Template Week 1 – Bits & Bytes

Student number: 571994

Assignment 1.1: Bits & Bytes intro

What are Bits & Bytes?

What is a nibble?

What relationship does a nibble have with a hexadecimal value?

Why is it wise to display binary data as hexadecimal values?

What kind of relationship does a byte have with a hexadecimal value?

An IPv4 subnet is 32-bit, show with a calculation why this is the case.

Assignment 1.2: Your favourite colour

Hexadecimal colour code:

Assignment 1.3: Manipulating binary data

Colour	Colour code hexadecimaal (RGB)	Big Endian	Little Endian
RED			
GREEN			
BLUE			
WHITE			
Favourite (previous assignment)			

Screenshot modified BMP file in hex editor:

Bonus point assignment – week 1

Convert your student number to a hexadecimal number and a binary number.

Explain in detail that the calculation is correct. Use the PowerPoint slides of week 1.

Divide 571994 by 16 repeatedly and note the remainders:

571994 % 16 = 35749 remainder 10(A)

35749 % 16 = 2234 remainder 5

2234 % 16 = 139 remainder 10 (A)

139 % 16 = 8 remainder 11 (B)

8 % 16 = 0 remainder 8

Reading the remainders from bottom to top:

0d 571994 in hexadecimal = 0x 8BAA

Divide 571994 by 2 repeatedly and note the remainders:

571994 ÷ 2 = 285997 remainder 0

285997 ÷ 2 = 142998 remainder 1

142998 ÷ 2 = 71499 remainder 0

71499 ÷ 2 = 35749 remainder 1

35749 ÷ 2 = 17874 remainder 1

Continue till you can't divide anymore.

Reading the remainders from bottom to top:

0d 571994 in binary = 0b 10001011101001011010

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