Assignment 1

By: Mustafa Çoban 21627155

Written for

BBM 104 – Introduction to Programming_Laboratory_II

At Hacettepe University

Software Design

1- Definition of Problem / Purpose of Program

  In this assignment, we were asked to build a student information system. In this system, it is aimed to process the names, surnames and numbers of the students, the courses taken by the students and the grades they received from these courses, to process the data in the 4 input files I took from the commend line and to print them on the output file we received from the commend line.

2- Solution of Problem / Solution Design

Explaning of Main Data Structures:

```
DATA STRUCTURES IN STUDENT CLASS;
student_id       //Array for storing student id we get from student.txt
student_name     //Array for storing student name we get from student.txt
student_surname  //Array for storing student surname we get from
student.txt
file_student     //File for reading we get from student.txt in commend line

DATA STRUCTURES IN COURSES CLASS;
course_id        //Array for storing course id we get from courses.txt
course_name      //Array for storing course name we get from courses.txt
file_courses     //File for reading we get from courses.txt in commend line

DATA STRUCTURES IN GRADESCLASS;
withMidterm_1    //ArrayList for grades information has 1 midterm and 1
                 final exam in grades.txt
course_id_mt1    //ArrayList for course id in withMidterm_1
student_id_mt1   //ArrayList for student id in withMidterm_1
midterm1_mt1     //ArrayList for grades of midterm 1 in withMidterm_1
final_mt1        //ArrayList grades of final in withMidterm_1
average_mt1      //ArrayList for final grades

withMidterm_2    //ArrayList for grades information has 2 midterm and 1
                 final exam in grades.txt
course_id_mt2    //ArrayList for course id in withMidterm_2
student_id_mt2   //ArrayList for student id in withMidterm_2
midterm1_mt2     //ArrayList for grades of midterm 1 in withMidterm_2
midterm2_mt2     //ArrayList for grades of midterm 2 in withMidterm_2
final_mt2        //ArrayList grades of final in withMidterm_2
average_mt2      //ArrayList for final grades

DATA STRUCTURES IN COMMANDS CLASS;
commands_list    //ArrayList for storing commands we get from commands.txt
```
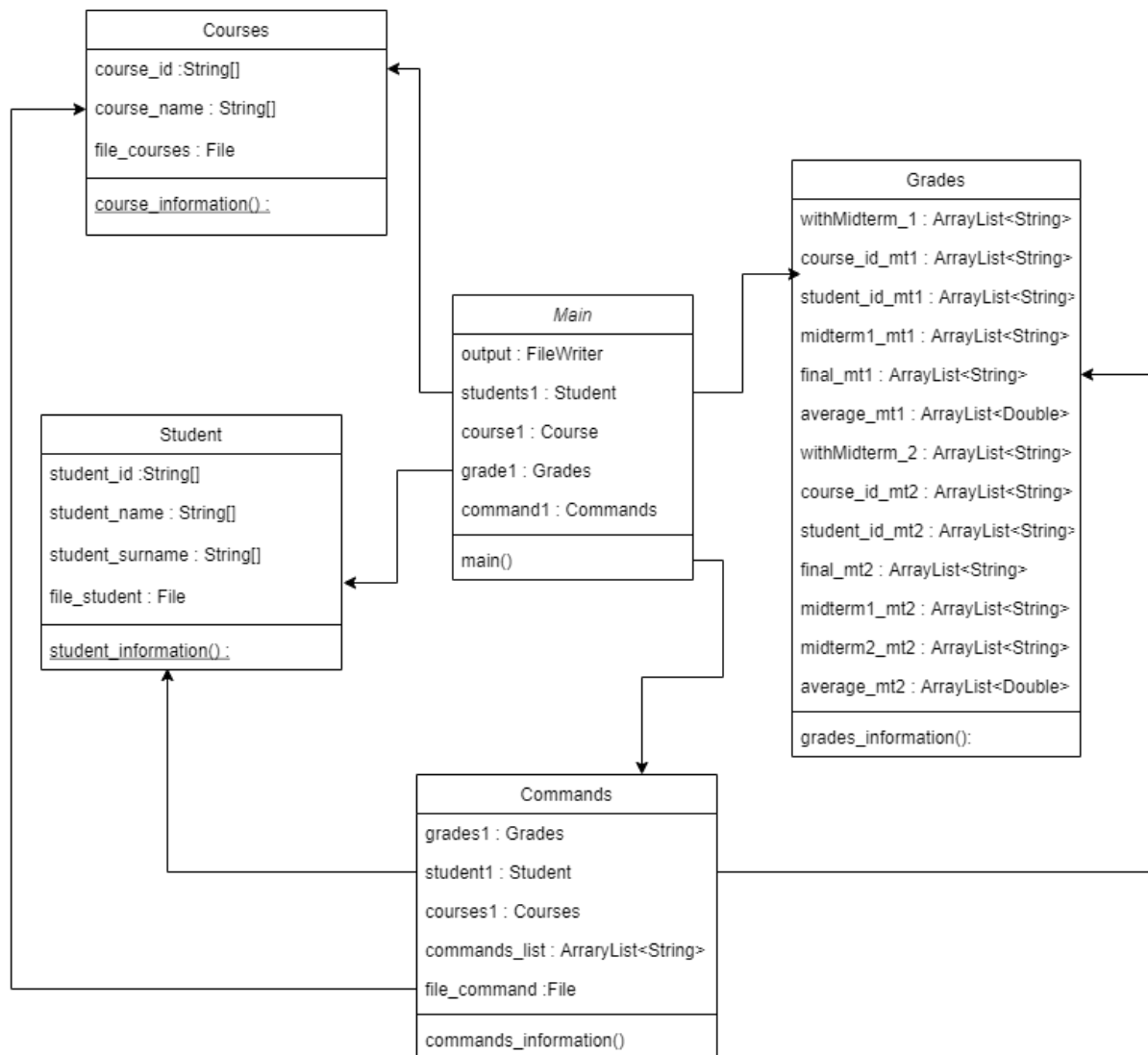
  Four input files entered from the comment line were received. Separate classes were created for reading and processing the data of 4 received input files.

For example, student.java remainder was created for students.txt file. String array, double, integer and string arraylists are used a lot for saving and processing data in files. After students.txt, grades.txt, courses.txt data are processed in their own class, access is provided for students who need this data. After the command.java class processes and saves the commands.txt data, other classes are accessed, the tasks requested from the program are fulfilled, and the program is finalized by saving it into the output.txt file obtained from the comment line.

3- Testing Result

The problems and the demands of the programmer are explained in the assignment.pdf in a detailed and explanatory way. So I didn't have any problems understanding the assignment. However, I had to proceed very slowly and researching because there were things that needed to be used and learned in homework.

4- Referances

- Slayts of BBM101 Introduction of Programming Language 2
- Java Tutorial of Oracle
- Java Tutorial of W3Schools Online Web Tutorials
- Stack Overflow Webside
- Geeksforgeeks Java Tutorial