import java.time.temporal.ValueRange;

import java.util.HashMap;

import java.util.Map;

import java.util.Map.Entry;

import java.util.Scanner;

public class JavaProject {

public static Map<String, Double> StudentDetail = new HashMap<>();

public static void main(String[] args) {

System.out.println("Welcome To Humber");

GetPassword(0);

int numberOfFiles = NumberOfFiles(0);

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

getdetailsforstudents();

}

Report();

}

// main method ends here

// to check the password criteria

public static boolean IsValidPassward(String s) {

int count = 0, count1 = 0, count2 = 0, count3 = 0;

// Check length

if (s.length() >= 10) {

// Count the number of digits

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

if (Character.isDigit(s.charAt(i)))

count++;

else if (Character.isUpperCase(s.charAt(i))) {

count1++;

} else if (Character.isLetter(s.charAt(i)))

count2++;

else

count3++;

}

}

if (count == 2 || count == 3 && count1 >= 1 && count3 == 1)

return true;

else

return false;

}

public static void GetPassword(int retryCount) {

if (retryCount == 3) {

System.out.println("3 tries over");

System.exit(1);

}

System.out.println("Enter Password");

String password = (String) captureInput(SupportedType.STRING);

if (!IsValidPassward(password)) {

GetPassword(retryCount + 1);

}

}

// Method for multiply type scanners

static enum SupportedType {

INT, STRING, DOUBLE, FLOAT, BOOLEAN;

}

public static Object captureInput(SupportedType type) {

Scanner input = new Scanner(System.in);

switch (type) {

case INT:

Integer i = input.nextInt();

return i;

case DOUBLE:

Double d = input.nextDouble();

return d;

case BOOLEAN:

case FLOAT:

case STRING:

String s = input.nextLine();

return s;

default:

String z = input.nextLine();

return z;

}

}

// method to check Number of files to work on

public static int NumberOfFiles(int retryCount) {

if (retryCount == 3) {

System.out.println("3 tries over");

System.exit(1);

}

System.out.println("Enter Number of Student(1-50)");

int NumberofFiles = (int) captureInput(SupportedType.INT);

if (!ValueRange.of(1, 50).isValidIntValue(NumberofFiles)) {

System.out.print("Error - input valid number of files");

NumberOfFiles(retryCount + 1);

}

return NumberofFiles;

}

// This method will calculate GPA and store the name and GPA in StudentDetails

public static void getdetailsforstudents() {

System.out.println("Enter Students Name");

String q = (String) captureInput(SupportedType.STRING); //Scanner

System.out.println("Enter the marks of subjects for student: " + q);

double[] scores = new double[6];

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

scores[i] = (double) captureInput(SupportedType.DOUBLE);//Scanner

}

double GPA;

double sum;

sum = (checkGPA(scores));

GPA = sum / 22;

System.out.println("GPA = " + GPA);

StudentDetail.put(q, GPA);

}

// method to calculate GPA

public static double checkGPA(double scores[]) {

double sum = 0;

double[] grade = new double[scores.length];

double[] creditedHours = { 4, 5, 4, 3, 2, 4 };

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

grade[i] = (scores[i] \* creditedHours[i]);

}

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

sum += grade[i];

}

return sum;

}

// Method for the four reports

public static void Report() {

int countENG = 0;

int countBUS = 0;

int countLAW = 0;

int countNA = 0;

for (Entry<String, Double> Detail : StudentDetail.entrySet()) {

double GPA = Detail.getValue();

String StudentName = Detail.getKey();

if (GPA >= 90 && GPA <= 100) {

countENG++;

System.out.println("School of Engineering : " + StudentName);

} else if (GPA >= 80 && GPA < 90) {

countBUS++;

System.out.println("School of Business : " + StudentName);

} else if (GPA >= 70 && GPA < 80) {

countLAW++;

System.out.println("School of Law : " + StudentName);

} else if (GPA < 70) {

countNA++;

System.out.println("Not accepted : " + StudentName);

}

}

// printing the 4 reports

System.out.println(StudentDetail);

System.out.println("Number of students in School OF Engineering : " + countENG);

System.out.println("Number of students in School OF Business : " + countBUS);

System.out.println("Number of students in Law School : " + countLAW);

System.out.println("Number of students Not accepted : " + countNA);

}

}