ECON381 HW3 JAVA CODE KÜBRA KILIÇ

import java.util.\*;

public class PasswordGenerator {

private static final char[][] KEYBOARD = {

{'1', '2', '3', '4', '5', '6', '7', '8', '9', '0'},

{'q', 'w', 'e', 'r', 't', 'y', 'u', 'i', 'o', 'p'},

{'a', 's', 'd', 'f', 'g', 'h', 'j', 'k', 'l'},

{'z', 'x', 'c', 'v', 'b', 'n', 'm'}

};

private static Map<Character, List<Character>> validMovesMap = new HashMap<>();

public static void main(String[] args) {

initializeValidMovesMap();

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the first character: ");

char firstChar = scanner.next().charAt(0);

if (!isValidCharacter(firstChar)) {

System.out.println("Invalid character. Please enter a digit or a lowercase English letter.");

return;

}

String password = generatePassword(firstChar);

System.out.println("Generated password: " + password);

}

private static void initializeValidMovesMap() {

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

for (int j = 0; j < KEYBOARD[i].length; j++) { // Buradaki satır uzunluğunu kontrol ediyoruz

char key = KEYBOARD[i][j];

List<Character> validMoves = new ArrayList<>();

for (int x = 0; x < KEYBOARD.length; x++) {

for (int y = 0; y < KEYBOARD[x].length; y++) { // Aynı şekilde her satırın uzunluğunu kontrol ediyoruz

char otherKey = KEYBOARD[x][y];

int distance = Math.abs(i - x) + Math.abs(j - y);

if (distance >= 2 && distance <= 3) {

validMoves.add(otherKey);

}

}

}

validMovesMap.put(key, validMoves);

}

}

}

private static boolean isValidCharacter(char ch) {

return (ch >= '0' && ch <= '9') || (ch >= 'a' && ch <= 'z');

}

public static String generatePassword(char startChar) {

StringBuilder password = new StringBuilder(String.valueOf(startChar));

Random random = new Random();

for (int i = 1; i < 8; i++) {

char lastChar = password.charAt(i - 1);

List<Character> validMoves = validMovesMap.get(lastChar);

if (validMoves != null && !validMoves.isEmpty()) {

int randomIndex = random.nextInt(validMoves.size());

password.append(validMoves.get(randomIndex));

} else {

password.append(startChar);

}

}

return password.toString();

}

}