0.36
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- Convert every block to binary using four digits only, by multiple the numbers by two and take the left part of the point

0.22		0.23		0.78		0.36	
0.44	0	0.46	0	0.56	1	0.72	0
0.88	0	0.92	0	0.12	1	0.44	1
0.76	1	0.84	1	0.24	0	0.88	0
0.52	1	0.68	1	0.48	0	0.76	1
0.0011		0.0011		0.1100		0.0101	

5. Ali says $(456)_8$ is greater than $(12F)_{16}$. Is he right? Explain.

- Converting both numbers to decimal number, then compare the numbers

$(456)_8 = (4 \times 8^2) + (5 \times 8^1) + (6 \times 8^0) = (302)_{10}$
$(12F)_{16} = (1 \times 16^2) + (2 \times 16^1) + (15 \times 16^0) = (303)_{10}$