PATRICIA

PATRICIA - **P**ractical **A**lgorithm **T**o **R**etrieve **I**nformation **C**oded **I**n **A**lphanumeric.

Patricia is data structure which can efficiently store strings. It is a compressed binary Trie.

A compact representation of a Trie in which any node that is an only child is merged with its parent. Also it is known as **radix tree**.

A tree for storing strings in which there is one node for every common prefix. The strings are stored in extra leaf nodes.

- **Rooted tree: T**
- **String: s**
- **Length of string: m**
- **Total length of all strings: M**
- **The number of strings stored in the patric trie: n**
- **Size of the alphabet: N**

	Trie	Patricia Trie
Insertion	O(mN)	O(mN)
Deletion	O(mN)	O(mN)
Search	O(m)	O(m)
Storage	O(MN)	O(nN+M)

Example:

Inserting: SUDHA

Reached an empty tree. Creating a node containing SUDHA
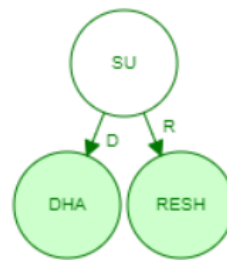

Inserting: SURESH

Reached a mismatch in prefix.
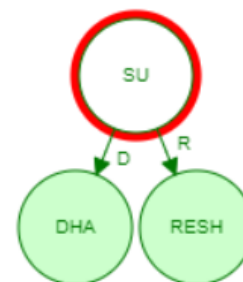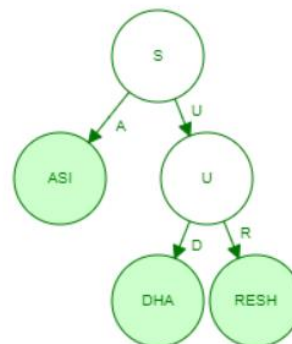Create a new node with common prefix

Inserting; RESH

SU

D R

DHA RESH

Inserting; SASI

Reached a mismatch in prefix.
Create a new node with common prefix

S

SU

D R

DHA RESH

Inserting; ASI

S

A U

ASI U

D R

DHA RESH

Inserting; HARI

H S

HARI S

A U

ASI U

D R

DHA RESH