FINAL PROJECT ALGORITHM & PROGRAMING

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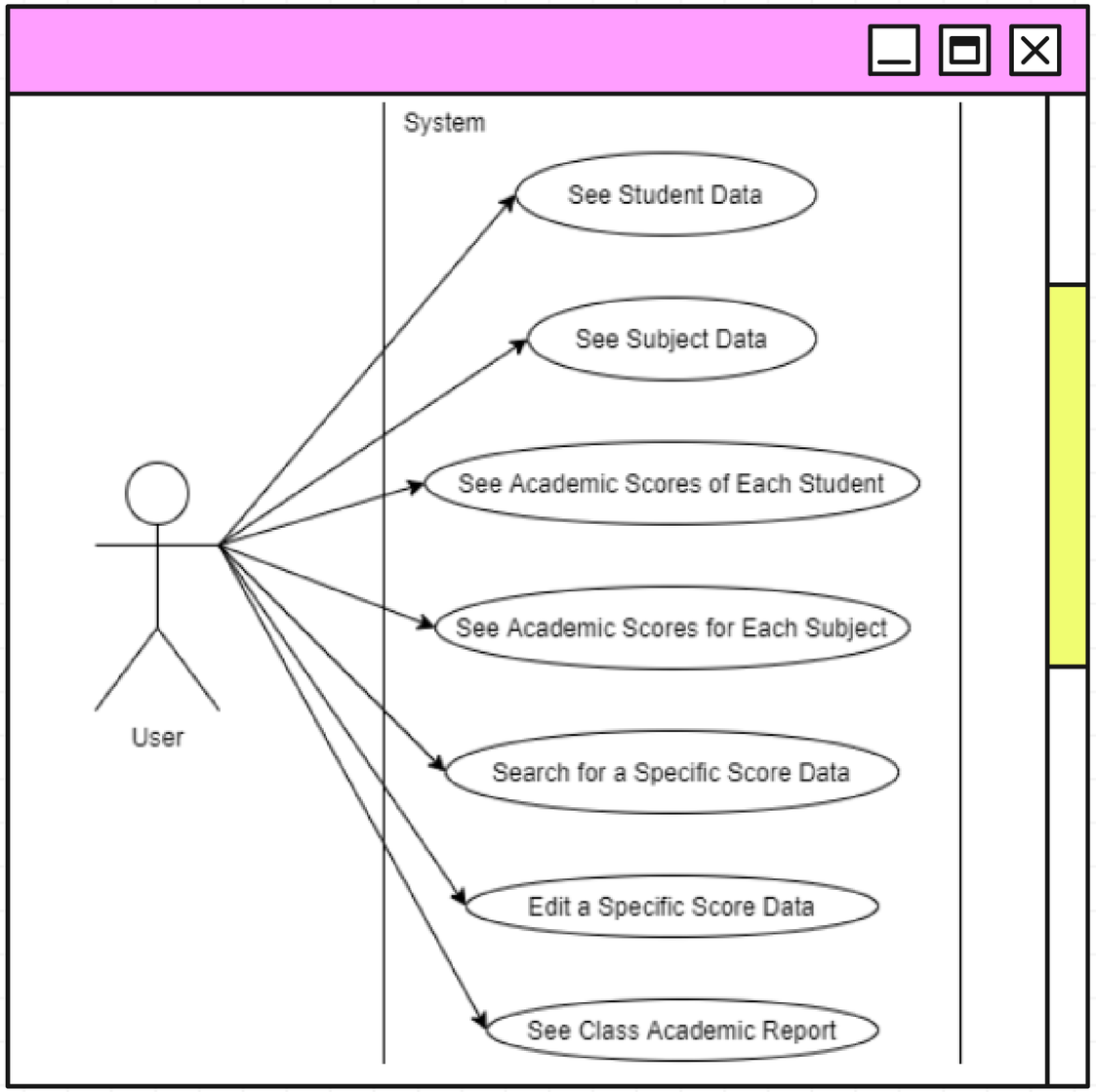

- A Python based program to store and manipulate (Create, Read, Update) the academic scores data of students.
- This program allows user to access some features to manage academic scores data for students in one class.

1. PROGRAM SCHEME

1. LOAD DATA OF ALL STUDENTS NAME

2. LOAD DATA OF ALL SUBJECTS NAME

3. LOAD ALL ACADEMIC SCORE DATA

4. PRINT MENU OPTIONS

5. GET MENU PICK FROM USER

6. IF USER PICK MENU 1, RUN POINT G-O

7. PRINT SUBJECTS LIST

8. GET SUBJECT PICK FROM USER

NEXT

9. IF USER PICK 0, THEN GO BACK TO POINT D

10. PRINT ACADEMIC DATA FOR THE PICKED SUBJECT

11. ASK USER IF THEY WANT TO EDIT A DATA FOR THAT SUBJECT (Y/N)

12. IF USER PICK N, THEN GO BACK TO POINT D

13. GET USER INPUT FOR SUBJECT NAME AND STUDENT NAME

14. GET USER TO INPUT NEW DAILY TASK SCORE

15. SAVE NEW SCORES DATA

16. IF USER PICKS MENU 2, RUN POINT Q-V

17. PRINT STUDENTS LIST

18. GET STUDENT PICK FROM USER

19. IF USER PICKS 0, THEN GO BACK TO POINT D

20. PRINT ACADEMIC DATA FOR THE PICKED STUDENT

21. ASK USER IF THEY WANT TO EDIT A DATA FOR THAT STUDENT (Y/N)

22. RUN POINT L-O

23. IF USER PICKS MENU 3, RUN POINT X-Y

24. GET USER INPUT FOR SUBJECT NAME AND STUDENT NAME

25. PRINT DETAILED SCORES DATA FOR THAT SPECIFIED SUBJECT AND STUDENT IN THE FORM OF TABLE

26. IF USER PICKS MENU 4, RUN POINT AA

27. PRINT CLASS REPORT

28. IF THE USER PICKS MENU 5, THEN THE PROGRAM ENDS.

2. DATA STRUCTURE

A. Library

This program uses one library from Python, and it is PrettyTable. PrettyTable library is used to print data in a neat table format.

B. Package

IN THAT PACKAGE THERE'S A PYTHON MODULE FILE NAMED 'CALCULATOR.PY'. THE 'CALCULATOR.PY' MODULE CONTAINS FOUR CUSTOM BUILT FUNCTIONS FOR STATISTICS FUNCTIONS.

1) getMean() to get mean value of a collection of data stored in Python list,

2) getTotal() to get total value of a collection of data stored in Python list

3) getMax() that returns maximum value in a collection of data and the index of that value

4) getMin() that returns minimum value in a collection of data and the index of that value

C. Classes

TO STORE DATA, THIS PROGRAM CONTAINS FIVE (5) CUSTOM BUILT CLASSES.

1) class SubjectList()

ITS CONSTRUCTOR, FUNCTION ADDSUBJECT(), GETSUBJECTINDEX(), GETSCOREDATA(), AND EDITSCOREDATA()THERE ARE TWO INSTANCE VARIABLES IN THIS CLASS

2) class Class()

ITS CONSTRUCTOR, FUNCTION ADDSTUDENT(), GETFIRSTRANK(), GETLASTRANK(), AND PRINTCLASSDATA()THERE ARE FIVE INSTANCE VARIABLES IN THIS CLASS

3) class Student()

ITS CONSTRUCTOR, FUNCTION ADDSTUDENTSCORE(), FUNCTION SETMEANTOTAL(), AND FUNCTION PRINTSTUDENTSCORES()THERE ARE FIVE INSTANCE VARIABLES IN THIS CLASS

C. Classes

4) class ScoreDetail()

ITS CONSTRUCTOR, AND FUNCTION SETSCORE().AND THERE ARE SEVEN INSTANCE VARIABLES IN THIS CLASS.

5) class Subject()

THIS CLASS CONTAINS TWO FUNCTIONS: ITS CONSTRUCTOR, FUNCTION ADDSUBJECTSCORE(), SETMAXMINMEAN(), GETSTUDENTINDEX(), PRINTSUBJECTSCORES(), AND REWRITEFILE(). THERE ARE SEVEN INSTANCE VARIABLES IN THIS CLASS

D. Functions

THERE ARE SOME FUNCTIONS IN THE PROGRAM'S MAIN PYTHON FILE OUTSIDE OF CLASSES.

1) getAllScore(), this function reads all scores data from a txt file and saves it.

2) printMenu(), this function prints menu options to the screen.

E. Other variables exist in the program’s main Python file. Some of them are integer like ‘menu’ and ‘pick’, some of them are String like ‘edit’, and ‘subjectName’, and some of them are objects like ‘class10A’.

EVIDENCE OF WORKING PROGRAM

MENU 1

```
MENU :
1. Check Out Scores by Subject
2. Check Out Scores by Student
3. Search Specific Data
4. Class Report
5. Exit


Choose a menu [1-5] : 1
```

```
        1. Mathematics
        2. Physics
        3. Chemistry
        4. Biology
        5. Indonesian Language
        6. English


    Pick a Subject to See Detail [0 to Back] : 6
SUBJECT NAME : English
HIGHEST SCORE : Raihan Samudra - 95.3
LOWEST SCORE : Amanda Hilda - 88.55
AVERAGE SCORE : 91.07499999999999


+-----+-----------------+------------+------+----------+------------+-------+
| No. |   Student Name  | Daily Task | Quiz | Mid Exam | Final Exam | Total |
+-----+-----------------+------------+------+----------+------------+-------+
|  1  |   Amanda Hilda  |     90     |  88  |    92    |     85     | 88.55 |
|  2  | Anastasia Lydia |     85     |  97  |    92    |     99     | 93.80 |
|  3  |   Farhan Azzam  |     91     |  96  |    86    |     91     | 90.25 |
|  4  |   Ilham Hanif   |     93     |  90  |    99    |     86     | 91.90 |
|  5  |   Kania Sylvia  |     84     |  95  |    93    |     87     | 89.40 |
|  6  |   Laura Annisa  |     85     |  90  |    95    |     88     | 89.80 |
|  7  |  Rafael Rivaldo |     84     |  94  |    92    |     86     | 88.60 |
|  8  |  Raihan Samudra |     98     |  80  |    98    |     98     | 95.30 |
|  9  |   Thalia Zahra  |     83     |  84  |    92    |     98     | 91.10 |
|  10 | Verrell Prayoga |     88     |  88  |    91    |     97     | 92.05 |
+-----+-----------------+------------+------+----------+------------+-------+
```

```
Edit a data? [y/n] : y


    Student Name : Thalia Zahra

    Subject : English


    Daily Task Score [Integer 0 - 100] : 85

    Quiz Score [Integer 0 - 100] : 84

    Middle Exam Score [Integer 0 - 100] : 92

    Final Exam Score [Integer 0 - 100] : 98
```

MENU 2

```
MENU :
1. Check Out Scores by Subject
2. Check Out Scores by Student
3. Search Specific Data
4. Class Report
5. Exit


Choose a menu [1-5] : 2
```

```
        1. Amanda Hilda
        2. Anastasia Lydia
        3. Farhan Azzam
        4. Ilham Hanif
        5. Kania Sylvia
        6. Laura Annisa
        7. Rafael Rivaldo
        8. Raihan Samudra
        9. Thalia Zahra
        10. Verrell Prayoga


    Pick a Student to See Detail [0 to Back] : 9
STUDENT NAME : Thalia Zahra
TOTAL SCORE : 485.5
MEAN SCORE : 80.91666666666667


+-----+---------------------+-----------+------+----------+------------+-------+
| No. |       Subject       | Daily Task | Quiz | Mid Exam | Final Exam | Total |
+-----+---------------------+-----------+------+----------+------------+-------+
|  1  |     Mathematics     |     89     |  96  |    93    |     90     | 91.60 |
|  2  |       Physics       |     97     |  53  |    62    |     76     | 72.55 |
|  3  |      Chemistry      |     75     |  66  |    74    |     50     | 64.60 |
|  4  |       Biology       |     99     |  83  |    80    |     92     | 88.45 |
|  5  | Indonesian Language |     77     |  63  |    80    |     81     | 77.20 |
|  6  |       English       |     85     |  84  |    92    |     98     | 91.50 |
+-----+---------------------+-----------+------+----------+------------+-------+


Edit a data? [y/n] : n
```

MENU 3

```
MENU :
1. Check Out Scores by Subject
2. Check Out Scores by Student
3. Search Specific Data
4. Class Report
5. Exit


Choose a menu [1-5] : 3



    Student Name : Anastasia Lydia

    Subject : Chemistry


+-----+-----------------+-----------+------------+------+----------+------------+-------+
| No. |   Student Name  |  Subject  | Daily Task | Quiz | Mid Exam | Final Exam | Total |
+-----+-----------------+-----------+------------+------+----------+------------+-------+
|  10 | Anastasia Lydia | Chemistry |    100     |  65  |    69    |     74     | 76.35 |
+-----+-----------------+-----------+------------+------+----------+------------+-------+
```

THANKYOU