Theory of Computation

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1 Alphabet

An alphabet is a set of values which represents the solutions to a certain problem.
The set $\{0,1\}$ is the binary set. The set $\{0,1\}^*$ is the set of all binary strings (union of all n-permutations of $\{0,1\}$ and an empty string). In general, if Σ is an alphabet Σ^* is the set of all strings over Σ

$$\Sigma^* = \lambda \cup \bigcup_{n \in \mathbb{N}} \Sigma^n$$

where λ is the empty string. Note that $\lambda \neq \varnothing \neq \{\lambda\}$.

2 Turing Machines