Entropy measurement tool

Create a small command-line tool called "**entropy**" that analyzes a single file and outputs some entropy metrics. It should split the file into small blocks and calculate a single entropy index for each block.

This tool can be used to identify compressed and uncompressed areas within the file.

Arguments

entropy [-b <blocksize>] <filename>

<filename>	is the path of the file to analyze
-b <blocksize>	optional argument that specifies the block-size in bytes. The default block-size is 1024 bytes.

Calculation

The entropy for a block can be calculated as

$$e = -\sum_{\substack{for\ every \\ byte\ b}} P_b \cdot log_2 P_b$$

Where P_b is the relative frequency of byte b within the block. $P_b = \frac{number\ of\ byte{-}b\ present}{block\ size}$

Take a look at https://en.wikipedia.org/wiki/Entropy_(information_theory) to get a more detailed description of the information theoretical idea of entropy.

Output

The tool should include a detailed report and a summary report.

Detailed report:
For every block, the tool should output the block number as well as the block entropy.

Summary report:
In addition, the tool should output, the number of blocks with low entropy (< 2) and high entropy (> 7).

Sample output

```
./entropy sample.dat

entropy report for sample.dat
block#          entropy
    0               0.19
    1               2.44
    2               7.89
    3               7.87
    4               7.92
    5               7.95

Low entropy blocks: 1
High entropy blocks: 4
```