## **Entropy**

What is Entropy

1. First, a quick recap of the concepts we’ve studied so far

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| **Random Variable: X** | **Probability Distribution: P(X=?)** | **Information Content: IC(X=?)** | **Expectation**  **E(Gain)** |
| A | P(X=A) | -log2P(X=A) |  |
| B | P(X=B) | -log2P(X=B) |
| C | P(X=C) | -log2P(X=C) |
| D | P(X=D) | -log2P(X=D) |

1. Based on these four concepts, we can talk about Entropy
2. Entropy H(X) is the Expected Information Content of a Random Variable
3. Basically, substitute Gain for Information Content in the