

COMP 3111, 3111H - Software Engineering

Fall 2022/2023

Leader:

Li Chun Tak

Members:

He Qihao

Sze Wing Kwan

Team Repo on Github:

<https://github.com/a1347539/comp3111-G15>

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Team Information

| | |
|---------------------|---|
| Team ID | 15 |
| Team Repo on GitHub | https://github.com/a1347539/comp3111-G15 |

| | |
|-----------------|-----------------------|
| Name (Member 1) | Li Chun Tak |
| GitHub ID | a1347539 |
| Email ID | ctliaj@connect.ust.hk |
| Dev Branch | input |
| Task Assignment | Input |

| | |
|-----------------|----------------------|
| Name (Member 2) | He Qihao |
| GitHub ID | phyqh |
| Email ID | qheag@connect.ust.hk |
| Dev Branch | process |
| Task Assignment | Process |

| | |
|-----------------|------------------------|
| Name (Member 3) | Sze Wing Kwan |
| GitHub ID | szeu |
| Email ID | wkszeaa@connect.ust.hk |
| Dev Branch ID | output |
| Task Assignment | Output |

Submitted by: _____ Li Chun Tak _____

Date of Submission: _____ 22/11/2022 _____

PART 1: Documentation – Project Management

1.1. Team Meeting Minutes

COMP 3111: Introduction to Software Engineering

Minutes of the 1st Project Scrum Meeting

ATU

Date: October 11, 2022

Time: 7:00 pm

Place: Zoom

Attending: Li Chun Tak, He Qihao, Sze Wing Kwan

Absent: NA

Recorder: Sze Wing Kwan

1. Report on progress during the past week

| Name | Tasks worked on in the past week | Total hours |
|---------------|--|-------------|
| Li Chun Tak | Set up Git repo and understand project requirement | 0.5 |
| He Qihao | Understand project requirement | 0.5 |
| Sze Wing Kwan | Understand project requirement | 0.5 |

2. Discussion of impediments and resolution

2.1. Li Chun Tak led the discussion of the project division.

2.2. Li Chun Tak pointed out that some features can only be accessed by the teaching team but not students.

2.3. Sze Wing Kwan suggested that the system can be divided into two windows with all restricted buttons only visible to the teaching team.

2.4. He Qihao suggested that a password would be required to identify the user.

2.5. He Qihao raised a question about the security of viewing the teaming up results and the criteria for selecting a recommended leader.

2.6. Sze Wing Kwan proposed that all students can search for another's teaming up results so students can swap with others with similar key energies easily.

2.7. Li Chun Tak suggested that if no one in the team indicated their preference to be the team leader, the one with highest K1 will be recommended to be the leader.

2.8. All group members reached a consensus on the system's overall UI design, and how TA and students will use it differently.

3. Goals for the coming week

| Name | Tasks worked on in the past week |
|---------------|---|
| Li Chun Tak | Draw class diagram, use case diagram and use case specification for Input |
| He Qihao | Draw class diagram, use case diagram and use case specification for Process |
| Sze Wing Kwan | Draw class diagram, use case diagram and use case specification for Output |

4. Meeting adjournment and next meeting

The meeting was adjourned at 10:00 p.m. The next project meeting will take place on next Sunday 11/6 at 2:00 p.m. on zoom.

COMP 3111: Introduction to Software Engineering

Minutes of the 2nd Project Scrum Meeting

ATU

Date: November 6, 2022

Time: 2:00 pm

Place: Zoom

Attending: Li Chun Tak, He Qihao, Sze Wing Kwan

Absent: NA

Recorder: Sze Wing Kwan

1. Report on progress during the past week

| Name | Tasks worked on in the past week | Total hours |
|---------------|--|-------------|
| Li Chun Tak | Created file for Gantt and Burndown charts and implemented UI code for Input | 3 |
| He Qihao | Finalized system UI design and implemented UI code for Process | 1.5 |
| Sze Wing Kwan | Implemented program code for necessary classes and UI code for Output | 1.5 |

2. Discussion of impediments and resolution

- 2.1. Sze Wing Kwan demonstrated the current implementation of classes and was agreed by all group mates.
- 2.2. He Qihao pointed out the problem in accessing the TA view due to password validation errors.
- 2.3. Sze Wing Kwan pointed out the data cumulation problem when the CSV file is loaded to the system more than one time.
- 2.4. Li Chun Tak addressed the question about the password validation problem and changed the input program code by clearing old records once a new CSV file is loaded.
- 2.5. Li Chun Tak asked about the output result under the situation when a duplicated student name is used for searching.
- 2.6. Sze Wing Kwan replied to the duplicated name problem that an alert to tell users to use student ID instead will pop out.

3. Goals for the coming week

| Name | Tasks worked on in the past week |
|------|----------------------------------|
| | |

| | |
|---------------|--------------------------------------|
| Li Chun Tak | Finish the implementation of Input |
| He Qihao | Finish the implementation of Process |
| Sze Wing Kwan | Finish the implementation of Output |

4. Meeting adjournment and next meeting

The meeting was adjourned at 4:00 p.m. The next project meeting will take place on next Tuesday 11/15 at 3:00 p.m.

COMP 3111: Introduction to Software Engineering

Minutes of the 3rd Project Scrum Meeting

ATU

Date: November 15, 2022

Time: 3:00 pm

Place: Library LG1

Attending: Li Chun Tak, He Qihao, Sze Wing Kwan

Absent: NA

Recorder: Sze Wing Kwan

1. Report on progress during the past week

| Name | Tasks worked on in the past week | Total hours |
|---------------|--|-------------|
| Li Chun Tak | Reviewed the application cycle and wrote test cases for unit testing | 0.75 |
| He Qihao | Wrote test cases for unit testing | 0.5 |
| Sze Wing Kwan | Finished merging three tasks and wrote comments for Javadoc | 1 |

2. Discussion of impediments and resolution

- 2.1. Sze Wing Kwan demonstrated the complete UI and functionality to all groupmates.
- 2.2. Li Chun Tak and He Qihao reported the application's potential bugs, and the responsible groupmates of each bug solved them during the meeting.
- 2.3. He Qihao discovered that some written test cases overlapped the same method and asked for a clearer division.
- 2.4. Sze Wing Kwan asked for clarification on some methods for writing comments.
- 2.5. Li Chun Tak scheduled an internal deadline to complete all documentation of the project.

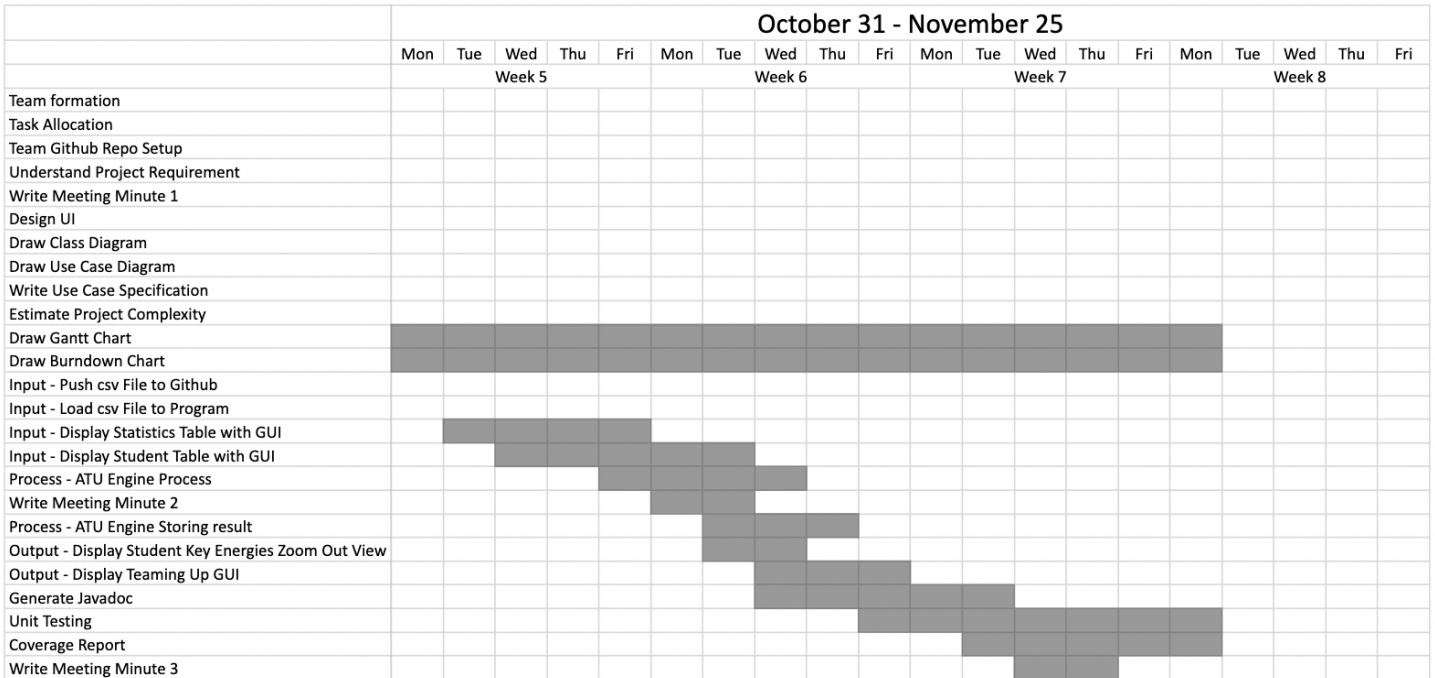
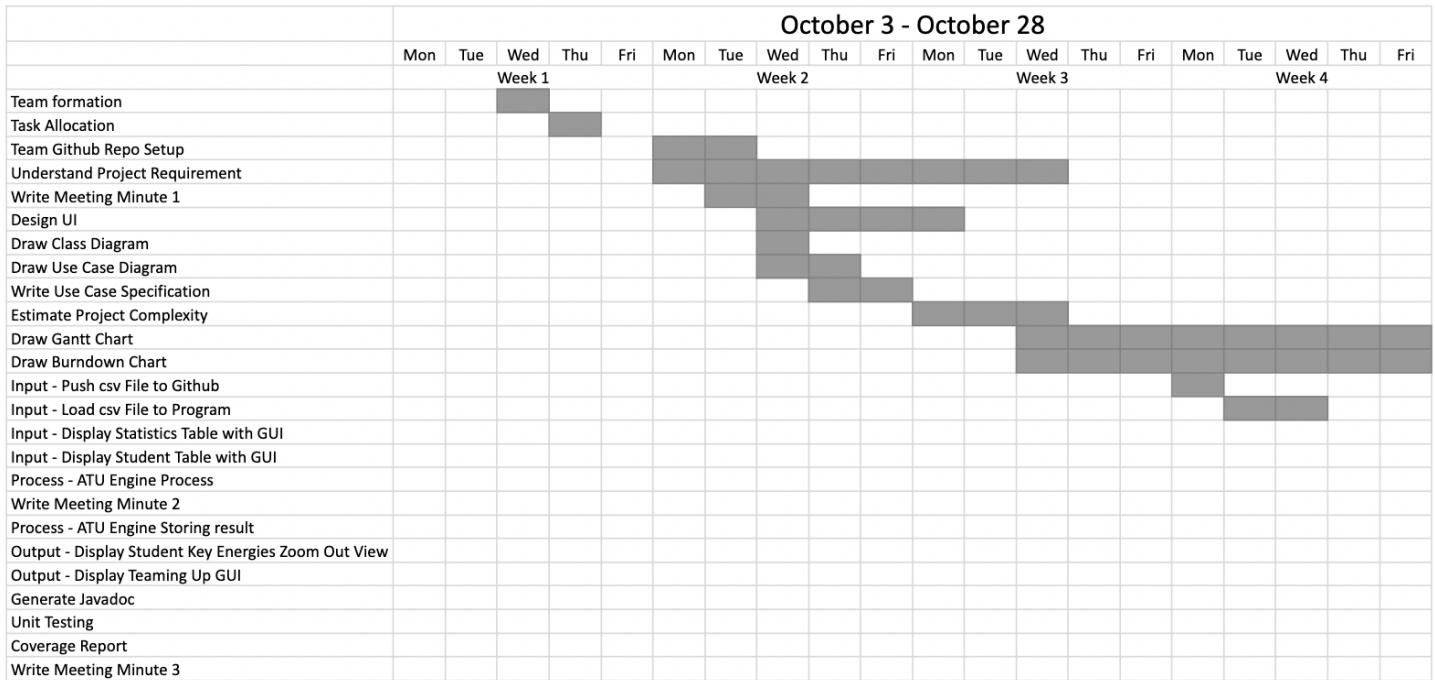
3. Goals for the coming week

| Name | Tasks worked on in the past week |
|---------------|---|
| Li Chun Tak | Integrate everything into one pdf file |
| HE Qihao | Generate unit testing and coverage report |
| SZE Wing Kwan | Generate Javadoc documentation |

4. Meeting adjournment and next meeting

The meeting was adjourned at 5:00 p.m. If there is any major update by a groupmate, the next project meeting will take place on the coming Sunday 11/19 at 2:00 p.m. on zoom.

1.2. Gantt Chart



1.3. Burndown Chart

| Task | Initial Estimate | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Hours Left |
|----------------------------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|------------|
| Documentation | 6 | 0.5 | 2.5 | 0.5 | 0.25 | 1.5 | 0.5 | 2.5 | 0.25 | -2.5 |
| UI Design | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | -1 |
| Input - UI | 4 | 0 | 0 | 0 | 2 | 1.5 | 0 | 0 | 0 | 0.5 |
| Input - File Reading | 1 | 0 | 0 | 0 | 1 | 0.25 | 0 | 0 | 0 | -0.25 |
| Input - Statistics Table | 1 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| Input - Student Table | 2 | 0 | 0 | 0 | 0.25 | 1 | 0.5 | 0 | 0 | 0.25 |
| Process - UI | 1 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0.5 |
| Process - Data Processing | 3 | 0 | 0 | 0 | 0 | 0.5 | 2.5 | 0 | 0 | 0 |
| Process - Data Storing | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Output - UI | 3 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| Output - Energies Chart | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Output - Team Result Table | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| Merging | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| Testing | 3 | 0 | 0 | 0 | 0 | 0.5 | 1 | 1 | 0.5 | 0 |
| | | | | | | | | | | |
| Setting | Start | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | |
| Planned Hours | | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| Actual Hours | | 0.5 | 4.5 | 1.5 | 5.5 | 6.75 | 9.5 | 5.5 | 0.75 | |
| Remaining Effort | 34 | 33.5 | 29 | 27.5 | 22 | 15.25 | 5.75 | 0.25 | -0.5 | |
| Ideal Burndown | 34 | 29.75 | 25.5 | 21.25 | 17 | 12.75 | 8.5 | 4.25 | 0 | |



1.4. Representative Git commit log on GitHub

<https://github.com/a1347539/comp3111-G15/commit/fce5bc1eab2bdb93036b642c936bec92a2d64dc>

Merge pull request #30 from a1347539/process
Process merged to main

main (#30)
phyqh committed 6 days ago Verified

2 parents 5f1bf8b + aa3df2e commit fce5bc1eab2bdb93036b642c936bec92a2d64dc

[Browse files](#)

<https://github.com/a1347539/comp3111-G15/commit/9f18db3c80280b17de1ac848c012aeb7b696fc97>

Merge pull request #24 from a1347539/input
Student Table UI layout and will load data successfully

main (#24)
a1347539 committed 16 days ago Verified

2 parents 64f35ce + 9606da9 commit 9f18db3c80280b17de1ac848c012aeb7b696fc97

[Browse files](#)

<https://github.com/a1347539/comp3111-G15/commit/165edc8ff12735ba51512562b5a718c7ec4b1880>

Merge pull request #26 from a1347539/output
Finish output teaming up result table set up

main (#26)
szeu committed 16 days ago Verified

2 parents d34b970 + 8ff9ce2 commit 165edc8ff12735ba51512562b5a718c7ec4b1880

[Browse files](#)

Commits on Nov 14, 2022

- ATU Engine
phyqh committed 8 days ago
- Merge pull request #28 from a1347539/main ...
phyqh committed 8 days ago
- added some javadoc
a1347539 committed 8 days ago
- Merge branch 'main' of https://github.com/a1347539/comp3111-G15
a1347539 committed 8 days ago
- options for user level instead of password right away
a1347539 committed 8 days ago
- minor bug fixes
a1347539 committed 8 days ago

Commits on Nov 7, 2022

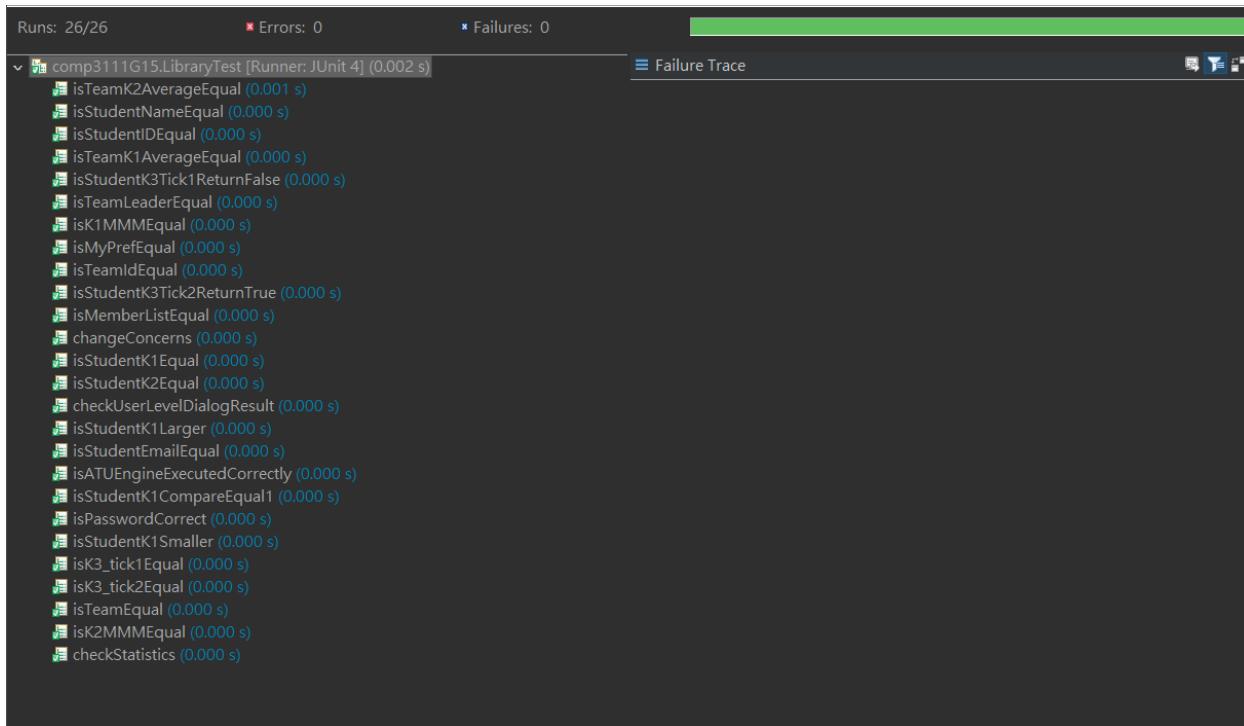
- Merge pull request #27 from a1347539/output ...
szeu committed 15 days ago
- Remove quotation marks
szeu committed 15 days ago

Commits on Nov 6, 2022

- Merge pull request #26 from a1347539/output ...
szeu committed 16 days ago
- Finish output teaming up result table set up
szeu committed 16 days ago
- Merge pull request #25 from a1347539/output ...
szeu committed 16 days ago
- Show treetableview in display window
szeu committed 16 days ago

PART 2: Documentation – Implementation and Testing

2.1. Report on the unit testing for the implemented tasks (100% pass)



Java Code:

```
/*
 * This Java source file was generated by the Gradle 'init' task.
 */
package comp3111G15;

import static org.junit.Assert.*;
import java.util.ArrayList;
import org.junit.Before;
import org.junit.Test;

/**
 *
 * The LibraryTest is used for unit testing
 * @author SzeWingKwan
 *
 */
public class LibraryTest {

    ArrayList<Student> student_data;
    Student student1;
    Student student2;
```

```

Student student3;
Student student4;
Student student5;
Student student6;
Student student7;
Student student8;
Team team;
ArrayList<Student> ATUStudent;
Team ATUTeam1;
Team ATUTeam2;
ATUEngine ATUEngine;
Student studentChangeable;

/**
 * Set up control variables
 * @throws Exception exception
 */
@Before
public void setUp() throws Exception {
    student_data = new ArrayList<Student>();
    ATUStudent = new ArrayList<Student>();

    student1 = new Student(0, "20004488", "SAFFRON", "Corgipoo", "CorgipooSAF@connect.ust.hk",
                          "26", "80", "0", "1", "0", "");
    student2 = new Student(1, "20023331", "HYSSOP", "Chamois", "ChamoisHYS@connect.ust.hk",
                          "27", "85", "0", "1", "1", "");
    student3 = new Student(2, "20067232", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "57", "60", "1", "0", "1", "");

    student4 = new Student(3, "2", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "1", "1", "1", "0", "1", "");
    student5 = new Student(4, "3", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "1", "1", "1", "0", "1", "");
    student6 = new Student(5, "4", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "1", "1", "1", "0", "1", "");
    student7 = new Student(6, "5", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "1", "1", "1", "0", "1", "");
    student8 = new Student(7, "5", "CHRYSANTHEMUM", "Abelisaurus", "AbelisaurusCHR@connect.ust.hk",
                          "14", "1", "1", "0", "1", "I hate freeriders");

    studentChangeable = new Student(100, "0", "A", "A", "x@connect.ust.hk",
                                   "0", "0", "0", "0", "0", "");
    studentChangeable.setStudentID("21112211");
    studentChangeable.setStudentName("Sal");
    studentChangeable.setStudentEmail("SalVa@connect.ust.hk");
    studentChangeable.setK1Energy("90");
    studentChangeable.setK2Energy("88");
    studentChangeable.setK3Tick1("1");
    studentChangeable.setK3Tick2("1");
    studentChangeable.setConcerns("I am really good!");
    studentChangeable.setIndex("101");

    student_data.add(student1);
    student_data.add(student2);
    student_data.add(student3);

    team = new Team(1, student_data, 0);

    ATUStudent.add(student3);
    ATUStudent.add(student2);
}

```

```

        ATUStudent.add(student1);

        ATUTeam1 = new Team(1, ATUStudent, 0);
    }

    /**
     * Test for team id
     */
    @Test
    public void isTeamIdEqual() {
        assertEquals(1, team.getID());
    }

    /**
     * Test for team recommended leader
     */
    @Test
    public void isTeamLeaderEqual() {
        assertEquals(student1, team.getLeader());
    }

    /**
     * Test for team K1
     */
    @Test
    public void isTeamK1AverageEqual() {
        assertEquals((int)(student1.getK1Energy_int()+student2.getK1Energy_int()+student3.getK1Energy_int())/(int),team.getK1Average());
    }

    /**
     * Test for team K2
     */
    @Test
    public void isTeamK2AverageEqual() {
        assertEquals((int)(student1.getK2Energy_int()+student2.getK2Energy_int()+student3.getK2Energy_int())/(int),team.getK2Average());
    }

    /**
     * Test for team member list
     */
    @Test
    public void isMemberListEqual() {
        assertEquals(student_data, team.getMemberList());
    }

    /**
     * Test for team
     */
    @Test
    public void isTeamEqual() {
        assertEquals(true, team.equals(team));
    }

    /**
     * Test for student name
     */
    @Test
    public void isStudentNameEqual() {
        assertEquals("SAFFRON, Corgipoo", student1.getStudentName());
    }
}

```

```

}

/**
 * Test for student id
 */
@Test
public void isStudentIDEqual() {
    assertEquals("20004488", student1.getStudentID());
}

/**
 * Test for student email
 */
@Test
public void isStudentEmailEqual() {
    assertEquals("CorgipooSAF@connect.ust.hk", student1.getStudentEmail());
}

/**
 * Test for student K1
 */
@Test
public void isStudentK1Equal() {
    assertEquals("26", student1.getK1Energy());
}

/**
 * Test for student K2
 */
@Test
public void isStudentK2Equal() {
    assertEquals("80", student1.getK2Energy());
}

/**
 * Test for student K1 compare - larger
 */
@Test
public void isStudentK1Larger() {
    assertEquals(-1, student2.compareTo(student1));
}

/**
 * Test for student K1 compare - smaller
 */
@Test
public void isStudentK1Smaller() {
    assertEquals(1, student2.compareTo(student3));
}

/**
 * Test for student K1 compare - equal
 */
@Test
public void isStudentK1CompareEqual1() {
    assertEquals(0, student2.compareTo(student2));
}

/**
 * Test for student K3 tick 1 - false
 */
@Test

```

```

public void isStudentK3Tick1ReturnFalse() {
    assertFalse(Integer.parseInt(student1.getK3Tick1()) == 1);
}

/**
 * Test for student K3 tick 2 - true
 */
@Test
public void isStudentK3Tick2ReturnTrue() {
    assertTrue(Integer.parseInt(student1.getK3Tick2()) == 1);
}

/**
 * Test for student concerns
 */
@Test
public void changeConcerns() {
    assertEquals(90, studentChangeable.getK1Energy_int());
    assertEquals(88, studentChangeable.getK2Energy_int());
    assertEquals("21112211", studentChangeable.getStudentID());
    assertEquals("Sal", studentChangeable.getStudentName());
    assertEquals("SalVa@connect.ust.hk", studentChangeable.getStudentEmail());
    assertEquals("I am really good!", studentChangeable.getConcerns());
    assertEquals("101", studentChangeable.getIndex());
    assertEquals(true, studentChangeable.getK3Tick1_bool());
    assertEquals(true, studentChangeable.getK3Tick2_bool());
}

/**
 * Test for InputManager statistic
 */
@Test
public void checkStatistics() {
    ArrayList<Statistics> stats = InputManager.getStatistics(student_data);
    assertEquals("3", stats.get(0).getValue());
    assertEquals("(36.7, 26, 57)", stats.get(1).getValue());
    assertEquals("(75.0, 60, 85)", stats.get(2).getValue());
    assertEquals("1", stats.get(3).getValue());
    assertEquals("2", stats.get(4).getValue());
    assertEquals("2", stats.get(5).getValue());
    assertEquals("0", stats.get(0).getIndex());
    assertEquals("K3_Tick2 = 1", stats.get(4).getEntry());
}

/**
 * Test for InputManager K1 mean, min, max
 */
@Test
public void isK1MMMEqual() {
    String[] k1 = InputManager.get_student_k1_mmm(student_data);
    assertEquals("36.7", k1[0]);
    assertEquals("26", k1[1]);
    assertEquals("57", k1[2]);
}

/**
 * Test for InputManager K2 mean, min, max
 */
@Test
public void isK2MMMEqual() {
    String[] k2 = InputManager.get_student_k2_mmm(student_data);
    assertEquals("75.0", k2[0]);
}

```

```

        assertEquals("60", k2[1]);
        assertEquals("85", k2[2]);
    }

    /**
     * Test for InputManager K3 tick 1
     */
    @Test
    public void isK3_tick1Equal() {
        String t = InputManager.get_k3_ticks(student_data)[0];
        assertEquals("1", t);
    }

    /**
     * Test for InputManager K3 tick 2
     */
    @Test
    public void isK3_tick2Equal() {
        String t = InputManager.get_k3_ticks(student_data)[1];
        assertEquals("2", t);
    }

    /**
     * Test for InputManager preference
     */
    @Test
    public void isMyPrefEqual() {
        String t = InputManager.get_k3_ticks(student_data)[2];
        assertEquals("2", t);
    }

    /**
     * Test for Security password
     */
    @Test
    public void isPasswordCorrect() {
        assertFalse(Security.checkPW("abcd"));
        assertTrue(Security.checkPW("1234"));
    }

    /**
     * Test for RequestWindowController
     */
    @Test
    public void checkUserLevelDialogResult() {
        ArrayList<Boolean> results1 =
RequestWindowController.onDialogGetResult(RequestWindowController.levels[0]);
        assertFalse(results1.get(0));
        assertFalse(results1.get(1));
        ArrayList<Boolean> result2 =
RequestWindowController.onDialogGetResult(RequestWindowController.levels[1]);
        assertTrue(result2.get(0));
    }

    /**
     * Test for ATUEngine
     */
    @Test
    public void isATUEngineExecutedCorrectly() {
        ArrayList<Student> temp = new ArrayList<Student>();
        temp.add(student1);
        temp.add(student2);
    }
}

```

```

        temp.add(student3);

        ATUEngine = new ATUEngine(temp);
        assertEquals(ATUTeam1.getMemberList().get(0).getStudentID(),
ATUTeam1.getMemberList().get(0).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(1).getStudentID(),
ATUTeam1.getMemberList().get(1).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(2).getStudentID(),
ATUTeam1.getMemberList().get(2).getStudentID());

        temp.add(student4);
        ATUEngine = new ATUEngine(temp);
        assertEquals(student1.getStudentID(),
ATUTeam1.getMemberList().get(3).getStudentID());

        temp.add(student5);
        temp.add(student6);
        temp.add(student7);
        temp.add(student8);
        ATUEngine = new ATUEngine(temp);
        assertEquals(student2.getStudentID(),
ATUTeam1.getMemberList().get(0).getStudentID());

        student8.setMyPreference("0");
        student3.setMyPreference("0");
        student2.setMyPreference("0");
        temp = new ArrayList<Student>();
        temp.add(student1);
        temp.add(student2);
        temp.add(student3);

        ATUEngine = new ATUEngine(temp);
        assertEquals(ATUTeam1.getMemberList().get(0).getStudentID(),
ATUTeam1.getMemberList().get(0).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(1).getStudentID(),
ATUTeam1.getMemberList().get(1).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(2).getStudentID(),
ATUTeam1.getMemberList().get(2).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(3).getStudentID(),
ATUTeam1.getMemberList().get(3).getStudentID());

        temp.add(student4);
        temp.add(student5);
        temp.add(student6);
        temp.add(student7);
        ATUEngine = new ATUEngine(temp);
        assertEquals(student2.getStudentID(),
ATUTeam1.getMemberList().get(0).getStudentID());
        assertEquals(ATUTeam1.getMemberList().get(1).getStudentID(),
ATUTeam1.getMemberList().get(1).getStudentID());
    }
}

```

2.2. Report on the coverage test (>65% branch coverage)

| Element | Coverage | Executed Instructions | Missed Instructions | Total Instructions |
|--------------------------------|----------|-----------------------|---------------------|--------------------|
| comp3111G15 | 65.6 % | 2,438 | 1,277 | 3,715 |
| src/main/java | 54.8 % | 1,546 | 1,274 | 2,820 |
| comp3111G15 | 54.8 % | 1,546 | 1,274 | 2,820 |
| RequestWindowController.java | 10.3 % | 54 | 470 | 524 |
| DisplayWindowController.java | 0.0 % | 0 | 398 | 398 |
| EnergyChartViewController.java | 0.0 % | 0 | 117 | 117 |
| InputManager.java | 88.9 % | 642 | 80 | 722 |
| StudentTableController.java | 0.0 % | 0 | 78 | 78 |
| StatisticsTableController.java | 0.0 % | 0 | 38 | 38 |
| UIApplication.java | 0.0 % | 0 | 34 | 34 |
| ATUEngine.java | 95.7 % | 467 | 21 | 488 |
| Statistics.java | 69.4 % | 34 | 15 | 49 |
| Student.java | 96.7 % | 237 | 8 | 245 |
| Library.java | 0.0 % | 0 | 6 | 6 |
| Security.java | 68.8 % | 11 | 5 | 16 |
| Team.java | 96.2 % | 101 | 4 | 105 |
| src/test/java | 99.7 % | 892 | 3 | 895 |
| comp3111G15 | 99.7 % | 892 | 3 | 895 |
| LibraryTest.java | 99.7 % | 892 | 3 | 895 |

2.3. Documentation on the implemented tasks using JavaDoc

Package comp3111G15

| Class Summary | |
|---------------------------|--|
| Class | Description |
| ATUEngine | The ATUEngine Produces Team-up results and have them stored in ATU_Team dataset. |
| DisplayWindowController | The DisplayWindowController describes the components used for the teaming up result table. |
| EnergyChartViewController | The EnergyChartViewController describes the components used for the Student Key Energies Zoom Out View |
| InputManager | The InputManager describes the resulting statistic data and student data |
| Library | The Library is the starting point of the application |
| LibraryTest | The LibraryTest is used for unit testing |
| RequestWindowController | The RequestWindowController describes the components used for the starting window of the ATU system. |
| Security | The Security checks password validation |
| Statistics | The Statistics shows table for students information |
| StatisticsTableController | The StatisticTableController controls the window for displaying statistics table |
| Student | The Student contains all information used for teaming up. |
| StudentTableController | The StudentTableController controls the window displaying the student information table |
| Team | The Team contains all information for one team |
| UIApplication | The UIApplication starts the UI of the ATU system |

Hierarchy For Package comp3111G15

Class Hierarchy

- java.lang.Object
 - javafx.application.Application
 - comp3111G15.UIApplication
 - comp3111G15.ATUEngine
 - comp3111G15.DisplayWindowController (implements javafx.fxml.Initializable)
 - comp3111G15.EnergyChartViewController (implements javafx.fxml.Initializable)
 - comp3111G15.InputManager
 - comp3111G15.Library
 - comp3111G15.LibraryTest
 - comp3111G15.RequestWindowController
 - comp3111G15.Security
 - comp3111G15.Statistics
 - comp3111G15.StatisticsTableController
 - comp3111G15.Student (implements java.lang.Comparable<T>)
 - comp3111G15.StudentTableController
 - comp3111G15.Team

Package comp3111G15

Class UIApplication

```
java.lang.Object
    javafx.application.Application
        comp3111G15.UIApplication
```

```
public class UIApplication
extends javafx.application.Application
```

The UIApplication starts the UI of the ATU system

Author:

SzeWingKwan

Nested Class Summary

Nested classes/interfaces inherited from class javafx.application.Application

```
javafx.application.Application.Parameters
```

Field Summary

Fields inherited from class javafx.application.Application

```
STYLESHEET_CASPIAN, STYLESHEET_MODENA
```

Constructor Summary

Constructors

| Constructor | Description |
|------------------------------|-------------|
| <code>UIApplication()</code> | |

Method Summary

All Methods Static Methods Instance Methods Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|--|-------------------------|
| static void | <code>run(java.lang.String[] arg)</code> | UI entry point |
| void | <code>start(javafx.stage.Stage stage)</code> | Application entry point |

Methods inherited from class javafx.application.Application

```
getHostServices, getParameters, getUserAgentStylesheet, init, launch, launch,
notifyPreloader, setUserAgentStylesheet, stop
```

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Details

UIApplication

`public UIApplication()`

Method Details

start

`public void start(javafx.stage.Stage stage)
throws java.lang.Exception`

Application entry point

Specified by:

`start in class javafx.application.Application`

Throws:

`java.lang.Exception`

run

`public static void run(java.lang.String[] arg)`

UI entry point

Parameters:

`arg - argument array`

Package comp3111G15

Class ATUEngine

java.lang.Object
comp3111G15.ATUEngine

```
public class ATUEngine  
extends java.lang.Object
```

The ATUEngine Produces Team-up results and have them stored in ATU_Team dataset.

Author:

HE Qihao

Field Summary

Fields

| Modifier and Type | Field | Description |
|----------------------|----------|--------------|
| java.util.List<Team> | ATU_Team | List of team |

Constructor Summary

Constructors

| Constructor | Description |
|--|---|
| ATUEngine (java.util.List<Student> studentData) | Class constructor, calls Create_Team() method to produce team-up results. |

Method Summary

All Methods

Instance Methods

Concrete Methods

| Modifier and Type | Method | Description |
|----------------------|--|---|
| void | Create_Common_Team(int i) | Create normal teams with three students. |
| void | Create_Special_Team(int i) | Some finishing work on remaining students not allocated with a group in K3_list, this method create team with four students |
| void | Create_Team (java.util.List<Student> studentData) | Create teams and put students from K1_list, K2_list and K3_list in each of them. |
| java.util.List<Team> | getTeamlist() | Accessor that returns team-up results. |

| Modifier and Type | Method | Description |
|-------------------|----------------------------------|---|
| void | <code>Order_by_energies()</code> | Select top(Team_Size) student_id from student_data order by K1_Energy in descending order and store into K1_List, Then select top(Team_size) student_id from student_data order by K2_Energy and put in K2_list by ascending order, and then put rest students in K3_list with no order |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait`

Field Details

ATU_Team

`public java.util.List<Team> ATU_Team`

List of team

Constructor Details

ATUEngine

`public ATUEngine(java.util.List<Student> studentData)`

Class constructor, calls Create_Team() method to produce team-up results.

Parameters:

`studentData` - for ATUEngine to start running

Method Details

Order_by_energies

`public void Order_by_energies()`

Select top(Team_Size) student_id from student_data order by K1_Energy in descending order and store into K1_List, Then select top(Team_size) student_id from student_data order by K2_Energy and put in K2_list by ascending order, and then put rest students in K3_list with no order

Create_Common_Team

```
public void Create_Common_Team(int i)
```

Create normal teams with three students.

Parameters:

i - for (team.id-1)

Create_Special_Team

```
public void Create_Special_Team(int i)
```

Some finishing work on remaining students not allocated with a group in K3_list, this method create team with four students

Parameters:

i - for (team.id-1)

Create_Team

```
public void Create_Team(java.util.List<Student> studentData)
```

Create teams and put students from K1_list, K2_list and K3_list in each of them.

Parameters:

studentData - for teams to be created

getTeamlist

```
public java.util.List<Team> getTeamlist()
```

Accessor that returns team-up results.

Returns:

list of resulting team

Package comp3111G15

Class DisplayWindowController

java.lang.Object
comp3111G15.DisplayWindowController

All Implemented Interfaces:

javafx.fxml.Initializable

```
public class DisplayWindowController
extends java.lang.Object
implements javafx.fxml.Initializable
```

The DisplayWindowController describes the components used for the teaming up result table.

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|--|-------------|
| <code>DisplayWindowController()</code> | |

Method Summary

All Methods Instance Methods Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|--|-------------|
| void | <code>initialize(java.net.URL location, java.util.ResourceBundle resources)</code> | |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait`

Constructor Details

DisplayWindowController

```
public DisplayWindowController()
```

Method Details

initialize

```
public void initialize(java.net.URL location,  
                      java.util.ResourceBundle resources)
```

Specified by:

initialize in interface [javafx.fxml.Initializable](#)

Package comp3111G15

Class EnergyChartViewController

```
java.lang.Object  
    comp3111G15.EnergyChartViewController
```

All Implemented Interfaces:

```
javafx.fxml.Initializable
```

```
public class EnergyChartViewController  
extends java.lang.Object  
implements javafx.fxml.Initializable
```

The EnergyChartViewController describes the components used for the Student Key Energies Zoom Out View

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|--|-------------|
| <code>EnergyChartViewController()</code> | |

Method Summary

All Methods Instance Methods Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|--|-------------|
| void | <code>initialize(java.net.URL url, java.util.ResourceBundle rb)</code> | |

Methods inherited from class `java.lang.Object`

```
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait
```

Constructor Details

EnergyChartViewController

```
public EnergyChartViewController()
```

Method Details

initialize

```
public void initialize(java.net.URL url,
                      java.util.ResourceBundle rb)
```

Specified by:

initialize in interface javafx.fxml.Initializable

Package comp3111G15

Class InputManager

java.lang.Object
comp3111G15.InputManager

```
public class InputManager  
extends java.lang.Object
```

The InputManager describes the resulting statistic data and student data

Author:

SzeWingKwan

Field Summary

Fields

| Modifier and Type | Field | Description |
|--|---------------------------|-----------------------------|
| static java.lang.String | <code>delimiter</code> | Delimiter for student name |
| static javafx.collections.ObservableList<Statistics> | <code>stat_data</code> | List of statistics |
| static javafx.collections.ObservableList<Student> | <code>student_data</code> | List of student information |

Constructor Summary

Constructors

| Constructor | Description |
|-----------------------------|-------------|
| <code>InputManager()</code> | |

Method Summary

All Methods

Static Methods

Concrete Methods

| Modifier and Type | Method | Description |
|---------------------------|---|--|
| static java.lang.String[] | <code>get_k3_ticks</code> (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K3 ticks |
| static java.lang.String[] | <code>get_student_k1_mmm</code> (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K1 value |

| Modifier and Type | Method | Description |
|---|--|--|
| static java.lang.String[] | get_student_k2_mmm (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K2 value |
| static java.util.ArrayList<Statistics> (java.util.List<Student> studentData) | getStatistics | Populate the statistics stat_data, the ArrayList will contain number_of_student, K1mmm, K2mmm, K3_Tick1, K3_Tick2, My_preference, in order |
| static boolean | read(java.lang.String csvFile) | Read csv file |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait`

Field Details

stat_data

`public static final javafx.collections.ObservableList<Statistics> stat_data`

List of statistics

student_data

`public static final javafx.collections.ObservableList<Student> student_data`

List of student information

delimiter

`public static final java.lang.String delimiter`

Delimiter for student name

See Also:

Constant Field Values

Constructor Details

InputManager

```
public InputManager()
```

Method Details

get_student_k1_mmm

```
public static java.lang.String[] get_student_k1_mmm(  
java.util.List<Student> student_data)
```

This function get the mean, min, max of all students' K1 value

Parameters:

`student_data` - A list of Student objects

Returns:

A string array of elements mean, min, max in ascending order.

get_student_k2_mmm

```
public static java.lang.String[] get_student_k2_mmm(  
java.util.List<Student> student_data)
```

This function get the mean, min, max of all students' K2 value

Parameters:

`student_data` - A list of Student objects

Returns:

A string array of elements mean, min, max in ascending order.

get_k3_ticks

```
public static java.lang.String[] get_k3_ticks(java.util.List<Student> student_data)
```

This function get the mean, min, max of all students' K3 ticks

Parameters:

`student_data` - A list of Student objects

Returns:

A string array of elements tick1_count, tick2_count, my_preference in ascending order.

read

```
public static boolean read(java.lang.String csvFile)
```

Read csv file

Parameters:

`csvFile` - A String of file name in the parent directory

Returns:

true if the csv file is successfully read, false otherwise

getStatistics

```
public static java.util.ArrayList<Statistics> getStatistics(  
java.util.List<Student> studentData)
```

Populate the statistics stat_data, the ArrayList will contain number_of_student, K1mmm, K2mmm, K3_Tick1, K3_Tick2, My_preference, in order

Parameters:

studentData - list of student data

Returns:

statistics

Package comp3111G15

Class Library

java.lang.Object
comp3111G15.Library

```
public class Library
extends java.lang.Object
```

The Library is the starting point of the application

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|---------------------------|-------------|
| Library() | |

Method Summary

All Methods

Static Methods

Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|---|--------------------------------|
| static void | main(java.lang.String[] args) | The main method of the program |

Methods inherited from class java.lang.Object

```
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait
```

Constructor Details

Library

```
public Library()
```

Method Details

main

```
public static void main(java.lang.String[] args)
```

The main method of the program

Parameters:

args - arguments

Package comp3111G15

Class LibraryTest

java.lang.Object
comp3111G15.LibraryTest

```
public class LibraryTest
extends java.lang.Object
```

The LibraryTest is used for unit testing

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|----------------------------|-------------|
| <code>LibraryTest()</code> | |

Method Summary

All Methods

Instance Methods

Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|---|---|
| void | <code>changeConcerns()</code> | Test for student concerns |
| void | <code>checkStatistics()</code> | Test for InputManager statistic |
| void | <code>checkUserLevelDialogResult()</code> | Test for RequestWindowController |
| void | <code>isATUEngineExecutedCorrectly()</code> | Test for ATUEngine |
| void | <code>isK1MMMEqual()</code> | Test for InputManager K1 mean, min, max |
| void | <code>isK2MMMEqual()</code> | Test for InputManager K2 mean, min, max |
| void | <code>isK3_tick1Equal()</code> | Test for InputManager K3 tick 1 |
| void | <code>isK3_tick2Equal()</code> | Test for InputManager K3 tick 2 |
| void | <code>isMemberListEqual()</code> | Test for team member list |
| void | <code>isMyPrefEqual()</code> | Test for InputManager preference |
| void | <code>isPasswordCorrect()</code> | Test for Security password |
| void | <code>isStudentEmailEqual()</code> | Test for student email |
| void | <code>isStudentIDEequal()</code> | Test for student id |
| void | <code>isStudentK1CompareEqual1()</code> | Test for student K1 compare - equal |

| Modifier and Type | Method | Description |
|-------------------|--|---------------------------------------|
| void | <code>isStudentK1Equal()</code> | Test for student K1 |
| void | <code>isStudentK1Larger()</code> | Test for student K1 compare - larger |
| void | <code>isStudentK1Smaller()</code> | Test for student K1 compare - smaller |
| void | <code>isStudentK2Equal()</code> | Test for student K2 |
| void | <code>isStudentK3Tick1ReturnFalse()</code> | Test for student K3 tick 1 - false |
| void | <code>isStudentK3Tick2ReturnTrue()</code> | Test for student K3 tick 2 - true |
| void | <code>isStudentNameEqual()</code> | Test for student name |
| void | <code>isTeamEqual()</code> | Test for team |
| void | <code>isTeamIdEqual()</code> | Test for team id |
| void | <code>isTeamK1AverageEqual()</code> | Test for team K1 |
| void | <code>isTeamK2AverageEqual()</code> | Test for team K2 |
| void | <code>isTeamLeaderEqual()</code> | Test for team recommended leader |
| void | <code>setUp()</code> | Set up control variables |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Details

LibraryTest

```
public LibraryTest()
```

Method Details

setUp

```
public void setUp()
    throws java.lang.Exception
```

Set up control variables

Throws:

`java.lang.Exception` - exception

isTeamIdEqual

```
public void isTeamIdEqual()
```

Test for team id

isTeamLeaderEqual

```
public void isTeamLeaderEqual()
```

Test for team recommended leader

isTeamK1AverageEqual

```
public void isTeamK1AverageEqual()
```

Test for team K1

isTeamK2AverageEqual

```
public void isTeamK2AverageEqual()
```

Test for team K2

isMemberListEqual

```
public void isMemberListEqual()
```

Test for team member list

isTeamEqual

```
public void isTeamEqual()
```

Test for team

isStudentNameEqual

```
public void isStudentNameEqual()
```

Test for student name

isStudentIDEqual

```
public void isStudentIDEqual()
```

Test for student id

isStudentEmailEqual

```
public void isStudentEmailEqual()
```

Test for student email

isStudentK1Equal

```
public void isStudentK1Equal()
```

Test for student K1

isStudentK2Equal

```
public void isStudentK2Equal()
```

Test for student K2

isStudentK1Larger

```
public void isStudentK1Larger()
```

Test for student K1 compare - larger

isStudentK1Smaller

```
public void isStudentK1Smaller()
```

Test for student K1 compare - smaller

isStudentK1CompareEqual1

```
public void isStudentK1CompareEqual1()
```

Test for student K1 compare - equal

isStudentK3Tick1ReturnFalse

```
public void isStudentK3Tick1ReturnFalse()
```

Test for student K3 tick 1 - false

isStudentK3Tick2ReturnTrue

```
public void isStudentK3Tick2ReturnTrue()
```

Test for student K3 tick 2 - true

changeConcerns

```
public void changeConcerns()
```

Test for student concerns

checkStatistics

```
public void checkStatistics()
```

Test for InputManager statistic

isK1MMMEqual

```
public void isK1MMMEqual()
```

Test for InputManager K1 mean, min, max

isK2MMMEqual

```
public void isK2MMMEqual()
```

Test for InputManager K2 mean, min, max

isK3_tick1Equal

```
public void isK3_tick1Equal()
```

Test for InputManager K3 tick 1

isK3_tick2Equal

```
public void isK3_tick2Equal()
```

Test for InputManager K3 tick 2

isMyPrefEqual

```
public void isMyPrefEqual()
```

Test for InputManager preference

isPasswordCorrect

```
public void isPasswordCorrect()
```

Test for Security password

checkUserLevelDialogResult

```
public void checkUserLevelDialogResult()
```

Test for RequestWindowController

isATUEngineExecutedCorrectly

```
public void isATUEngineExecutedCorrectly()
```

Test for ATUEngine



Package comp3111G15

Class RequestWindowController

java.lang.Object
comp3111G15.RequestWindowController

```
public class RequestWindowController  
extends java.lang.Object
```

The RequestWindowController describes the components used for the starting window of the ATU system.

Author:

SzeWingKwan, LiChunTak, HE Qihao

Field Summary

Fields

| Modifier and Type | Field | Description |
|---------------------------|--------|------------------------------------|
| static java.lang.String[] | levels | two levels of users, Student or TA |

Constructor Summary

Constructors

| Constructor | Description |
|---------------------------|-------------|
| RequestWindowController() | |

Method Summary

All Methods

Static Methods

Instance Methods

Concrete Methods

| Modifier and Type | Method | Description |
|--|---|---|
| static void | displayIncorrectFilenameDialog (java.lang.String filename) | Display a error dialog for when the .csv filename does not exist. |
| void | initialize() | Initialize the application with user authentication and display UI window |
| static java.util.ArrayList<java.lang.Boolean> | onDialogGetResult (java.lang.String result) | Get the result of the dialog which asks for user level |

Methods inherited from class java.lang.Object

```
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait
```

Field Details

levels

```
public static java.lang.String[] levels
```

two levels of users, Student or TA

Constructor Details

RequestWindowController

```
public RequestWindowController()
```

Method Details

initialize

```
public void initialize()
```

Initialize the application with user authentication and display UI window

onDialogGetResult

```
public static java.util.ArrayList<java.lang.Boolean> onDialogGetResult(
    java.lang.String result)
```

Get the result of the dialog which asks for user level

Parameters:

result - from the dialog

Returns:

temporary boolean list, first element: If TA return true, else false, second element: If csv read successful return true, else false

displayIncorrectFilenameDialog

```
public static void displayIncorrectFilenameDialog(java.lang.String filename)
```

Display a error dialog for when the .csv filename does not exist.

Parameters:

filename - incorrect filename

Package comp3111G15

Class Security

java.lang.Object
comp3111G15.Security

```
public class Security
extends java.lang.Object
```

The Security checks password validation

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|-------------------------|-------------|
| <code>Security()</code> | |

Method Summary

All Methods Static Methods Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|---|---|
| static boolean | <code>checkPW (java.lang.String input)</code> | Check input password against the default password |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Details

Security

```
public Security()
```

Method Details

checkPW

```
public static boolean checkPW(java.lang.String input)
```

Check input password against the default password

Parameters:

`input` - String of input

Returns:

true if match, false otherwise

Package comp3111G15

Class Statistics

java.lang.Object
comp3111G15.Statistics

```
public class Statistics  
extends java.lang.Object
```

The Statistics shows table for students information

Author:

LiChunTak

Constructor Summary

Constructors

| Constructor | Description |
|--|---------------------------|
| <code>Statistics(int index, java.lang.String fName, java.lang.String lName)</code> | Constructor of Statistics |

Method Summary

All Methods Instance Methods Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|---|-------------------------------------|
| java.lang.String | <code>getEntry()</code> | Get entry of Statistics in a string |
| java.lang.String | <code>getIndex()</code> | Get index of Statistics in a string |
| java.lang.String | <code>getValue()</code> | Get value of Statistics in a string |
| void | <code>setEntry(java.lang.String val)</code> | Set entry of Statistics |
| void | <code>setIndex(java.lang.String val)</code> | Set index of Statistics |
| void | <code>setValue(java.lang.String val)</code> | Set value of Statistics |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Details

Statistics

```
public Statistics(int index,  
                 java.lang.String fName,  
                 java.lang.String lName)
```

Constructor of Statistics

Parameters:

index - index

fName - first name

lName - last name

Method Details

getIndex

```
public java.lang.String getIndex()
```

Get index of Statistics in a string

Returns:

String

setIndex

```
public void setIndex(java.lang.String val)
```

Set index of Statistics

Parameters:

val - index

getEntry

```
public java.lang.String getEntry()
```

Get entry of Statistics in a string

Returns:

String

setEntry

```
public void setEntry(java.lang.String val)
```

Set entry of Statistics

Parameters:

val - entry

getValue

```
public java.lang.String getValue()
```

Get value of Statistics in a string

Returns:

String

setValue

```
public void setValue(java.lang.String val)
```

Set value of Statistics

Parameters:

val - value

Package comp3111G15

Class StatisticsTableController

java.lang.Object
comp3111G15.StatisticsTableController

```
public class StatisticsTableController  
extends java.lang.Object
```

The StatisticTableController controls the window for displaying statistics table

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|--|-------------|
| <code>StatisticsTableController()</code> | |

Method Summary

Methods inherited from class java.lang.Object

```
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait
```

Constructor Details

StatisticsTableController

```
public StatisticsTableController()
```

Package comp3111G15

Class Student

java.lang.Object
comp3111G15.Student

All Implemented Interfaces:

java.lang.Comparable<Student>

```
public class Student
extends java.lang.Object
implements java.lang.Comparable<Student>
```

The Student contains all information used for teaming up.

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|--|-------------------|
| <code>Student(int index, java.lang.String student_id, java.lang.String student_name, java.lang.String email, java.lang.String k1_energy, java.lang.String k2_energy, java.lang.String k3_tick1, java.lang.String k3_tick2, java.lang.String my_preference, java.lang.String concerns)</code> | Class constructor |

Method Summary

All Methods

Instance Methods

Concrete Methods

| Modifier and Type | Method | Description |
|-------------------|---------------------------------------|--|
| int | <code>compareTo(Student other)</code> | The method used for sorting the students in a list in descending K1 order. |
| java.lang.String | <code>getConcerns()</code> | Gets concerns |
| java.lang.String | <code>getIndex()</code> | Gets index |
| java.lang.String | <code>getK1Energy()</code> | Gets K1 energy in String |
| int | <code>getK1Energy_int()</code> | Gets K1 energy in integer |
| java.lang.String | <code>getK2Energy()</code> | Gets K2 energy in String |
| int | <code>getK2Energy_int()</code> | Gets K2 energy in integer |
| java.lang.String | <code>getK3Tick1()</code> | Gets K3 tick 1 in String |
| boolean | <code>getK3Tick1_bool()</code> | Gets K3 tick 1 |

| Modifier and Type | Method | Description |
|----------------------|---|--------------------------|
| | <code>java.lang.String getK3Tick2()</code> | Gets K3 tick 2 in String |
| <code>boolean</code> | <code>getK3Tick2_bool()</code> | Gets K3 tick 2 |
| | <code>java.lang.String getMyPreference()</code> | Gets my preference |
| | <code>java.lang.String getStudentEmail()</code> | Gets student email |
| | <code>java.lang.String getStudentID()</code> | Gets student ID |
| | <code>java.lang.String getStudentName()</code> | Gets student name |
| <code>void</code> | <code>setConcerns (java.lang.String val)</code> | Sets concerns |
| <code>void</code> | <code>setIndex (java.lang.String val)</code> | Sets index |
| <code>void</code> | <code>setK1Energy (java.lang.String val)</code> | Sets K1 energy |
| <code>void</code> | <code>setK2Energy (java.lang.String val)</code> | Sets K2 energy |
| <code>void</code> | <code>setK3Tick1 (java.lang.String val)</code> | Sets K3 tick 1 |
| <code>void</code> | <code>setK3Tick2 (java.lang.String val)</code> | Sets K3 tick 2 |
| <code>void</code> | <code>setMyPreference (java.lang.String val)</code> | Sets my preference |
| <code>void</code> | <code>setStudentEmail (java.lang.String val)</code> | Sets student email |
| <code>void</code> | <code>setStudentID (java.lang.String val)</code> | Sets student ID |
| <code>void</code> | <code>setStudentName (java.lang.String val)</code> | Sets student name |

Methods inherited from class `java.lang.Object`

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Details

`Student`

```
public Student(int index,
              java.lang.String student_id,
              java.lang.String student_name,
              java.lang.String email,
              java.lang.String k1_energy,
              java.lang.String k2_energy,
              java.lang.String k3_tick1,
              java.lang.String k3_tick2,
              java.lang.String my_preference,
              java.lang.String concerns)
```

Class constructor

Parameters:

index - index

student_id - student ID

student_name - student name

email - student email

k1_energy - K1 energy

k2_energy - K2 energy

k3_tick1 - whether is creative and participate aggressively

k3_tick2 - whether is willing to take more workloads

my_preference - my preference to be the leader

concerns - concerns/comments

Method Details

compareTo

```
public int compareTo(Student other)
```

The method used for sorting the students in a list in descending K1 order.

Specified by:

`compareTo` in interface `java.lang.Comparable<Student>`

getK1Energy_int

```
public int getK1Energy_int()
```

Gets K1 energy in integer

Returns:

K1 energy

getK2Energy_int

```
public int getK2Energy_int()
```

Gets K₂ energy in integer

Returns:

K₂ energy

getK3Tick1_bool

```
public boolean getK3Tick1_bool()
```

Gets K₃ tick 1

Returns:

true/false

getK3Tick2_bool

```
public boolean getK3Tick2_bool()
```

Gets K₃ tick 2

Returns:

true/false

getIndex

```
public java.lang.String getIndex()
```

Gets index

Returns:

index

setIndex

```
public void setIndex(java.lang.String val)
```

Sets index

Parameters:

val - for index

getStudentID

```
public java.lang.String getStudentID()
```

Gets student ID

Returns:

student ID

setStudentID

```
public void setStudentID(java.lang.String val)
```

Sets student ID

Parameters:

val - for student ID

getStudentName

```
public java.lang.String getStudentName()
```

Gets student name

Returns:

student name

setStudentName

```
public void setStudentName(java.lang.String val)
```

Sets student name

Parameters:

val - for student name

getStudentEmail

```
public java.lang.String getStudentEmail()
```

Gets student email

Returns:

student email

setStudentEmail

```
public void setStudentEmail(java.lang.String val)
```

Sets student email

Parameters:

val - for student email

getK1Energy

```
public java.lang.String getK1Energy()
```

Gets K1 energy in String

Returns:

K1 energy

setK1Energy

```
public void setK1Energy(java.lang.String val)
```

Sets K1 energy

Parameters:

val - for K1 energy

getK2Energy

```
public java.lang.String getK2Energy()
```

Gets K2 energy in String

Returns:

K2 energy

setK2Energy

```
public void setK2Energy(java.lang.String val)
```

Sets K2 energy

Parameters:

val - for K2 energy

getK3Tick1

```
public java.lang.String getK3Tick1()
```

Gets K3 tick 1 in String

Returns:

1/0

setK3Tick1

```
public void setK3Tick1(java.lang.String val)
```

Sets K3 tick 1

Parameters:

val - for K3 tick 1

getK3Tick2

```
public java.lang.String getK3Tick2()
```

Gets K3 tick 2 in String

Returns:

1/o

setK3Tick2

```
public void setK3Tick2(java.lang.String val)
```

Sets K3 tick 2

Parameters:

val - for K3 tick 2

getMyPreference

```
public java.lang.String getMyPreference()
```

Gets my preference

Returns:

1/o

setMyPreference

```
public void setMyPreference(java.lang.String val)
```

Sets my preference

Parameters:

val - for my preference

getConcerns

```
public java.lang.String getConcerns()
```

Gets concerns

Returns:

concerns

setConcerns

```
public void setConcerns(java.lang.String val)
```

Sets concerns

Parameters:

val - for concerns



Package comp3111G15

Class StudentTableController

```
java.lang.Object  
    comp3111G15.StudentTableController
```

```
public class StudentTableController  
extends java.lang.Object
```

The StudentTableController controls the window displaying the student information table

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|---------------------------------------|-------------|
| <code>StudentTableController()</code> | |

Method Summary

Methods inherited from class java.lang.Object

```
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait
```

Constructor Details

StudentTableController

```
public StudentTableController()
```

Package comp3111G15

Class Team

java.lang.Object
comp3111G15.Team

```
public class Team  
extends java.lang.Object
```

The Team contains all information for one team

Author:

SzeWingKwan

Constructor Summary

Constructors

| Constructor | Description |
|--|-------------------|
| <code>Team(int id, java.util.List<Student> members, int leader)</code> | Class constructor |

Method Summary

All Methods

Instance Methods

Concrete Methods

| Modifier and Type | Method | Description |
|--|------------------------------|---|
| int | <code>getID()</code> | Gets team ID |
| double | <code>getK1Average()</code> | Gets average K1 energy |
| double | <code>getK2Average()</code> | Gets average K2 energy |
| <code>Student</code> | <code>getLeader()</code> | Gets recommended leader |
| <code>java.util.List<Student></code> | <code>getMemberList()</code> | Gets team member list |
| void | <code>sortMember()</code> | The method sorts the team member list in descending K1 order. |

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait`

Constructor Details

Team

```
public Team(int id,  
           java.util.List<Student> members,  
           int leader)
```

Class constructor

Parameters:

`id` - team ID

`members` - team member list

`leader` - recommended leader

Method Details

sortMember

```
public void sortMember()
```

The method sorts the team member list in descending K₁ order.

getID

```
public int getID()
```

Gets team ID

Returns:

team ID

getMemberList

```
public java.util.List<Student> getMemberList()
```

Gets team member list

Returns:

team member list

getLeader

```
public Student getLeader()
```

Gets recommended leader

Returns:

recommended leader

getK1Average

```
public double getK1Average()
```

Gets average K₁ energy

Returns:

average K1 energy

getK2Average

```
public double getK2Average()
```

Gets average K2 energy

Returns:

average K2 energy

Uses of Package comp3111G15

Classes in comp3111G15 used by comp3111G15

| Class | Description |
|------------|---|
| Statistics | The Statistics shows table for students information |
| Student | The Student contains all information used for teaming up. |
| Team | The Team contains all information for one team |

Uses of Class comp3111G15.Statistics

Uses of Statistics in comp3111G15

Fields in comp3111G15 with type parameters of type Statistics

| Modifier and Type | Field | Description |
|---|------------------------|--------------------|
| static javafx.collections.ObservableList<Statistics> | InputManager.stat_data | List of statistics |

Methods in comp3111G15 that return types with arguments of type Statistics

| Modifier and Type | Method | Description |
|---|----------------------------|--|
| static java.util.ArrayList<Statistics> (java.util.List<Student> studentData) | InputManager.getStatistics | Populate the statistics stat_data, the ArrayList will contain number_of_student, K1mmm, K2mmm, K3_Tick1, K3_Tick2, My_preference, in order |

Uses of Class comp3111G15.Student

Uses of Student in comp3111G15

Fields in comp3111G15 with type parameters of type Student

| Modifier and Type | Field | Description |
|--|---------------------------|-----------------------------|
| static javafx.collections.ObservableList<Student> | InputManager.student_data | List of student information |

Methods in comp3111G15 that return Student

| Modifier and Type | Method | Description |
|-------------------|------------------|-------------------------|
| Student | Team.getLeader() | Gets recommended leader |

Methods in comp3111G15 that return types with arguments of type Student

| Modifier and Type | Method | Description |
|-------------------------|----------------------|-----------------------|
| java.util.List<Student> | Team.getMemberList() | Gets team member list |

Methods in comp3111G15 with parameters of type Student

| Modifier and Type | Method | Description |
|-------------------|--------------------------------------|--|
| int | Student.compareTo (Student other) | The method used for sorting the students in a list in descending K1 order. |

Method parameters in comp3111G15 with type arguments of type Student

| Modifier and Type | Method | Description |
|---------------------------|---|--|
| void | ATUEngine.Create_Team (java.util.List<Student> studentData) | Create teams and put students from K1_list, K2_list and K3_list in each of them. |
| static java.lang.String[] | InputManager.get_k3_ticks (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K3 ticks |
| static java.lang.String[] | InputManager.get_student_k1_mmm (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K1 value |
| static java.lang.String[] | InputManager.get_student_k2_mmm (java.util.List<Student> student_data) | This function get the mean, min, max of all students' K2 value |

| Modifier and Type | Method | Description |
|---|----------------------------|--|
| static java.util.ArrayList<Statistics> (java.util.List<Student> studentData) | InputManager.getStatistics | Populate the statistics stat_data, the ArrayList will contain number_of_student, K1mmm, K2mmm, K3_Tick1, K3_Tick2, My_preference, in order |

Constructor parameters in comp3111G15 with type arguments of type Student

| Constructor | Description |
|---|---|
| ATUEngine (java.util.List<Student> studentData) | Class constructor, calls Create_Team() method to produce team-up results. |
| Team (int id, java.util.List<Student> members, int leader) | Class constructor |

Uses of Class comp3111G15.Team

Uses of Team in comp3111G15

Fields in comp3111G15 with type parameters of type Team

| Modifier and Type | Field | Description |
|----------------------|---------------------------|--------------|
| java.util.List<Team> | ATUEngine.ATU_Team | List of team |

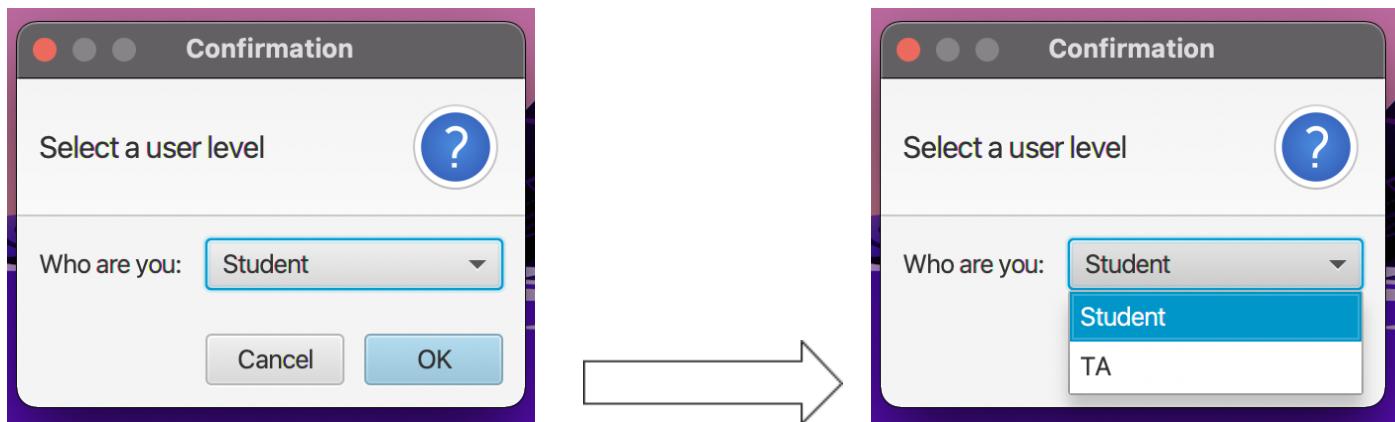
Methods in comp3111G15 that return types with arguments of type Team

| Modifier and Type | Method | Description |
|----------------------|--------------------------------|--|
| java.util.List<Team> | ATUEngine.getTeamlist() | Accessor that returns team-up results. |

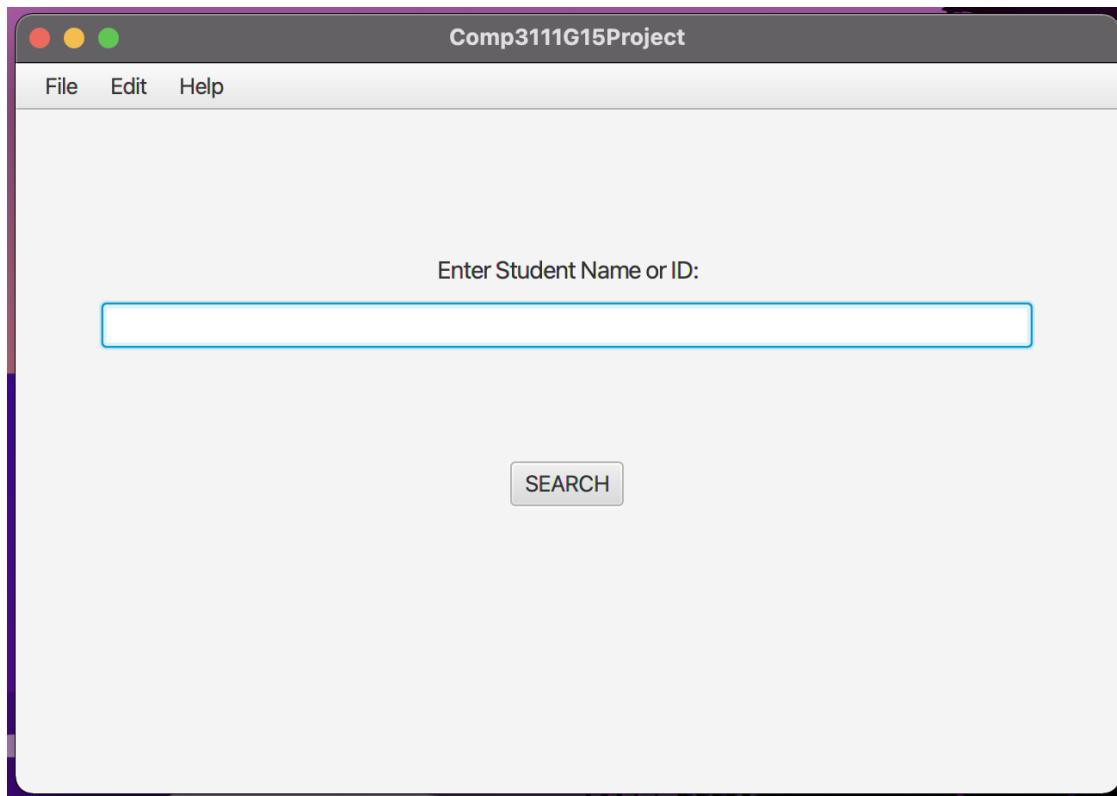
PART 3: Program Execution and Screenshots

3.1. Screenshots of the execution of the application showing sample inputs and outputs of your choice (Task 231A)

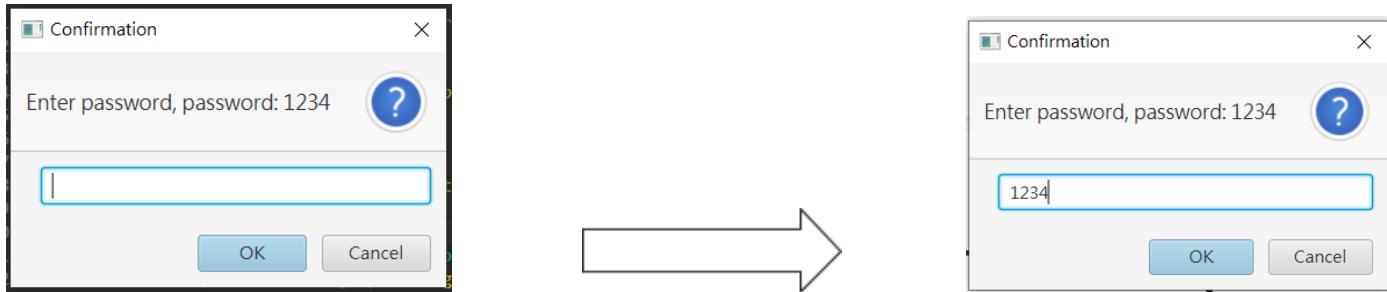
Two type of users:



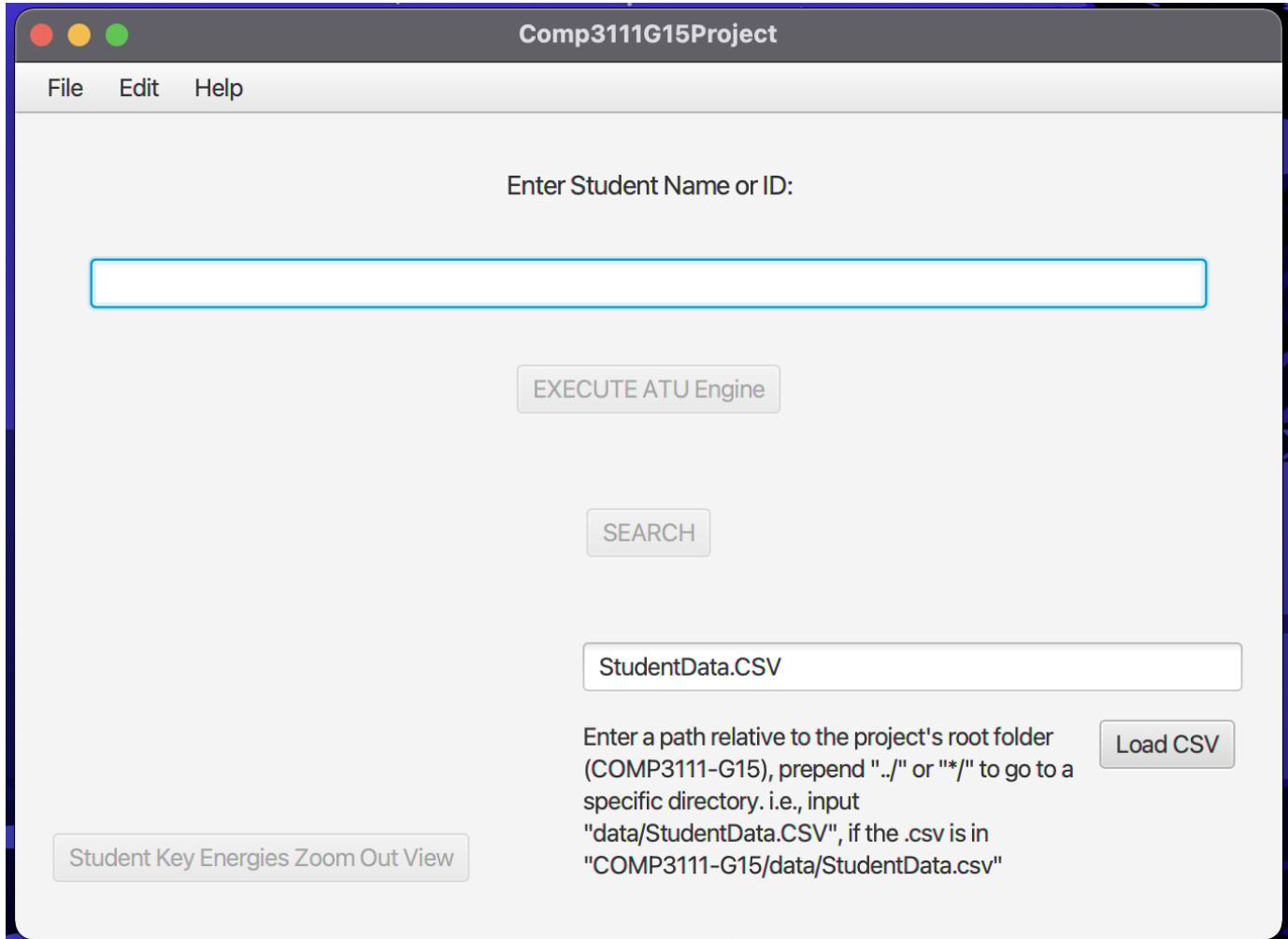
When “student” is chosen:



When “TA” is chosen:



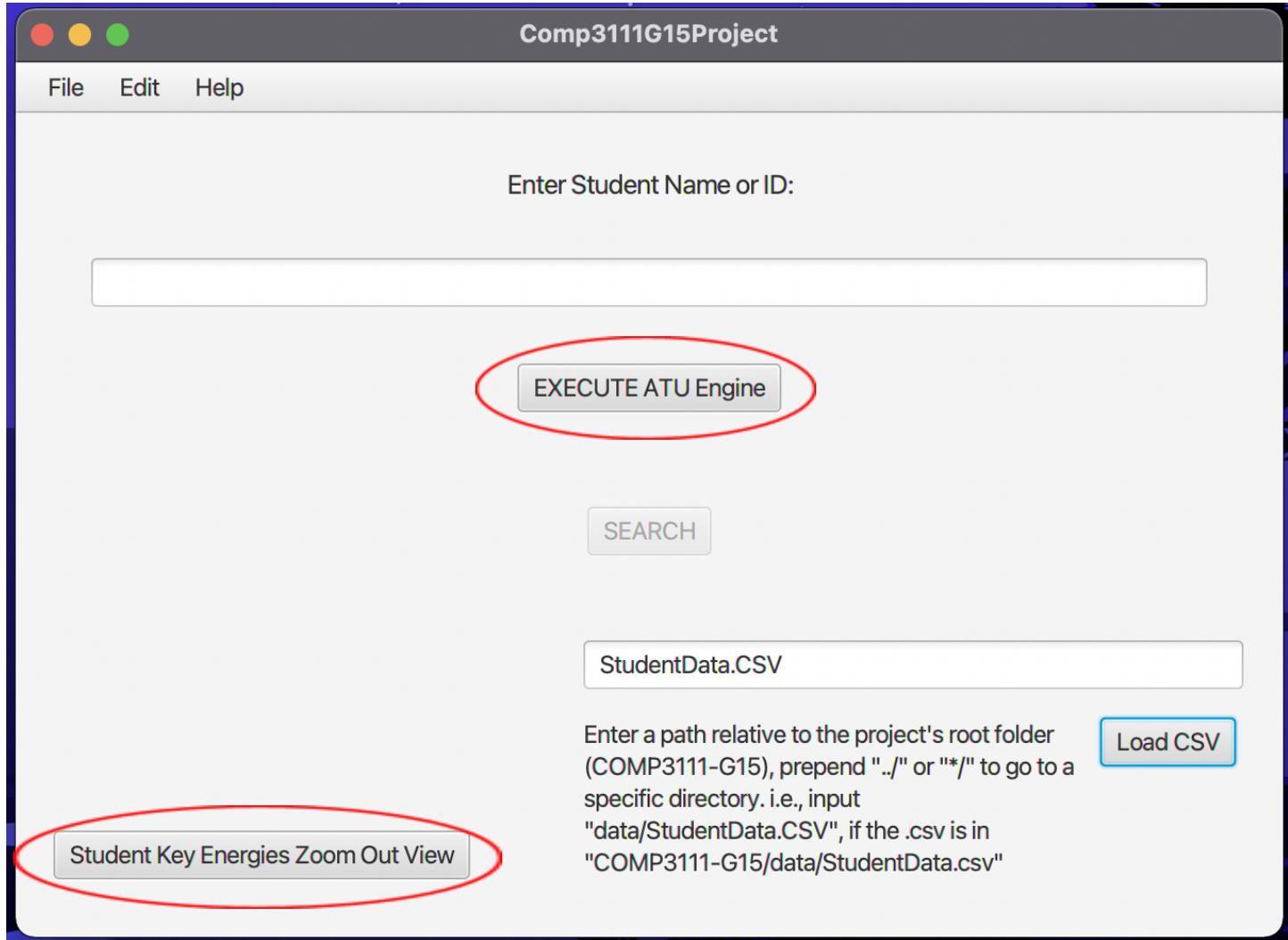
Original View for TA (correct password):



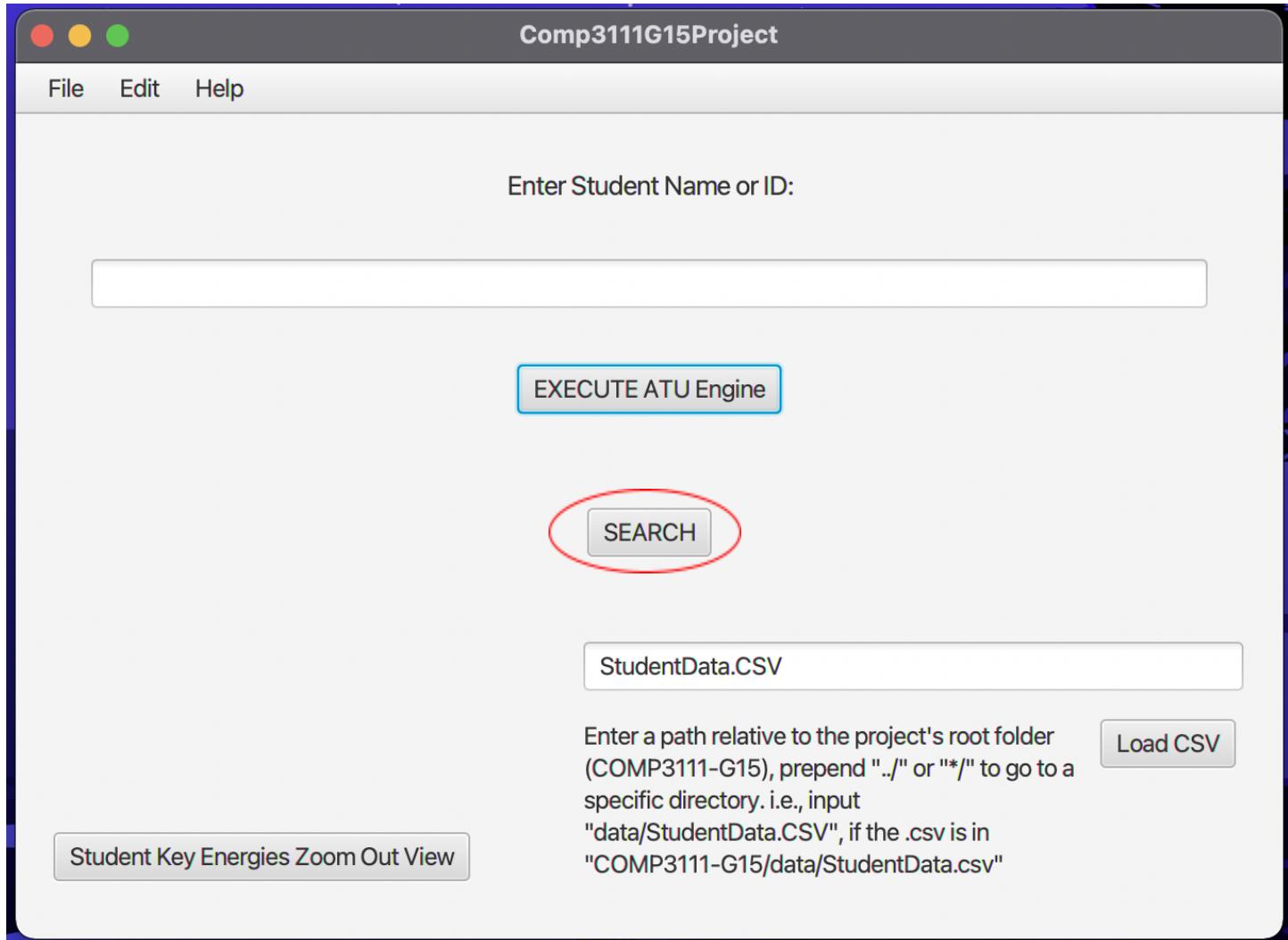
When a .csv file is loaded successfully:

| Table of students' personal data | | | | | | | | | |
|----------------------------------|------------|----------------|-----------------|-----------|-----------|----------|----------|---------------|--------------------|
| Students | | | | | | | | | |
| Row_Index | Student_ID | Student_Name | Student_Email | K1_Energy | K2_Energy | K3_Tick1 | K3_Tick2 | My_Preference | Concerns |
| 0 | 20004488 | SAFFRON Co... | CorgipooSAF... | 26 | 80 | 0 | 0 | 1 | ... |
| 1 | 20023331 | HYSSOP Cha... | ChamoisHYS... | 27 | 85 | 0 | 0 | 0 | ... |
| 2 | 20043679 | LEEKs Beetle | BeetleLEE@c... | 71 | 40 | 0 | 0 | 0 | ... |
| 3 | 20067232 | CHRYSANTH... | AbelisaurusC... | 57 | 60 | 0 | 0 | 0 | ... |
| 4 | 20076931 | CELERIAC Aniu | AniuCEL@co... | 54 | 80 | 0 | 0 | 1 | ... |
| 5 | 20089887 | ANGELICA D... | DaisyANG@c... | 44 | 65 | 1 | 1 | 0 | ... |
| 6 | 20097861 | CHICORY Igu... | IguanodonC... | 58 | 45 | 0 | 0 | 0 | ... |
| 7 | 20109368 | SPEARMINT ... | KenerdySPE... | 44 | 70 | 0 | 0 | 0 | I like to work ... |
| 8 | 20121416 | LAVENDER V... | VenusLAV@... | 55 | 65 | 0 | 0 | 0 | ... |
| 9 | 20133348 | VANILLA Aph... | AphidsVAN@... | 47 | 65 | 1 | 0 | 0 | ... |
| 10 | 20136565 | CUMINPOW... | AddaxCUM@... | 47 | 60 | 1 | 1 | 0 | ... |
| 11 | 20152854 | PARSLEY Ath... | AthenaPAR@... | 59 | 60 | 0 | 0 | 0 | ... |
| 12 | 20153166 | ORCHID Uran... | UranusORC... | 89 | 45 | 0 | 0 | 0 | ... |
| 13 | 20155801 | ROSEMARY ... | HephaestusR... | 35 | 70 | 0 | 0 | 1 | ... |
| 14 | 20167346 | OREGANO G... | GeorgeORE... | 83 | 60 | 0 | 0 | 0 | ... |

| Table of statistics | | |
|---------------------|---------------------|-----------------|
| Statistics | | |
| Row_Index | Entry | Value |
| 0 | Total Number of ... | 100 |
| 1 | K1_Energy(Aver...) | (55.1, 10, 100) |
| 2 | K2_Energy(Aver...) | (65.6, 30, 90) |
| 3 | K3_Tick1 = 1 | 12 |
| 4 | K3_Tick2 = 1 | 5 |
| 5 | My_Preference ... | 19 |



When “EXECUTE ATU Engine” button is pressed:



3.2. Screenshots of the execution of the application showing sample inputs and outputs of your choice (Task 231C)

Teaming up result (press “SEARCH” with an input)

1. Valid student name or ID:

- Case 1 - One of the teammates is the recommended leader

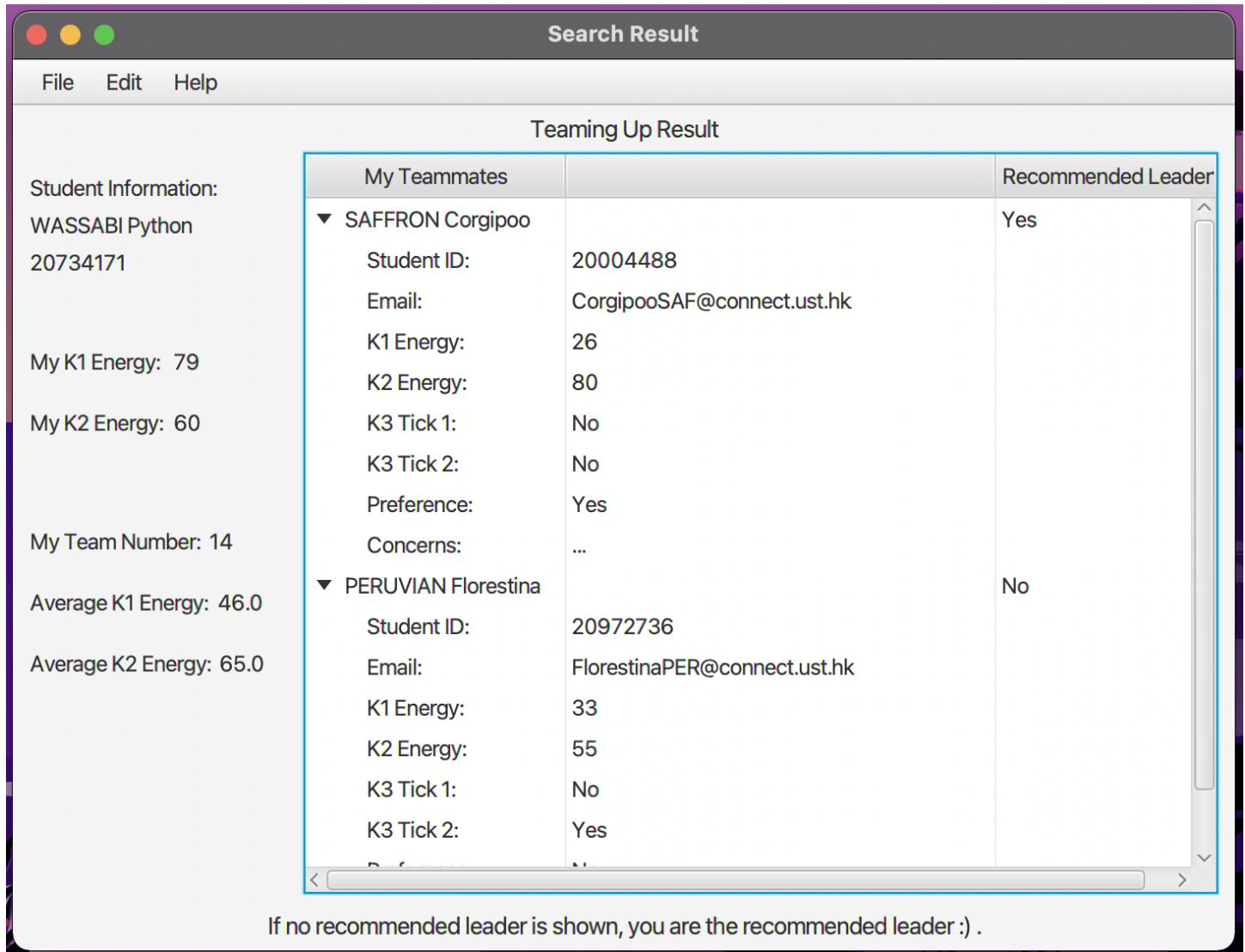
Search Result

File Edit Help

Teaming Up Result

| Student Information: | My Teammates | Recommended Leader |
|----------------------------|--|--------------------|
| WASSABI Python 20734171 | <p>▼ SAFFRON Corgipoo</p> <p>Student ID: 20004488</p> <p>Email: CorgipooSAF@connect.ust.hk</p> <p>K1 Energy: 26</p> <p>K2 Energy: 80</p> <p>K3 Tick 1: No</p> <p>K3 Tick 2: No</p> <p>Preference: Yes</p> <p>Concerns: ...</p> | Yes |
| My K1 Energy: 79 | | |
| My K2 Energy: 60 | | |
| My Team Number: 14 | | |
| Average K1 Energy: 46.0 | | |
| Average K2 Energy: 65.0 | | |
| | <p>▼ PERUVIAN Florestina</p> <p>Student ID: 20972736</p> <p>Email: FlorestinaPER@connect.ust.hk</p> <p>K1 Energy: 33</p> <p>K2 Energy: 55</p> <p>K3 Tick 1: No</p> <p>K3 Tick 2: Yes</p> | No |
| | | |

If no recommended leader is shown, you are the recommended leader :).



- Case 2 - The student being searched is the recommended leader

Search Result

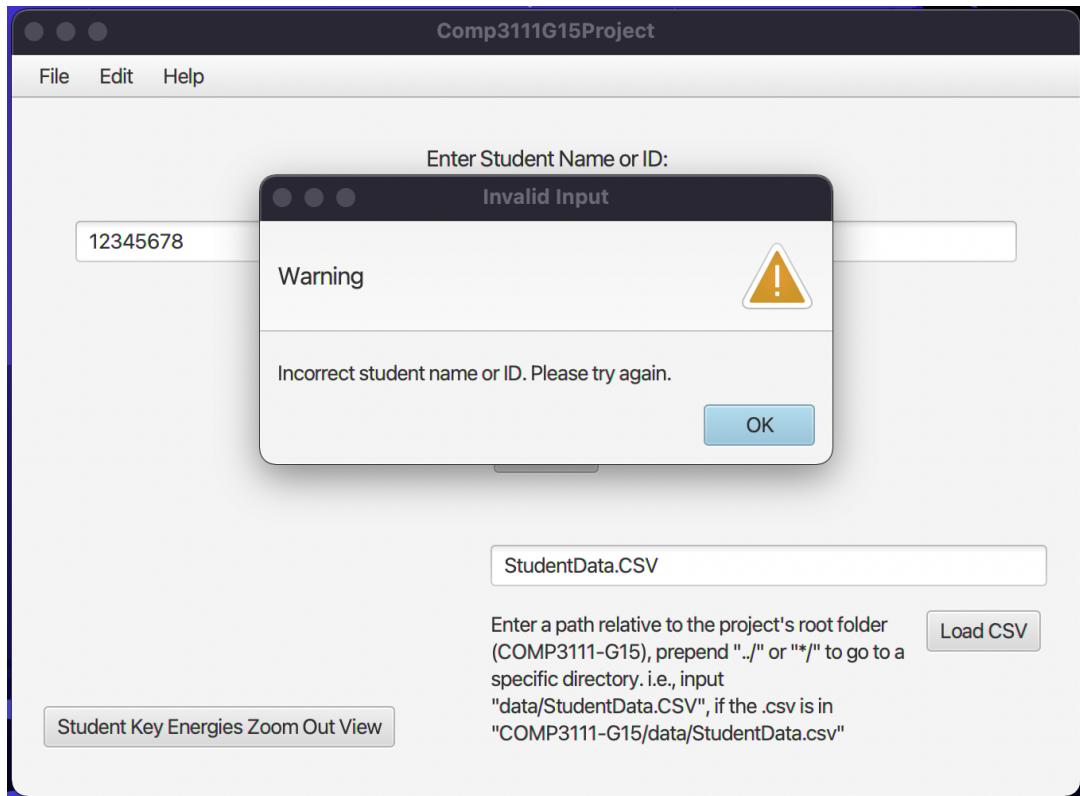
File Edit Help

Teaming Up Result

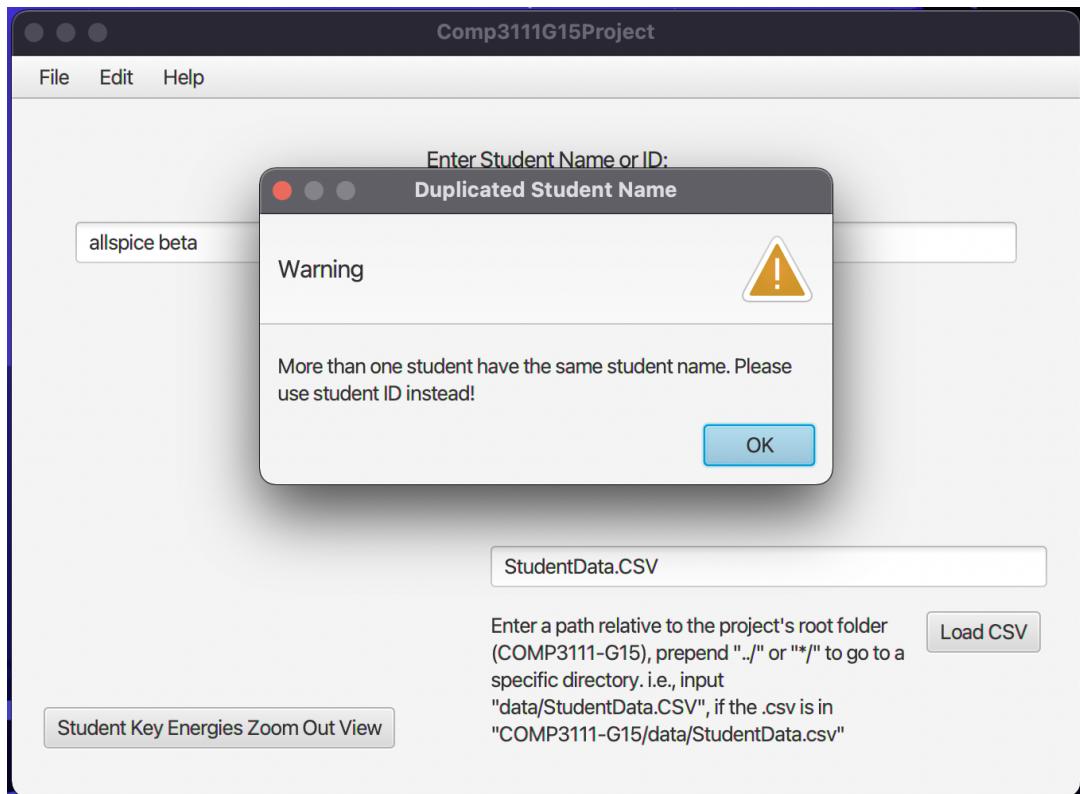
| Student Information: | My Teammates | Recommended Leader |
|--|---|--------------------|
| SAFFRON Corgipoo 20004488 | WASSABI Python Student ID: 20734171 Email: PythonWAS@connect.ust.hk K1 Energy: 79 K2 Energy: 60 K3 Tick 1: No K3 Tick 2: No Preference: No Concerns: ... | No |
| My K1 Energy: 26 My K2 Energy: 80 My Team Number: 14 Average K1 Energy: 46.0 Average K2 Energy: 65.0 | PERUVIAN Florestina Student ID: 20972736 Email: FlorestinaPER@connect.ust.hk K1 Energy: 33 K2 Energy: 55 K3 Tick 1: No K3 Tick 2: Yes | No |

If no recommended leader is shown, you are the recommended leader :).

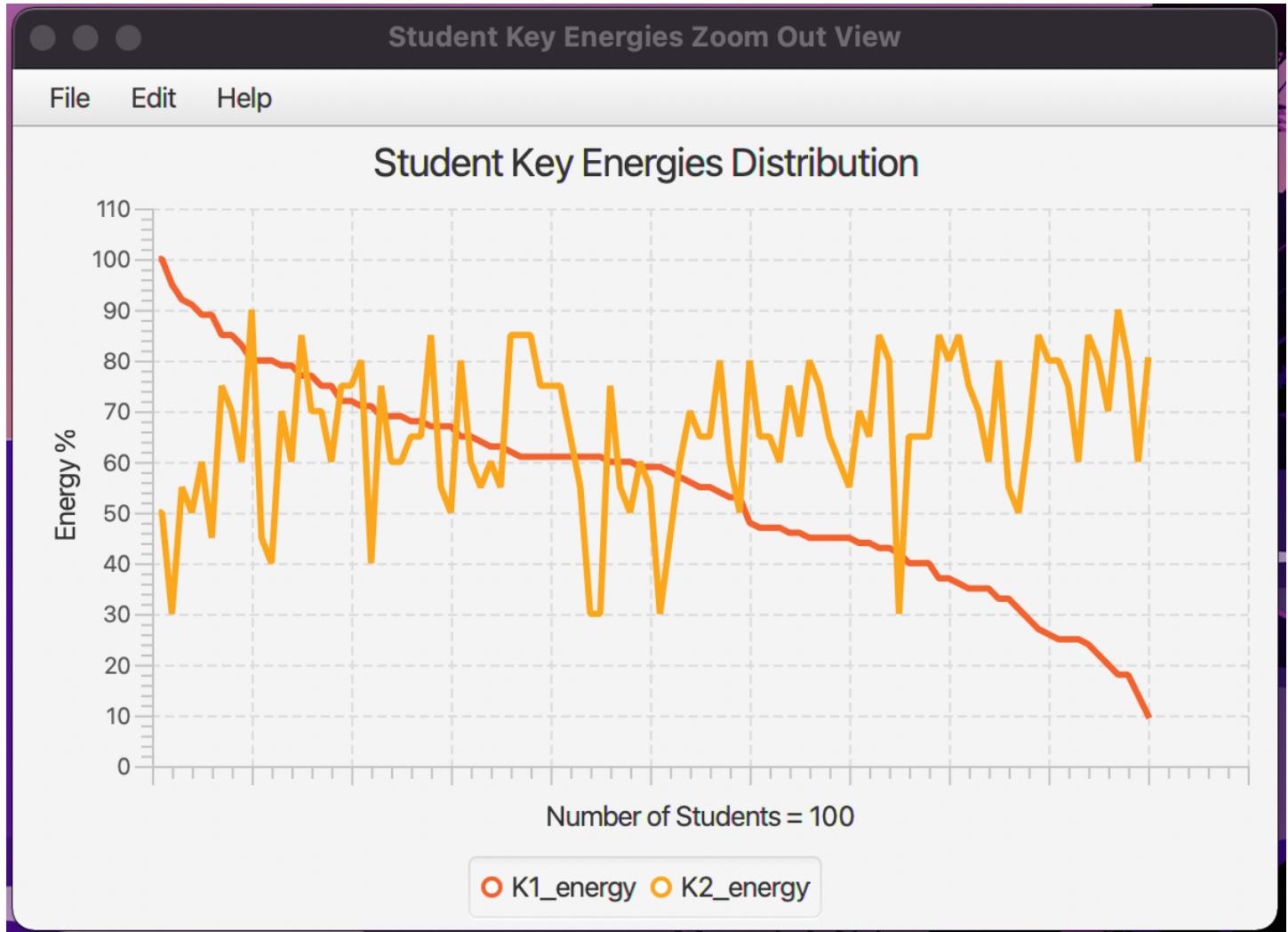
2. Invalid student name or ID



3. Duplicated student name



Student Key Energies Zoom out View (press the button after a .csv file is loaded):



Modified Use Case Specifications

Administrative Use Case Specification 1 (Updated)

| | |
|----------------------|---|
| Use case | User validation |
| Brief description | This use case identifies the user's privilege, and decide rather the system should display the buttons for performing extra actions. |
| Participating actors | TeachingTeamMember, Student |
| Preconditions | The system has a pre-defined passcode. |
| Flow of events | <p>Basic flow:</p> <ol style="list-style-type: none">1. The use case begins when the user get onto the system.2. The system creates a pop-up window that allows the users to select a user-level.3. The system listens to the user input.4. {Select User-level}5. The use case ends. <p>Alternative flow:</p> <p>A1. "Student" user-level selected. At {Select User-level} if the "Student" user-level is selected, 1. The system recognizes the user as a non-Teaching Team Member and hides the buttons for performing the extra actions which include read-chart, upload csv. file, and run algorithm. 2. The use case ends.</p> <p>A2. "TA" user-level selected. At {Select User-level} if the "TA" user-level is selected, 1. {Enter passcode} 2. The system Creates a pop-up window that allows the users to enter a password. 3. The system listens to the user input. 4. {Process passcode} 5. The use case ends.</p> <p>A3. Correct passcode At {Process passcode} if the user input is equal to the predefined passcode, 1. The system recognizes the user as a Teaching Team Member and shows the buttons for performing the extra actions which include read-chart, upload csv. file, and run algorithm. 2. The use case ends.</p> <p>A4. Incorrect passcode At {Process passcode} if the user input is not equal to the predefined passcode, 1. The system creates a pop-up window to inform the user that the passcode is incorrect. 2. The flow of events is resumed at {Enter passcode}.</p> |
| Postcondition | if selected the "TA" user-level and entered the passcode correctly, the system shows the buttons for performing the extra actions, else if selected the "Student" user-level, the system hides the buttons for performing the extra actions. |

miro

INPUT Use Case Specification 1 (**Updated**)

| | |
|----------------------|---|
| Use case | Upload student information. |
| Brief description | The system receives the csv. file containing all the student's information. Then it structures the data. |
| Participating actors | Teaching Team Member |
| Preconditions | <p>The system shows the corresponding button for this action.</p> <p>The data in csv. has all the student information.</p> <p>The input data is in the correct format.</p> |
| Flow of events | <p>Basic flow:</p> <ol style="list-style-type: none"> 1. The use case begins when the UPLOAD button is pressed. 2. The system retrieves the user entered csv. file's path relative to the project's root folder + file name from the corresponding text field. {Find csv. file in user specified directory} 3. The system loads the csv. file from the given path. 4. The system receives the student information. 5. The system represents each student information with a self-defined data structure and puts all the records in a container. 6. The system responds with a pop-up window showing all the students information stored in the system, count of the number of student and K3_ticks, and min/max/mean of the overall K1 and K2 Energy. 7. The use case ends. <p>Alternative flow:</p> <p>A1. Incorrect directory</p> <p>At {Find csv. file in user specified directory} if there does not exist a csv. file with the inputted file name.</p> <ol style="list-style-type: none"> 1. The system displays error message to tell the user type again. 2. The use case ends. |
| Postconditions | The correct csv. file is uploaded and each of the student information is correctly stored in an internal data structure. |

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