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In [ ]: import numpy as np
import pandas as pd
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In [ ]: def clac_entropy(freq):
    prob = freq/np.sum(freq)
    self_info = -np.log2(prob)
    entropy = np.sum(prob * self_info)
    return entropy
```

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In [ ]: freq = [17, 2, 3]

entropy = clac_entropy(freq)
entropy = np.round(entropy, decimals= 3)
print(f"Entropy(H) = {entropy}")
print(f"Number of bits needed = {np.ceil(entropy)}")
```

Entropy(H) = 0.994

Number of bits needed = 1.0