CSM-322: Information and Coding Theory
Lab - 3

(Odd Semester 2024-25)

August 22, 2024

Q1. Entropy

Given an array of alphabets and their frequencies. Write a program to

(a) calculate the entropy of the corresponding Huffman codes.

(b) calculate the entropy for the optimal structure possible for the given frequency array.

```
Example: {A: '12', B: '5'}
Output:
    Entropy of Huffman code: 1.0
    Entropy of optimal structure: 0.87398105
Example: {S1: '0.3', S2: '0.2', S3: '0.2', S4: '0.2', S5: '0.1'}
Output:
    Entropy of Huffman code: 2.3
    Entropy of optimal structure: 2.24643934
```