

GITHUB LINK:

<https://github.com/kaile777/CS2910/tree/main/LAB%201>

FEATURES SCREENSHOTS BELOW

2. Sorted list of students by last name

```
FileProcessing.py  Main.py  Student.py  courses.csv  students.csv  grades.csv  courses.csv
```

```
def main():  
    while True:  
        try:  
            sID = int(input("Enter Student ID: "))  
            break  
        except:  
            print("Invalid Input!")  
  
    found = False  
    for student in s_list:  
        if student.studentID == sID:  
            Student.updateStudent(student, s_file, g_file)  
            found = True  
  
    if found == False:  
        print("Student not found!")  
  
    stay_6 = exit()  
  
    elif option == 7:  
        stay_7 = True
```

```
students.csv  
1 1;SMITHHH;HANNAH;43745678123;a_smith@gmail.com  
2 2;Smith;Jane;4374567812;j_smith@gmail.com  
3 3;JONES;KATIE;7805120795;katiejones@gmail.com  
4 4;MACKENZIE;PEYTON;7805162446;peytondawmackenzie@gmail.com  
5 5;KRIE;SHAYMUS;13124124;shaybow@gmail.com  
6 6;JONES;BOB;7806666666;aefefwefwefue  
7 7;WHITE;CHAD;8098123123;chad@chad.com  
8 8;ALAF;1232341241;7809876541;akdfjsifghioushf  
9 9;B;SHANE;1234567;hsdfkjsdvjksdv  
10
```

```
grades.csv  
1 1;SMITHHH;HANNAH;51;77;52;na;na;na;na;na;na  
2 2;Smith;Jane;32;na;90;na;na;na;na;na;na  
3 3;JONES;KATIE;66;97;82;na;na;na;na;na;na  
4 4;MACKENZIE;PEYTON;88;na;92;na;99;na;na;na;na  
5 5;KRIE;SHAYMUS;50;na;na;4;na;77;na;na;na;na  
6 6;JONES;BOB;na;na;77;na;na;na;na;na;na  
7 7;WHITE;CHAD;na;na;na;na;na;na;na;na;na  
8 8;ALAF;1232341241;45;na;na;na;na;na;na;na;na  
9 9;B;SHANE;na;na;na;na;na;na;na;na;na  
10
```

```
courses.csv  
1 CS2028;winter;1  
2 CS2040;fall;2  
3 CS2910;winter;3  
4 CS3010;fall;4  
5 PH1250;winter;5  
6 MA1200;winter;6  
7 PE1111;winter;7  
8 AM1234;fall;8  
9 HH1234;fall;9  
10
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  COMMENTS
```

```
Exit (Y/N):
```

ID	LAST NAME	FIRST NAME	PHONE	EMAIL
8	ALAF	1232341241	7809876541	akdfjsifghioushf
9	B	SHANE	1234567	hsdfkjsdvjksdv
6	JONES	BOB	7806666666	aefefwefwefue
3	JONES	KATIE	7805120795	katiejones@gmail.com
5	KRIE	SHAYMUS	13124124	shaybow@gmail.com
4	MACKENZIE	PEYTON	7805162446	peytondawmackenzie@gmail.com
2	SMITH	JANE	4374567812	j_smith@gmail.com
1	SMITHHH	HANNAH	43745678123	a_smith@gmail.com
7	WHITE	CHAD	8098123123	chad@chad.com

3. Output courses unsorted

The screenshot shows a Python IDE with three files: `Main.py`, `students.csv`, and `courses.csv`. The `Main.py` file contains a `main` function that prompts the user to enter a student ID and updates the student's information in the `students.csv` file. The `students.csv` file contains a list of students with their IDs, names, and email addresses. The `courses.csv` file contains a list of courses with their IDs, names, and semesters. The output window shows the results of the program, displaying the updated student information and the list of courses.

```
def main():
    print("Update Student Information:\n")
    while True:
        try:
            sID = int(input("Enter Student ID: "))
            break
        except:
            print("Invalid Input!")

    found = False
    for student in s_list:
        if student.studentID == sID:
            Student.updateStudent(student, s_file, g_file)
            found = True

    if found == False:
        print("Student not found!")

    stay_6 = exit()

    elif option == 7:
        stay_7 = True
```

```
1 SMITHHH;HANNAH;4376902123;a_smith@gmail.com
2 Smith;Jane;4374567812;j_smith@gmail.com
3 JONES;KATIE;7805120795;kallejones@gmail.com
4 MACKENZIE;PEYTON;7805162446;peytondawnmackenzie@gmail.com
5 KRIE;SHAYMUS;13124124;shaybow@gmail.com
6 JONES;BOB;7806666666;aefefwefwefue
7 WHITE;CHAD;8090123123;chad@chad.com
8 ALAFA;1232341241;7809876541;akdfjsigfhiushf
9 B;SHANE;1234567;hsdfkjsdvjksdv
```

```
1 CS2020;winter;1
2 CS2040;fall;2
3 CS2910;winter;3
4 CS3010;fall;4
5 PH1250;WINTER;5
6 MA1200;WINTER;6
7 PE1111;WINTER;7
8 AM1234;FALL;8
9 HH1234;FALL;9
```

CS2020, WINTER, 1
CS2040, FALL, 2
CS2910, WINTER, 3
CS3010, FALL, 4
PH1250, WINTER, 5
MA1200, WINTER, 6
PE1111, WINTER, 7
AM1234, FALL, 8
HH1234, FALL, 9
Exit (Y/N):

4. Output courses sorted by name

```
FileProcessing.py  Main.py  Student.py  courses.csv  students.csv  grades.csv  courses.csv

Main.py > main
def main():
    print("Update Student Information:\n")

    while True:
        try:
            sID = int(input("Enter Student ID: "))
            break
        except:
            print("Invalid Input!")

    found = False
    for student in s_list:
        if student.studentID == sID:
            Student.updateStudent(student, s_file, g_file)
            found = True

    if found == False:
        print("Student not found!")

    stay_6 = exit()

elif option == 7:
    stay_7 = True

AM1234, FALL, 8
CS3010, FALL, 4
CS2910, WINTER, 3
CS2040, FALL, 2
CS2020, WINTER, 1
HH1234, FALL, 9
MA1200, WINTER, 6
PE1111, WINTER, 7
PH1250, WINTER, 5
Exit (Y/N):
```

5. Output courses sorted by name and semester

```
FileProcessing.py  Main.py  Student.py  courses.csv  students.csv  grades.csv  courses.csv

Main.py > main
def main():
    print("Update Student Information:\n")

    while True:
        try:
            sID = int(input("Enter Student ID: "))
            break
        except:
            print("Invalid Input!")

    found = False
    for student in s_list:
        if student.studentID == sID:
            Student.updateStudent(student, s_file, g_file)
            found = True

    if found == False:
        print("Student not found!")

    stay_6 = exit()

elif option == 7:
    stay_7 = True

Enter semester (fall or winter): winter
CS2910, WINTER, 3
CS2020, WINTER, 1
MA1200, WINTER, 6
PE1111, WINTER, 7
PH1250, WINTER, 5
Exit (Y/N):
```

6. Add student

```
FileProcessing.py Main.py Student.py courses.csv students.csv M X
Main.py > main
def main():
    print("Update Student Information:\n")
    while True:
        try:
            sID = int(input("Enter Student ID: "))
            break
        except:
            print("Invalid Input!")
    found = False
    for student in s_list:
        if student.studentID == sID:
            Student.updateStudent(student, s_file, g_file)
            found = True
    if found == False:
        print("Student not found!")
    stay_6 = exit()
    elif option == 7:
        stay_7 = True
```

```
students.csv > data
1 1;SMITH;H;HANNAH;4376902123;a_smith@gmail.com
2 2;Smith;Jane;4374567812;j_smith@gmail.com
3 3;JONES;KAILIE;7805120795;kailiejones@gmail.com
4 4;MACKENZIE;PEYTON;7805162446;peytondawnmackenzie@gmail.com
5 5;KRIE;SHAYMUS;13124124;shaybow@gmail.com
6 6;JONES;BOB;7806666666;aefefwefwefue
7 7;WHITE;CHAD;8098123123;chad@chad.com
8 8;ALAPA;1232341241;7809876541;akdfjsigfhloushf
9 9;B;SHANE;1234567;hsdfkjsdvjksdv
10 10;MACKENZIE;HANNAH;7806198265;hannahmackenzie@gmail.com
```

```
grades.csv > data
1 1;SMITH;H;HANNAH;51;77;52;na;na;na;na;na;na;na
2 2;Smith;Jane;32;na;90;na;66;na;na;na;na;na;na
3 3;JONES;KAILIE;66;97;82;na;77;na;na;na;na;na;na
4 4;MACKENZIE;PEYTON;88;na;92;na;99;na;na;na;na;na;na
5 5;KRIE;SHAYMUS;50;na;na;na;na;77;na;na;na;na;na;na
6 6;JONES;BOB;na;na;na;77;na;na;na;na;na;na;na;na
7 7;WHITE;CHAD;na;na;na;na;na;na;na;na;na;na;na;na
8 8;ALAPA;1232341241;45;na;na;na;na;na;na;na;na;na;na;na
9 9;B;SHANE;na;na;na;na;na;na;na;na;na;na;na;na
10 10;MACKENZIE;HANNAH;na;na;na;na;na;na;na;na;na;na;na;na
```

```
courses.csv > data
1 CS2020;winter;1
2 CS2040;fall;2
3 CS2910;winter;3
4 CS3010;FALL;4
5 PH1250;WINTER;5
6 MA1200;WINTER;6
7 PE1111;WINTER;7
8 AM1234;FALL;8
9 HH1234;FALL;9
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
Add Student:
Enter first name : hannah
Enter last name : mackenzie
Enter phone number : 7806198265
Enter email : hannahmackenzie@gmail.com
Exit (Y/N):
```

7. Add course

```
FileProcessing.py Main.py Student.py courses.csv M X students.csv X
Main.py > main
def main():
    print("Update Student Information:\n")
    while True:
        try:
            sID = int(input("Enter Student ID: "))
            break
        except:
            print("Invalid Input!")
    found = False
    for student in s_list:
        if student.studentID == sID:
            Student.updateStudent(student, s_file, g_file)
            found = True
    if found == False:
        print("Student not found!")
    stay_6 = exit()
    elif option == 7:
        stay_7 = True
```

```
students.csv > data
1 1;SMITH;H;HANNAH;4376902123;a_smith@gmail.com
2 2;Smith;Jane;4374567812;j_smith@gmail.com
3 3;JONES;KAILIE;7805120795;kailiejones@gmail.com
4 4;MACKENZIE;PEYTON;7805162446;peytondawnmackenzie@gmail.com
5 5;KRIE;SHAYMUS;13124124;shaybow@gmail.com
6 6;JONES;BOB;7806666666;aefefwefwefue
7 7;WHITE;CHAD;8098123123;chad@chad.com
8 8;ALAPA;1232341241;7809876541;akdfjsigfhloushf
9 9;B;SHANE;1234567;hsdfkjsdvjksdv
10 10;MACKENZIE;HANNAH;7806198265;hannahmackenzie@gmail.com
```

```
grades.csv > data
1 1;SMITH;H;HANNAH;51;77;52;na;na;na;na;na;na;na
2 2;Smith;Jane;32;na;90;na;66;na;na;na;na;na;na
3 3;JONES;KAILIE;66;97;82;na;77;na;na;na;na;na;na
4 4;MACKENZIE;PEYTON;88;na;92;na;99;na;na;na;na;na;na
5 5;KRIE;SHAYMUS;50;na;na;na;na;77;na;na;na;na;na;na
6 6;JONES;BOB;na;na;na;77;na;na;na;na;na;na;na;na
7 7;WHITE;CHAD;na;na;na;na;na;na;na;na;na;na;na;na
8 8;ALAPA;1232341241;45;na;na;na;na;na;na;na;na;na;na;na
9 9;B;SHANE;na;na;na;na;na;na;na;na;na;na;na;na
10 10;MACKENZIE;HANNAH;na;na;na;na;na;na;na;na;na;na;na;na
```

```
courses.csv > data
1 CS2020;winter;1
2 CS2040;fall;2
3 CS2910;winter;3
4 CS3010;FALL;4
5 PH1250;WINTER;5
6 MA1200;WINTER;6
7 PE1111;WINTER;7
8 AM1234;FALL;8
9 HH1234;FALL;9
10 PH7890;FALL;10
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
Add Course:
Enter name of course : PH7890
Enter course semester (Fall or Winter) : fall
Course added:
PH7890, FALL, 10
Exit (Y/N):
```

10. Search course by name

12. Search student by last name

```
FileProcessing.py | Main.py | Student.py | courses.csv | students.csv | grades.csv | courses.csv
Main.py > main
20 def main():
21     os.system('cls')
22     print("Update Student Information:\n")
23     while True:
24         try:
25             sID = int(input("Enter Student ID: "))
26             break
27         except:
28             print("Invalid Input!")
29
30     found = False
31     for student in s_list:
32         if student.studentID == sID:
33             Student.updateStudent(student, s_file, g_file)
34             found = True
35
36     if found == False:
37         print("Student not found!")
38
39     stay_6 = exit()
40
41 elif option == 7:
42     stay_7 = True
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14. Display list of courses taken by student

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FileProcessing.py  Main.py X Student.py  courses.csv  ...  ...  ...
Main.py > main
20 :
436
459     match = False
460     for student in s_list:
461         last4digits = str(student.phoneNum)
462         last4digits = last4digits[-4:]
463         if last4digits == number[-4:]:
464             os.system('cls')
465             print("\n", student, "\n")
466             match = True
467         if match == False:
468             number = number[-4:]
469             print(f"Student with phone # ending with: {number}, not found")
470     elif option == 3:
471         stay_8 = False
472         os.system('cls')
473     else:
474         print("Invalid Input!")
475
476     stay_8 = exit()
477
478 if option == 9:
479     stay_9 = True
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481 while stay_9 == True:
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15. List courses and grades of student

The screenshot shows a VS Code editor with a Python script in the main editor and its output in the terminal. The script processes two CSV files: 'students.csv' and 'grades.csv'. It reads the data, processes it, and prints the results. The output in the terminal shows a list of student names and their grades for various courses.

```

FileProcessing.py x Main.py x Student.py courses.csv x students.csv x data
Main.py > main
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```

16. Calculate avg grade for student (enters last name)

The screenshot displays the PyCharm IDE interface with the following components:

- File Explorer (Top Left):** Shows the project structure with files: `FileProcessing.py`, `Main.py`, `Student.py`, `courses.csv`, `students.csv`, `grades.csv`, and `courses.csv`.
- Main.py (Left Panel):** Contains a Python script that processes student data. It reads `students.csv` and `grades.csv`, and writes the results to `courses.csv`. The script includes a `match` variable to track student matches and a `while` loop to process the data.
- Terminal (Bottom Left):** Shows the output of the script, including the message "Invalid Input!" and the final output of the `while` loop.
- students.csv (Top Right):** A CSV file containing student information:

id	name	email
1	SMITH;H;HANNAH	4376902123;a_smith@gmail.com
2	Smith;Jane	4374567812;j_smith@gmail.com
3	JONES;KATIE	7805120795;kaillejones@gmail.com
4	MACKENZIE;PEYTON	7805162446;peytondamackenzie@gmail.com
5	KRIEVALDT;SHAYMUS	13124124;shaybow@gmail.com
6	JONES;BOB	7806660666;aefefwefwefwef
7	WHITE;CHAD	8098123123;chad@cad.com
8	ALAF;1232341241	7809876541;akdfjslghfoushf
9	B;SHANE	1234567;hsdfkjsdvsdvsd
10	MACKENZIE;HANNAH	7806198265;hannahmackenzie@gmail.com
- grades.csv (Middle Right):** A CSV file containing student grades:

id	name	grade
1	SMITH;H;HANNAH	51;77;52;na;66;na;na;na;na;na;na
2	Smith;Jane	32;na;90;na;66;na;na;na;na;na;na
3	JONES;KATIE	66;97;82;na;77;na;na;na;na;na;na
4	MACKENZIE;PEYTON	88;na;92;na;99;na;na;na;na;na;na
5	KRIEVALDT;SHAYMUS	50;na;na;4;na;77;na;na;na;na;na
6	JONES;BOB	77;na;na;na;na;na;na;na;na;na
7	WHITE;CHAD	na;na;na;na;na;na;na;na;na;na
8	ALAF;1232341241	45;na;na;na;na;na;na;na;na;na
9	B;SHANE	na;na;na;na;na;na;na;na;na
10	MACKENZIE;HANNAH	na;na;na;na;na;na;na;na;na
- courses.csv (Bottom Right):** A CSV file containing student course information:

id	name	course
1	CS2020	WINTER;1
2	CS2040	FALL;2
3	CS2910	WINTER;3
4	CS3010	FALL;4
5	PH1250	WINTER;5
6	MA1200	WINTER;6
7	PE1111	WINTER;7
8	AM1234	FALL;8
9	HH1234	FALL;9
10	PH7890	FALL;10

```
View Student Averages

Enter Student Last Name: kriewaldt

1. Display total average
2. Display semester average
3. Exit

-> 1
Total Average: 43%
Exit (Y/N):
```

17. Calculate the avg grade for a student (enters last name and semester)

```
FileProcessing.py Main.py M Student.py courses.csv students.csv M X
Main.py > main
20 :
458 :
459     match = False
460     for student in s_list:
461         last4digits = str(student.phoneNum)
462         last4digits = last4digits[-4:]
463         if last4digits == number[-4:]:
464             os.system('cls')
465             print("\n",student,"\n")
466             match = True
467         if match == False:
468             number = number[-4:]
469             print(f"Student with phone # ending with: {number}, not found")
470     elif option == 3:
471         stay_8 = False
472         os.system('cls')
473     else:
474         print("Invalid Input!")
475     stay_8 = exit()
476
477 if option == 9:
478     stay_9 = True
479
480 while stay_9 == True:
481     ---
482
483 View Student Averages
484 Enter Student Last Name: mackenzie
485 Duplicate last names found!
486
487 4 MACKENZIE, PEYTON
488 10 MACKENZIE, HANNAH
489 Please Enter Student ID: 4
490
491 1. Display total average
492 2. Display semester average
493 3. Exit
494
495 -> 2
496 Enter Semester: fall
```

```
FileProcessing.py Main.py M Student.py courses.csv students.csv M X
Main.py > main
527 :
528     # display student average
529     for grade in student.grades:
530         if grade.grade_val != "na":
531             courseCount += 1
532             total += int(grade.grade_val)
533     elif option == 2:
534         # display term average
535
536     while True:
537         try:
538             sem = input("Enter Semester: ").upper()
539             if sem != "FALL" and sem != "WINTER":
540                 raise Exception()
541             break
542         except:
543             print("Invalid Input")
544
545     for grade in student.grades:
546         if grade.grade_val != "na" and grade.course.semester == sem:
547             courseCount += 1
548             total += int(grade.grade_val)
549     elif option == 3:
550         break
551
552 View Student Averages
553 Enter Student Last Name: Jones
554 Duplicate last names found!
555
556 3 JONES, KAILE
557 6 JONES, BOB
558 Please Enter Student ID: 3
559
560 1. Display total average
561 2. Display semester average
562 3. Exit
563
564 -> 2
565 Enter Semester: fall
566 Total Average: 97%
567 Exit (Y/N):
```

18. Calculate avg grade for course (enters course name)

```
FileProcessing.py Main.py X Student.py courses.csv students.csv X
Main.py > main
20 :
527 if option == 1:
528     # display student average
529     for grade in student.grades:
530         if grade.grade_val != "na":
531             courseCount += 1
532             total += int(grade.grade_val)
533 elif option == 2:
534     # display term average
535
536     while True:
537         try:
538             sem = input("Enter Semester: ").upper()
539             if sem != "FALL" and sem != "WINTER":
540                 raise Exception()
541             break
542         except:
543             print("Invalid Input")
544
545     for grade in student.grades:
546         if grade.grade_val != "na" and grade.course.semester == sem:
547             courseCount += 1
548             total += int(grade.grade_val)
549     elif option == 3:
550         break

students.csv > data
1 1;SMITH;HANNAH;4376902123;a_smith@gmail.com
2 2;Smith;Jane;4374567812;j_smith@gmail.com
3 3;JONES;KATIE;7805120795;katiejones@gmail.com
4 4;MACKENZIE;PEYTON;7805162446;peytondamnmackenzie@gmail.com
5 5;KRIEWALDT;SHAYMUS;13124124;shaybow@gmail.com
6 6;JONES;BOB;7806666666;aefefuefuefue
7 7;WHITE;CHAD;8098123123;chad@chad.com
8 8;ALAF;1232341241;7809876541;akdfjsigfhioushf
9 9;B;SHANE;1234567;hsdfkjsdvjksdv
10 10;MACKENZIE;HANNAH;7806198265;hannahmackenzie@gmail.com
11

grades.csv X courses.csv X
grades.csv > data
1 1;SMITH;HANNAH;51;77;52;na;66;na;na;na;na;na
2 2;Smith;Jane;32;na;90;na;66;na;na;na;na;na
3 3;JONES;KATIE;66;97;82;na;77;na;na;na;na;na
4 4;MACKENZIE;PEYTON;88;na;92;na;99;na;na;na;na;na
5 5;KRIEWALDT;SHAYMUS;50;na;na;4;na;77;na;na;na;na;na
6 6;JONES;BOB;na;na;77;na;na;na;na;na;na;na;na
7 7;WHITE;CHAD;na;na;na;na;na;na;na;na;na;na;na
8 8;ALAF;1232341241;45;na;na;na;na;na;na;na;na;na
9 9;B;SHANE;na;na;na;na;na;na;na;na;na;na;na
10 10;MACKENZIE;HANNAH;na;na;na;na;na;na;na;na;na;na;na
11

courses.csv > data
1 CS2020;winter;1
2 CS2040;fall;2
3 CS2010;winter;3
4 CS3010;FALL;4
5 PH1250;WINTER;5
6 MA1200;WINTER;6
7 PE1111;WINTER;7
8 AM1234;FALL;8
9 HH1234;FALL;9
10 PH7890;FALL;10
11

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
Seach Course Average (%)
Enter Course Name: cs2020
Term Average for CS2020: 55%
Exit (Y/N):
```