***Data Structures - Day 5 - Java***

Hashing in java

* Pre storing and fetching.
* Creates a Temp array called Hash Array .
* Does Pre Calculation.
* We can Create Hash Array in Java Manually.
* Its just an array with n elements with 0 values.
* For Character Hashing, We use ASCII value.

Hash Map in java

* Advanced Version of Hashing
* It’s a built in function
* The array we create in ashing takes a lot of space, this increases the space complexity . but in Hash map , it only stores for Required values
* Syntax for Hash map :-

**HashMap<KeyType,ValueType> Name = new HashMap<>();**

* Uses predefined keywords like

1. put<key,value>
2. get<key>
3. getOrDefault<key,default>
4. remove<key>

* Hashmap Stores values in Sorted Order.

Promblems did in Hashing/HashMap today

1. Find the frequency of an integer
2. Find the frequency of a word
3. Find the frequency of an integer using HashMap
4. Find the frequency of an integer using HashMap

import java.util.\*;

public class hashing

{

public static void main(String [] args)

{

Scanner sc = new Scanner (System.in);

System.out.println("Enter the Number Of Elements: ");

int n = sc.nextInt();

System.out.println("Enter the Elements: ");

int [] arr = new int [n];

for(int i=0;i<n;i++)

{

arr[i]=sc.nextInt();

}

int hashsize = 13;

int hash []= new int[hashsize];

for(int i=0;i<n;i++)

{

hash[arr[i]] += 1;

}

System.out.println("Enter the Number of Elements you need to find: ");

int m = sc.nextInt();

System.out.println("Enter the Elements to find: ");

for (int i = 0; i < m; i++)

{

int find = sc.nextInt();

System.out.println(hash[find]);

}

}

}

import java.util.\*;

public class hashing

{

public static void main(String [] args)

{

Scanner sc = new Scanner (System.in);

System.out.println("Enter the Elements: ");

String s = sc.nextLine();

int n = s.length();

int hashsize = 26;

int hash []= new int[hashsize];

for(int i=0;i<n;i++)

{

char ch = s.charAt(i);

hash[ch-'a'] ++;

}

System.out.println("Enter the Number of Elements you need to find: ");

int m = sc.nextInt();

System.out.println("Enter the Elements to find: ");

for (int i = 0; i < m; i++)

{

char find = sc.next().charAt(0);

System.out.println(hash[find-'a']);

}

}

}

import java.util.\*;

public class hashing

{

public static void main(String [] args)

{

Scanner sc = new Scanner (System.in);

System.out.println("Enter the Number Of Elements: ");

int n = sc.nextInt();

System.out.println("Enter the Elements: ");

int [] arr = new int [n];

for(int i=0;i<n;i++)

{

arr[i]=sc.nextInt();

}

HashMap<Integer,Integer> mpp = new HashMap<>();

for(int i=0;i<n;i++)

{

mpp.put(arr[i],mpp.getOrDefault(arr[i], 0)+1);

}

System.out.println("Enter the Number of Elements you need to find: ");

int m = sc.nextInt();

System.out.println("Enter the Elements to find: ");

for (int i = 0; i < m; i++)

{

int find = sc.nextInt();

System.out.println("The Element "+find+" appears " +mpp.getOrDefault(find, 0)+ " Times");

}

}

}

import java.util.\*;

public class hashing

{

public static void main(String [] args)

{

Scanner sc = new Scanner (System.in);

System.out.println("Enter the Elements: ");

String s = sc.nextLine();

int n = s.length();

HashMap<Character,Integer> mpp = new HashMap<>();

for(int i=0;i<n;i++)

{

char ch = s.charAt(i);

mpp.put(s.charAt(i),mpp.getOrDefault(s.charAt(i), 0)+1);

}

System.out.println("Enter the Number of Elements you need to find: ");

int m = sc.nextInt();

System.out.println("Enter the Elements to find: ");

for (int i = 0; i < m; i++)

{

char find = sc.next().charAt(0);

System.out.println("The Element "+find+" appears " +mpp.getOrDefault(find, 0)+ " Times");

}

}

}