



Al-Mustaqbal University College
Computer Engineering Techniques
Department

Information Theory & coding

Fourth stage

The Experiments of Information Theory and Coding

Experiment No. 1

Self Information

Introduction:

If the source produces not equiprobable messages then the Self Information $I(x_i), i = 1, 2, \dots, n$ are different:

Procedure:

1- Input the following probability vector:

[0.04 0.01 0.1 0.15 0.05 0.07 0.08 0.11 0.09 0.27 0.03]

2- Arrange the vector upward by using the code **Sort**.

3- Put empty vector $m = []$.

4- Calculate the length of the probability vector using the code **Length**.

5- Represent above equation as a loop to calculate the self-information step by step.

6- Display the overall result.

7- Now draw the relationship between the probability of events and self-information by using the code **plot**.

8- Repeat the procedure for another probability vector.

Discussion: What is the relationship between the probability of events and self information for each event?