Homework 8

***Problem 1:***

import java.util.\*;

public class DifferByVariable{

static HashSet<Integer> hashset = new HashSet<Integer>();

public static void differByK (int[] arr, int k){

for (int i = 0; i < arr.length; i++){

hashset.add(arr[i]);

}

for (int i = 0; i < arr.length; i++){

if (hashset.contains(arr[i] + k)){

System.out.println ("(" + arr[i] + "," + (arr[i] + k) + ")" );

}

if (hashset.contains(arr[i] - k)){

System.out.println ("(" + arr[i] + "," + (arr[i] - k) + ")" );

}

}

}

public static void main (String [] args){

int[] arr = {1,3,4,5,7,9,4,8,5,9};

int k = 3;

differByK (arr, k);

}

}

***Problem 2:***

import java.util.\*;

public class CommonElement{

public static void commonCheck(int[] arr1, int [] arr2){

HashSet<Integer> hash = new HashSet<Integer>();

for (int i = 0; i < arr1.length; i++){

hash.add(arr1[i]);

}

if (arr1.length > arr2.length){

for (int i = 0; i < arr2.length; i++){

hash.add(arr2[i]);

}

for (int i = 0; i < arr1.length; i++){

if (hash.contains(arr1[i])){

System.out.println (arr1[i]);

}

}

}

else{

for (int i = 0; i < arr1.length; i++){

hash.add(arr1[i]);

}

for (int i = 0; i < arr2.length; i++){

if (hash.contains(arr2[i])){

System.out.println (arr2[i]);

}

}

}

}

public static void main (String [] args){

int[] arr1 = {1,3,6,4,7,2,89,4,5,7,4,3,6,3};

int[] arr2 = {5,34,5,7,8,3,3,3,5,8,3,2,5,8,5};

System.out.println("The arrays have these elements in common: ");

commonCheck(arr1, arr2);

}

}

***Problem 3:***

import java.util.ArrayList;

public class WordPermutations{

static HashSet<String> dictionary = new HashSet<String>();

static ArrayList<String> words = new ArrayList<String>();

public static void dictionary(){

Scanner reader = null;

try {

reader = new Scanner(new File("EnglishWordList.txt"));

}

catch ( FileNotFoundException ex){

System.out.println(ex+" file not found ");

}

while (reader.hasNext()){

String str = reader.next();

str = str.replaceAll("[\\[\\]\_:\"'`?;\\â€0-9â€”;â€œ()-/.,\*! ]", "").toLowerCase();

dictionary.add(str);

}

}

public static void SpellCheck(String word){

if (dictionary.contains(word)){

System.out.println(word);

words.add(word);

}

}

public static void permutation(String w) {

permutation("", w);

}

private static void permutation(String prefix, String word) {

int n = word.length();

if (n == 0) System.out.println(prefix);

else {

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

permutation(prefix + word.charAt(i), word.substring(0, i) + word.substring(i+1, n));

}

SpellCheck(word);

}

public static void main (String [] args){

dictionary();

String word;

Scanner user = new Scanner(System.in);

System.out.println("Please enter a series of characters with no spaces:");

word = sc.nextLine();

int n = word.length();

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

permutation(word);

}

System.out.println(words);

user.close();

}

}