色彩科學導論與應用

IEEE-754 雙向轉換練習

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Assignment 7

Purpose: Write two python programs to implement the IEEE-754 conversion.

1. Given a text file "**sideinfo<u>deci</u>.txt**" which contains a floating-point value in each line (12 lines), please write a python code, **Dec2Bin.py**, which can convert these floating-point values to be with the IEEE-754 single precision format 32 bits: 1+8+23 and output them to another text file "**sideinfo<u>bina</u>.txt**."
2. Given a text file "**sideinfo<u>bina</u>.txt**" containing a binary string in each line (12 lines), please write a python code, **Bin2Dec.py**, which can convert these binary strings with the IEEE-754 single precision format to the decimal value and output them to another text file "**sideinfo<u>deci</u>.txt**."

Note:

1. A python program, ieee_754.py is provided, which can be modified to write your own program.
2. You can adopt any python functions available.

Submission:

Please submit the four following FOUR files.

1. Decimal to binary python program, entitled "**學號-07-Dec2Bin.py.**"
2. The converted binary text file, "**sideinfobina.txt."**
3. Binary to decimal python program, entitled "**學號-07-Bin2Dec.py.**"
4. The converted decimal text file, "**sideinfodeci.txt**."

For example, the contents of the file **sideinfordeci.txt**

82.0687
129.1570
133.5166
53.0924
3.3390
6.7391
170.9845
121.4034
142.7423
46.0031
8.9063
6.4786

For example: the contents of the file **sideinforbina.txt**

01000010101001000010001100101100
01000011000000010010100000110001
01000011000001011000010000111111
01000010010101000101111010011110
01000000010101011011001000101101
01000000110101111010011010110101
01000011001010101111110000001000
01000010111100101100111010001010
01000011000011101011111000000111
01000010001110000000001100101100
01000001000011101000000000110100
01000000110011111010100010110000