



# Data Structures and its Applications

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## Implementation of TRIE Trees

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### Structure of a node in a TRIE Tree :

- A node of a TRIE tree is represented as shown below.
- One field for each alphabet( A – Z), 26 columns.
- Each column is a pointer to another TRIE node or carries NULL and
- One field for end of word (key).

A	B	C	D	E	F	.....	W	X	Y	Z
F1	F2	F3	F4	F5	F6	.....	F23	F24	F25	F26
End of Word / (eok)										

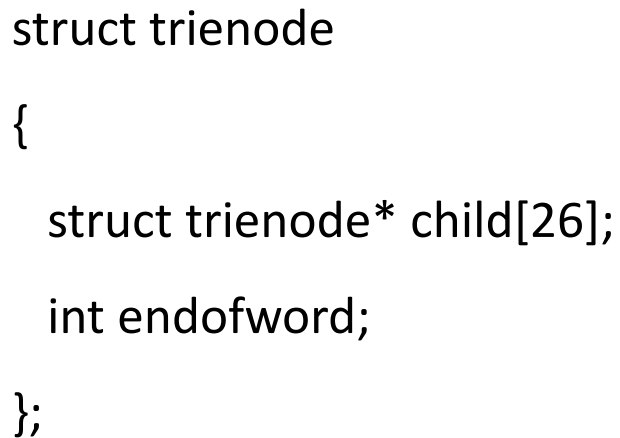
Address of the next node (reference for us)

Field number – for user's reference no field is created , No memory is allocated

End of word / key field

```
struct trienode
{
    struct trienode* child[26];
    int endofword;
};
```

## TRIE Trees – Implementation



A	B	C	D	E	F	.....	W	X	Y	Z	Address of the next node (reference for us)
F1	F2	F3	F4	F5	F6	.....	F23	F24	F25	F26	Field number
End of Word / (eok - \$)											End of word / key field

**Creation of a node in a TRIE Tree using malloc() function.**

```
struct trienode *getnode()
```

```
{
```

```
    int i;
```

```
    struct trienode *temp;
```

```
    temp=(struct trienode*)(malloc(sizeof(struct trienode)));
```

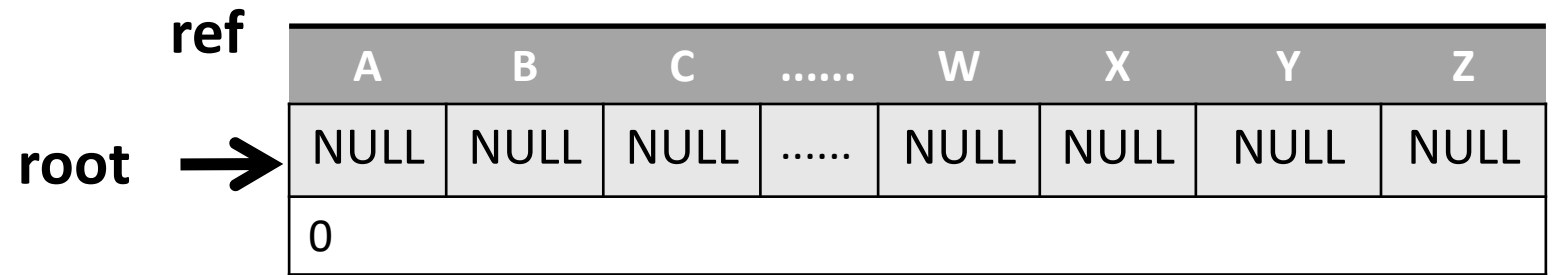
```
    for(i=0;i<26;i++)
```

```
        temp->child[i]=NULL;    // Initialize all the fields to NULL.
```

```
    temp->endofword=0;    // Initialize endofword to 0.
```

```
    return temp;
```

```
}
```



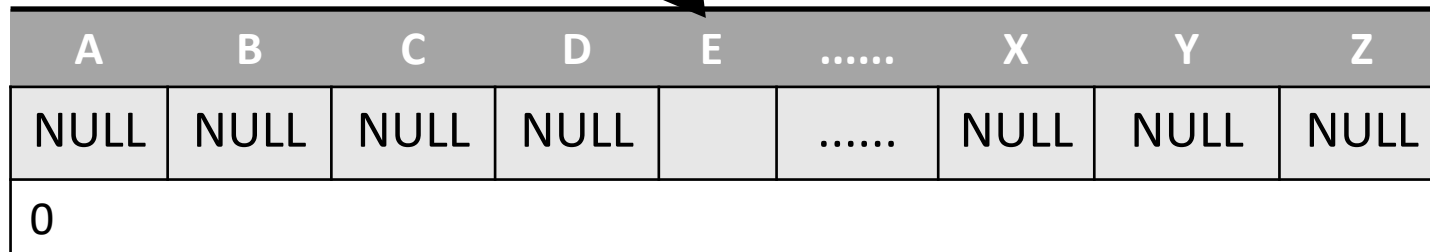
**root=getnode();**

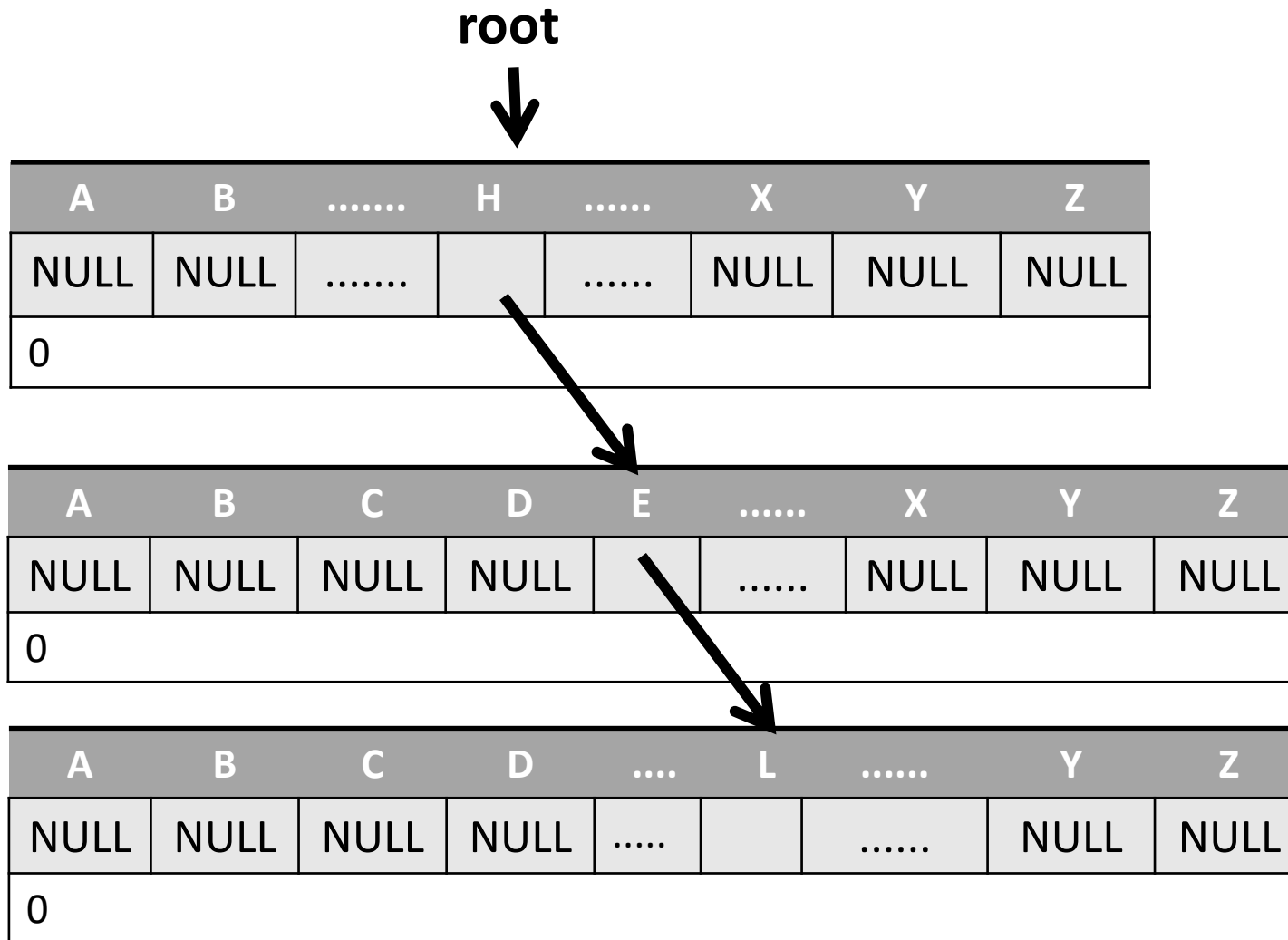
### Insertion of a node in a TRIE Tree

```
void insert(struct trienode *root, char *key)
{
    struct trienode *curr;
    int i,index;

    curr=root;
    for(i=0;key[i]!='\0';i++)
    {
        index=key[i]-'a';
        if(curr->child[index]==NULL)
            curr->child[index]=getnode();
        curr=curr->child[index];
    }
    curr->endofword=1;
}
```

```
insert(root,key);    root
```









**THANK YOU**

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