# HARAMAYA UNIVERSITY
# Data Structure and Algorithms
# Group Assignment

**Department : Software Engineering**

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```cpp
#include <iostream>
#include <algorithm>
#include <vector>

/* Bucket Sort */

using namespace std;




/* Function to sort arr[] of size n */
void bucketSort(float arr[], int n){

    // Create n empty buckets
    vector<float> buckets[n];

    // Put array elements in different buckets
    for (int i = 0; i < n; i++){
    int buck = n * arr[i]; // Index in bucket
        buckets[buck].push_back(arr[i]); // Add data to the end of the %vector.
    }

    // Sort individual buckets
    for (int i = 0; i < n; i++)
        sort(buckets[i].begin(), buckets[i].end()); //Returns a read/write iterator

    // concatenate all buckets int arr[]
    int index = 0;
    for (int i = 0; i < n; i++)
            // Returns the number of elements in the %vector.
            for (int j = 0; j < buckets[i].size(); j++)
                    arr[index++] = buckets[i][j];
}
```

```cpp
/* Driver */
int main(){
        float arr[] = { 0.8, 0.5, 0.6, 0.1, 0.9, 0.3, 0.2, 0.4, 0.7 };
        int size = sizeof(arr) / sizeof(arr[0]);

        cout << "Unsorted Array -: ";
        for (int i = 0; i < size; i++)
        cout << arr[i] << " ";

        cout << endl;
        cout << endl;

        /* Function Call */
        bucketSort(arr,size);

        cout << "Sorted Array -: ";
        for (int i = 0; i < size; i++)
        cout << arr[i] << " ";

        cout << endl;

        return 0;
}
```