import java.io.\*;

import java.util.\*;

import java.util.regex.\*;

public class NLArray {

public static class Read {

String data = "";

public String wordtokenize(String a) {

try {

File myObj1 = new File(a);

Scanner myReader1 = new Scanner(myObj1);

while (myReader1.hasNextLine()) {

data += myReader1.nextLine() + "\n";

}

myReader1.close();

} catch (FileNotFoundException e) {

System.out.println("An error Occurred");

}

return data;

}

public String extractEmail(String b) {

try {

File myObj2 = new File(b);

Scanner myReader2 = new Scanner(myObj2);

while (myReader2.hasNextLine()) {

data += myReader2.nextLine();

}

myReader2.close();

} catch (FileNotFoundException e) {

System.out.println("An error Occurred");

}

return data;

}

}

public static void extractBoundaries(int arr[][]) {

int rows = arr.length;

int cols = arr[0].length;

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

for (int j = 0; j < cols; j++) {

if (i == 0 || j == 0 || i == rows - 1 || j == cols - 1) {

System.out.print(arr[i][j] + " ");

} else {

System.out.print(" ");

}

}

System.out.println();

}

}

public static void cropCenterPart(int arr[][]) {

int rows = arr.length;

int cols = arr[0].length;

for (int i = 1; i < rows - 1; i++) {

for (int j = 1; j < cols - 1; j++) {

System.out.print(arr[i][j] + " ");

}

System.out.println();

}

}

public static void main(String args[]) {

Read r = new Read();

String store\_data = "";

String store\_email = "";

System.out.println("Text with special characters.\n");

System.out.println(r.wordtokenize("d:\\GM.txt")+"\n");

System.out.println(r.extractEmail("d:\\GM.txt")+"\n");

System.out.println("Text without special characters.\n");

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

char cha = r.data.charAt(i);

if ((cha >= 'a' && cha <= 'z') || (cha >= 'A' && cha <= 'Z') || cha == ' ') {

store\_data += cha;

} else {

continue;

}

}

String[] wordsArray = store\_data.split("\\s+");

for (String word : wordsArray) {

System.out.println(word);

}

System.out.println("Following emails are in text.");

Pattern emailPattern = Pattern.compile("\\b[\\w\\.-]+@[\\w\\.-]+\\.\\w{2,4}\\b");

Matcher emailMatcher = emailPattern.matcher(r.data);

List<String> emailsList = new ArrayList<>();

while (emailMatcher.find()) {

String email = emailMatcher.group();

emailsList.add(email);

}

String[] emailsArray = emailsList.toArray(new String[0]);

for (String email : emailsArray) {

System.out.println(email);

}

// Example matrix for testing boundary extraction and center cropping

int[][] exampleMatrix = {

{1, 2, 3, 4, 5},

{6, 7, 8, 9, 10},

{11, 12, 13, 14, 15},

{16, 17, 18, 19, 20},

{21, 22, 23, 24, 25}

};

System.out.println("Matrix with boundaries:");

extractBoundaries(exampleMatrix);

System.out.println("Center part of matrix:");

cropCenterPart(exampleMatrix);

}

}