**o A description of the input, main processing, and output (IPO) for each of the two main questions**

Question 1

**Diagram

Description automatically generated**

Question 2

**Text

Description automatically generated**

**o The class diagram for your application**

**Diagram

Description automatically generated**

**o Any decisions you take in designing and implementing your application should be specified in the report**

To implement my application according to the requirements it was necessary to have a overview of everything was taught in class. The first thing implemented was how to change the letter lowercase to uppercase and after that check every item, for example, the 1-6 sequence digits, the three year digits, the position of the two dash, the county/city and if the 1-6 digits are numbers or not. When the verifications were completed and if a item was not correct a Boolean was returned so the user could press Yes to continue, or not. if everything was correct it will return true so a message would be printed out with, and again being asked if the user wants to continue. A “do while” loop was needed so the system could run till the user stop the first verification, and after it decides to stop the next functionality will start.

To generate numbers and letters the random method was necessary, first the array was created with the size of the user input as parameter and then start to create 4 numbers at once in the loop and the letters in the nested loop one by one as a Char, typecast to String and store in a String. When both numbers and letters are created and typecasted to String it was stored in the array and returned. In the App the codes it will be generated and printed out index by index.

**Appendix**

itemCheckerApp.java

import java.util.Random;

public class ItemChecker {

private String userText;

private boolean checkedText;

ItemChecker() {

userText = "";

checkedText = false;

}

public void setUserText(String userText) {

this.userText = userText;

}

public boolean compute() {

userText = userText.toUpperCase();

if (userText.length() > 13 || userText.length() < 8) {

System.out.println("Invalid input, please try again");

checkedText = false;

return false;

}

char charCheck = ' ';

int charCheckConverted;

for (int i = 0; i <= 2; i++) {

charCheck = userText.charAt(i);

charCheckConverted = (int) charCheck;

if (charCheckConverted >= 48 && charCheckConverted <= 57) {

} else {

System.out.println("Invalid input, please try again");

checkedText = false;

return false;

}

}

if (userText.charAt(3) != '-' && userText.charAt(6) != '-') {

System.out.println("Invalid input, please try again");

checkedText = false;

return false;

}

String LL = userText.substring(4, 6);

if (LL.equals("CK") || LL.equals("CE") || LL.equals("CN") || LL.equals("CW") || LL.equals("DN")

|| LL.equals("DL") || LL.equals("GY") || LL.equals("KE") || LL.equals("KK") || LL.equals("KY")

|| LL.equals("LK") || LL.equals("LD") || LL.equals("LH") || LL.equals("LM") || LL.equals("LS")

|| LL.equals("MH") || LL.equals("MN") || LL.equals("MO") || LL.equals("OY") || LL.equals("RN")

|| LL.equals("SO") || LL.equals("TY") || LL.equals("WD") || LL.equals("WH") || LL.equals("WX")

|| LL.equals("WW")) {

} else {

System.out.println("Invalid county/city, please try again");

checkedText = false;

return false;

}

for (int i = 7; i < userText.length(); i++) {

charCheck = userText.charAt(i);

charCheckConverted = (int) charCheck;

if (charCheckConverted >= 48 && charCheckConverted <= 57) {

} else {

System.out.println("Invalid sequence number, please try again");

checkedText = false;

return false;

}

}

checkedText = true;

return checkedText;

}// end of compute

public String getUserText() {

return userText;

}

public String[] securityCode(int number) {

Random random = new Random();

String codes[] = new String[number];

String code = "";

char randomizedCharacter;

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

int randomizedNumber = (int) ((Math.random() \* (9999 - 1000)) + 1000);

code = "";

for (int i = 0; i < 3; i++) {

randomizedCharacter = (char) (random.nextInt(26) + 'A');

code = code + Character.toString(randomizedCharacter);

}

codes[j] = Integer.toString(randomizedNumber) + code;

}

return codes;

}

}

itemCheckerApp.java

import java.util.Scanner;

public class ItemCheckerApp {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

String userChoice = "";

ItemChecker ic = new ItemChecker();

String userText;

do {

System.out.println("Please provide a registration plates in this format: YYY-LL-SSSSSS");

userText = input.nextLine();

ic.setUserText(userText);

if (ic.compute()) {

System.out.println("Valid Input and the registration plate is: " + ic.getUserText());

}

System.out.println("press 'yes' to continue: ");

userChoice = input.nextLine();

} while (userChoice.equalsIgnoreCase("YES"));

System.out.println("How many security codes you would like to create?");

int userAmount = input.nextInt();

String codes[] = new String[userAmount];

codes = ic.securityCode(userAmount);

System.out.println("The codes created are: ");

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

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

}

}

}