EECS 12 Fall 2013

Assignment 6

Due: December 7th, 6:00PM

The Health Record System

Problem: Students' Health Record is held in a text file. Each line of the file represents one student. The first field is the student's ID, the second holds the student's name, the third holds the student's weight in lbs and the last holds the student's height in inches. A **tab** separates each field. In this plain text database of students, students may have the same name, weight or height but the IDs must be unique.

Example Contents

1	John Smith	204	72
2	Frodo Baggins	115	60

You should implement the following:

- Start with the skeleton code. The skeleton code consists of all the GUI objects you need.
- Implement the 3 functions.
    - *def checkClickPosition(click)* : Given click which is the point of user's mouse click, determine which button is clicked and return the button number.
    - *def bmiResult(bmi)* : Given bmi, Check which bmi category the student is in.
        - bmi <= 18.5 : Underweight
        - 18.5 < bmi <= 24.9 : Normalweight
        - 25 < bmi <= 29.9 : Overweight
        - bmi >= 30 : Obese
    - *def targetWeight(bmi, weight, height)* : Given the student's bmi, weight and height, check if the student's current weight is normal. If so, return the student's original weight. If not, calculate and return the optimal weight. Use the formula given in *convertToBMI(weight, height)* to calculate the optimal weight.

- There are 6 buttons and therefore, operations a user can click on.
    - Open File
        - Open a text file containing the health record data. Store the content into 4 separate lists; id_lst, name_lst, weight_lst and height_lst
    - Find Student
        - Given the student's ID, check if the student with the given ID exists. If there is such student, display student's information in the entry boxes. If not, display the message "Student with ID __ does not exist."

- o Add Student
  - ▪ Given the student's information, check if the student with the given ID exists. If the student does not exist, add the student's information into the lists. If the student already exists, display "Student ID already exists in the system."
- o Change Weight
  - ▪ Given the student's ID and weight, check if the student with the given ID exists. If there is such a student, change the student's weight and display "Weight of Student ID __ has been changed to ___. If not, display "Student with ID does not exist in the system".
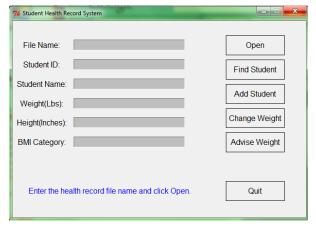- o Advise Weight
  - ▪ Given the student's ID, check if the student with the given ID exists. If there is such a student, call *targetWeight(bminum, weight, height)* which returns either the optimal weight (When the student is under weight, overweight or obese) or the original weight (When the student is in the right weight range). Display the message accordingly. If the student does not exist, display "Student ID does not exist in the system.".
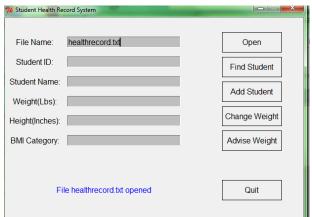- o Quit
  - ▪ Write the lists back into the file. Remember the health record text file is written one line for each student and the fields are delimited by tabs.
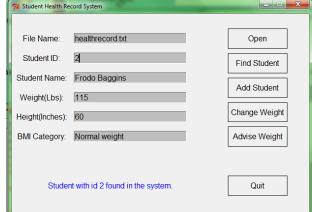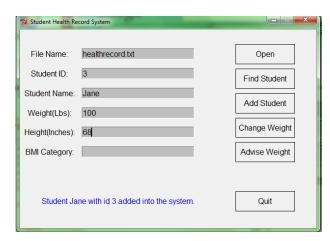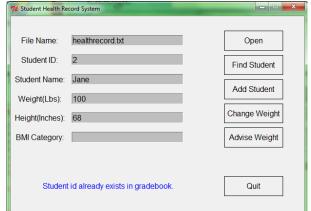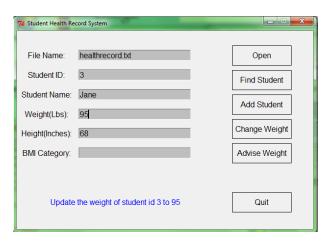
Example

- ✓ Open file

✓ Find Student

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	3
Student Name:	
Weight(Lbs):	
Height(Inches):	
BMI Category:	

Open
Find Student
Add Student
Change Weight
Advise Weight
Quit

Student with id 3 does not exist in the system.

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	2
Student Name:	Frodo Baggins
Weight(Lbs):	115
Height(Inches):	60
BMI Category:	Normal weight

Open
Find Student
Add Student
Change Weight
Advise Weight
Quit

Student with id 2 found in the system.

✓ Add Student

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	3
Student Name:	Jane
Weight(Lbs):	100
Height(Inches):	68
BMI Category:	

Open
Find Student
Add Student
Change Weight
Advise Weight
Quit

Student Jane with id 3 added into the system.

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	2
Student Name:	Jane
Weight(Lbs):	100
Height(Inches):	68
BMI Category:	

Open
Find Student
Add Student
Change Weight
Advise Weight
Quit

Student id already exists in gradebook.

✓ Change Weight and Advise Weight

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	3
Student Name:	Jane
Weight(Lbs):	95
Height(Inches):	68
BMI Category:	

Open
Find Student
Add Student
Change Weight
Advise Weight
Quit

Update the weight of student id 3 to 95

Student Health Record System

Field	Value
File Name:	healthrecord.txt
Student ID:	3
Student Name:	Jane
Weight(Lbs):	95
Height(Inches):	68
BMI Category:	

Open
Find Student
Add Student
Change Weight
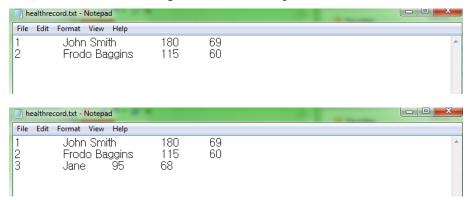Advise Weight
Quit

Student 3's target weight is 142.73 lbs.

✓ Quit (File Content Change after the above operations)

Grading Criteria

70 point scale

10 pts: Successful implementation of the 3 functions

10 pts: Successful implementation of Open File operation

10 pts: Successful implementation of Find Student operation

10 pts: Successful implementation of Add Student operation

10 pts: Successful implementation of Change Weight operation

10 pts: Successful implementation of Advise Weight operation

10 pts: Successful implementation of Quit operation

*If your file has syntax errors, we will take at least 35 points off.

Submission:

Submit your homework before 6pm, Dec. 7th (Saturday) to the EEE Dropbox. Submit only the python source file, with file name "hw6.py".