**Assignment**

**Student Management System**

The goal of an Assignment to develop a Console application named Student management system (SMS). This system contains two main functions: Register exercises for each subject, and enter marks for students.

# Files used by SMS Application:

All information about students, subjects, exercises, and marks are stored in files students.txt, subjects.txt, exercises.txt, and marks.txt respectively.

All contents of these files are described below:

1) Students.txt file:

HE123457;Nguyen Van B;20

HE123456;Nguyen Van A;21

HE123458;Nguyen Van C;20

Each line contains information of a student, including student ID, student name, and age. Each data field is separated by a character ‘;’.

2) Subjects.txt file:

PRF192;Programming Fundamentals

PRO192;Object-Oriented Programming using Java

Each line contains information of a subject, including subject ID, subject name. Each data field is separated by a character ‘;’.

3) Exercises.txt file:

PRF192;Lab 1;1.25

PRF192;Lab 2;1.25

PRF192;Lab 3;1.25

Each line contains information of an exercise, including subject ID, exercise name, and percentage of that exercise. Each data field is separated by a character ‘;’.

5) Marks file:

HE123456;PRF192;Lab 1;5.5

HE123456;PRF192;Lab 2;7.5

HE123456;PRF192;Lab 3;6.5

Each line contains information of an exercise marks for a student, including student ID, subject ID, exercise name, and marks. Each data filed is separated by a character ‘;’.

# Functions of SMS Application:

Your program output may be look like:

Assignment: A1601, Group 1

MENU

1. Add a new exercise for the given subject.
2. Enter an exercise’s marks of the given subject for a student.
3. Exit

Please enter 1, 2, or 3:

## Add a new exercise for the given subject (when the user enters 1)

The program will allow the user to add a new exercise for the given subject.

With above files, your program output may be look like as below:

List of subjects:

ID Name

PRF192 Programming Fundamentals

PRO192 Object-Oriented Programming using Java

Enter subject ID in the list: PRF

Enter subject ID in the list: PRF192

List of exercises of subject PRF192:

Name Percentage

Lab 1 1.25

Lab 2 1.25

Lab 3 1.25

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**Total 3.75**

Enter exercise name (not empty):

Enter exercise name (not empty): Lab 4

Enter percentage (1 – 96.25): 12f

Enter percentage (1 – 96.25): 1.25

List of exercises of subject PRF192

Exercise Percentage

Lab 1 1.25

Lab 2 1.25

Lab 3 1.25

Lab 4 1.25

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**Total 5.00**

Press enter key to continue

After pressing enter key, those exercises will be saved into file exercises.txt.

Requirement:

+ Subject ID must be existed in the list, otherwise you must enter again.

+ Exercise: Name must be not empty and unique for that given subject, and Percentage of each exercise must be a double from 1 to max value. Max value = 100 - percentage total.

+ Percentage total = sum of all exercise’s percentages of that given subject. (<=100).

## Enter an exercise’s marks of the given subject for a student (when the user enters 2)

The program will allow the user enter exercise’s marks of the given subject for a student.

With above files, program output may be look like as below:

## List of students:

ID Name

## HE123457 Nguyen Van B

## HE123456 Nguyen Van A

## HE123458 Nguyen Van C

## Enter student ID in the list: HE123

## Enter student ID in the list: HE123457

## List of subjects:

## ID Name

## PRF192 Programming Fundamentals

## PRO192 Object-Oriented Programming using Java

## Enter subject ID in the list: PRF

## Enter subject ID in the list: PRF192

## List of marks of PRF192 for HE123456:

## Exercise Percentage Marks

## Lab 1 1.25 5.50

## Lab 2 1.25 7.50

## Lab 3 1.25 6.50

## Lab 4 1.25 0.00

## =======================================

## TOTAL 0.24

## 

Enter exercise in the list: Lab 5

Enter exercise in the list: Lab 1

Enter marks (0 - 10):10

List of marks of PRF192 for HE123456:

Exercise Percentage Marks

Lab 1 1.25 10.00

Lab 2 1.25 7.50

Lab 3 1.25 6.50

Lab 4 1.25 0.00

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**TOTAL 0.30**

Press enter key to continue!

After pressing enter key, those marks will be saved into file marks.txt.

## 

Requirement:

+ Student ID must be existed in the list, otherwise the user must enter again.

+ Subject ID must be existed in the list, otherwise the user must enter again.

+ Display all exercises existed in file “exercises.txt” of that given subject and student’s marks accordingly. (marks = 0 if student’s marks is not existed in file “marks.txt”).

+ Based on the percentage of exercises, display total marks of that subject for that student.