

# Hashing

# Hashing using Single Linked List

```
#include<iostream>
#include<cstdlib>
using namespace std;
int SIZE;
struct Node
{
    int val;
    Node * next;
};
struct LinkedList
{
    private:
        Node** hashTable;
    public:
        void init(int s)
        {
            int hashFunc(int key)
            {
                void insertValue(int v)
                {
                    int searchValue(int v)
                    {
                        void display()
                        {
                            };
                        };
                    };
                };
            };
        };
    };
};
```

# Hashing using Single Linked List

```
int main()  
{  
    LinkedList ll;  
  
    ll.init(10);  
  
    ll.insertValue(22);  
    ll.insertValue(32);  
    ll.insertValue(21);  
    ll.insertValue(25);  
    ll.insertValue(27);  
  
    ll.display();  
  
    ll.searchValue(32);  
    ll.searchValue(2);  
}
```

# Mid-Square Hash Function

- Square the given Key
- Take the mid  $r$  values
- Let  $r=1$
- For a number with odd length, take only 1 mid value
- For a number with even length, take the **mean** of 2 mid values
- $\text{Index} = \text{mid\_value} \bmod \text{SIZE}$