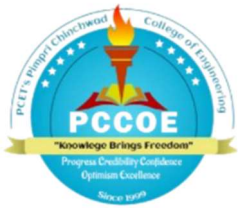

PIMPRI CHINCHWAD EDUCATION TRUST's.

PIMPRI CHINCHWAD COLLEGE OF ENGINEERING

(An Autonomous Institute)

Class : SY BTech **Acad. Yr. 2025-26** **Semester : I**

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Department: Computer Engineering **Division : A**

Course Name : Data Structures Laboratory **Code:BCE23PC02**

Completion Date : 29/10/2025

Assignment No. 10

Problem Statement: Write a C++ Program to insert elements in Hash Table using Separate Chaining.

Source Code :

```
#include <bits/stdc++.h>
using namespace std;

class Node
{
public:
   int key;
   Node *next;

   Node(int k)
   {
      key = k;
      next = nullptr;
   }
};

class HashTable
{
   int tableSize;
   vector<Node *> table;

public:
   HashTable(int size)
   {
```

```
        tableSize = size;
        table.resize(tableSize, nullptr);
    }

    int hashFunction(int key)
    {
        return key % tableSize;
    }

    void insert(int key)
    {
        int index = hashFunction(key);
        Node *newNode = new Node(key);

        newNode->next = table[index];
        table[index] = newNode;

        cout << "Inserted " << key << " at index " << index << endl;
    }

    void display()
    {
        cout << "\nHash Table Contents:\n";
        for (int i = 0; i < tableSize; i++)
        {
            cout << i << ": ";
            Node *curr = table[i];
            while (curr)
            {
                cout << curr->key << " -> ";
                curr = curr->next;
            }
            cout << "NULL\n";
        }
    }
};

int main()
{
    int size;
    cout << "Enter hash table size: ";
    cin >> size;

    HashTable ht(size);

    int n;
```

```
    cout << "Enter number of elements to insert: ";
    cin >> n;

    cout << "Enter elements:\n";
    for (int i = 0; i < n; i++)
    {
        int key;
        cin >> key;
        ht.insert(key);
    }

    ht.display();

    return 0;
}
```

Screen Shot of Output :

```
Enter hash table size: 5
Enter number of elements to insert: 8
Enter elements:
1
Inserted 1 at index 1
2
Inserted 2 at index 2
3
Inserted 3 at index 3
4
Inserted 4 at index 4
5
Inserted 5 at index 0
13
Inserted 13 at index 3
14
Inserted 14 at index 4
22
Inserted 22 at index 2

Hash Table Contents:
0: 5 -> NULL
1: 1 -> NULL
2: 22 -> 2 -> NULL
3: 13 -> 3 -> NULL
4: 14 -> 4 -> NULL
```

Conclusion: Hence we have implemented a C++ Program to insert elements in Hash Table using Separate Chaining.