



**BIRZEIT UNIVERSITY**

**Faculty of Engineering and Technology Electrical and  
Computer Engineering Department**

**Linux Laboratory**

**ENCS3130**

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**PROJECT #1 – Shell Scripting**

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Section: 6

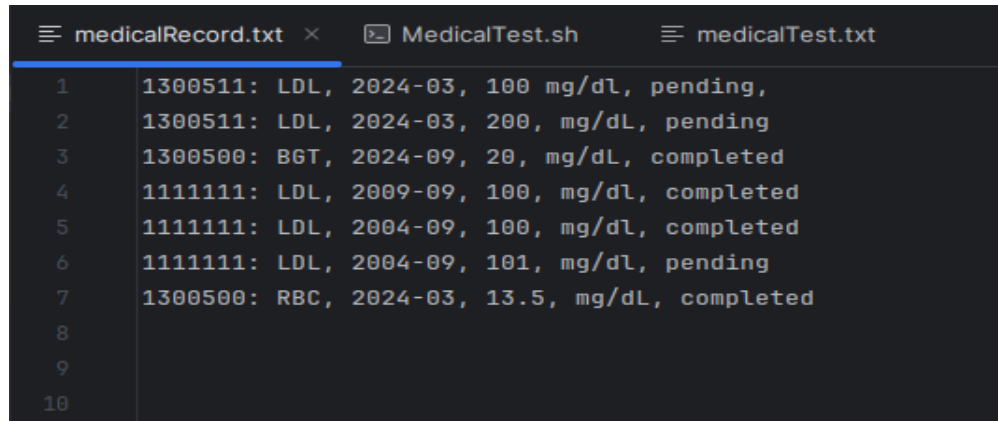
BIRZEIT

Date: 10<sup>th</sup>.August.2024

## PART #1: Sample Run

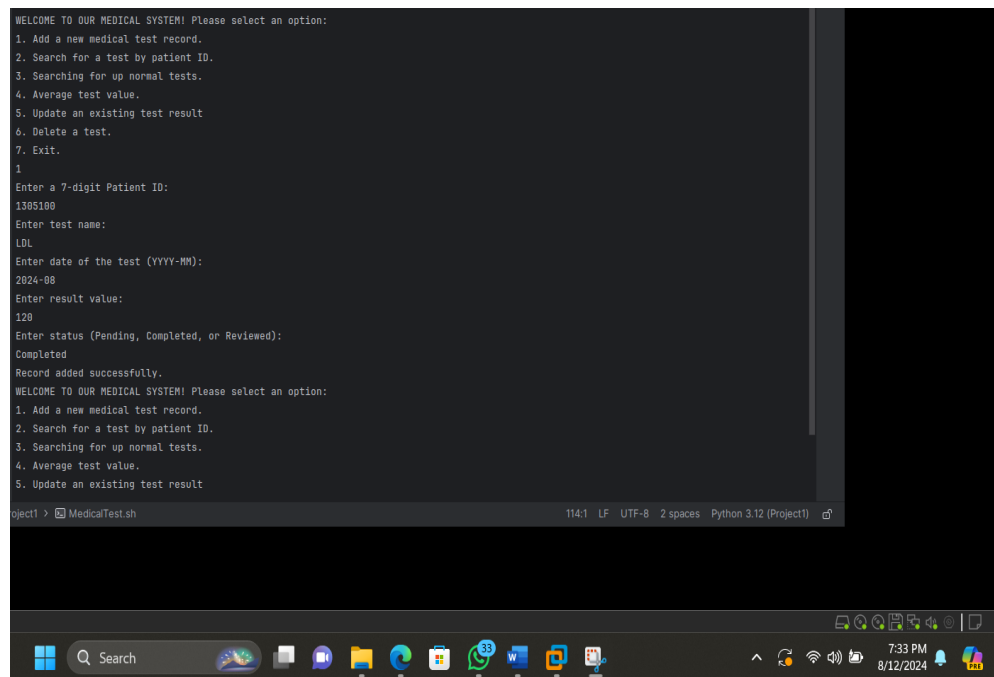
1. Add a new medical test record:

File before adding a record:



```
1 1300511: LDL, 2024-03, 100 mg/dL, pending,
2 1300511: LDL, 2024-03, 200, mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1111111: LDL, 2009-09, 100, mg/dL, completed
5 1111111: LDL, 2004-09, 100, mg/dL, completed
6 1111111: LDL, 2004-09, 101, mg/dL, pending
7 1300500: RBC, 2024-03, 13.5, mg/dL, completed
8
9
10
```

Adding a new record:



```
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
1
Enter a 7-digit Patient ID:
13005100
Enter test name:
LDL
Enter date of the test (YYYY-MM):
2024-08
Enter result value:
120
Enter status (Pending, Completed, or Reviewed):
Completed
Record added successfully.
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
```

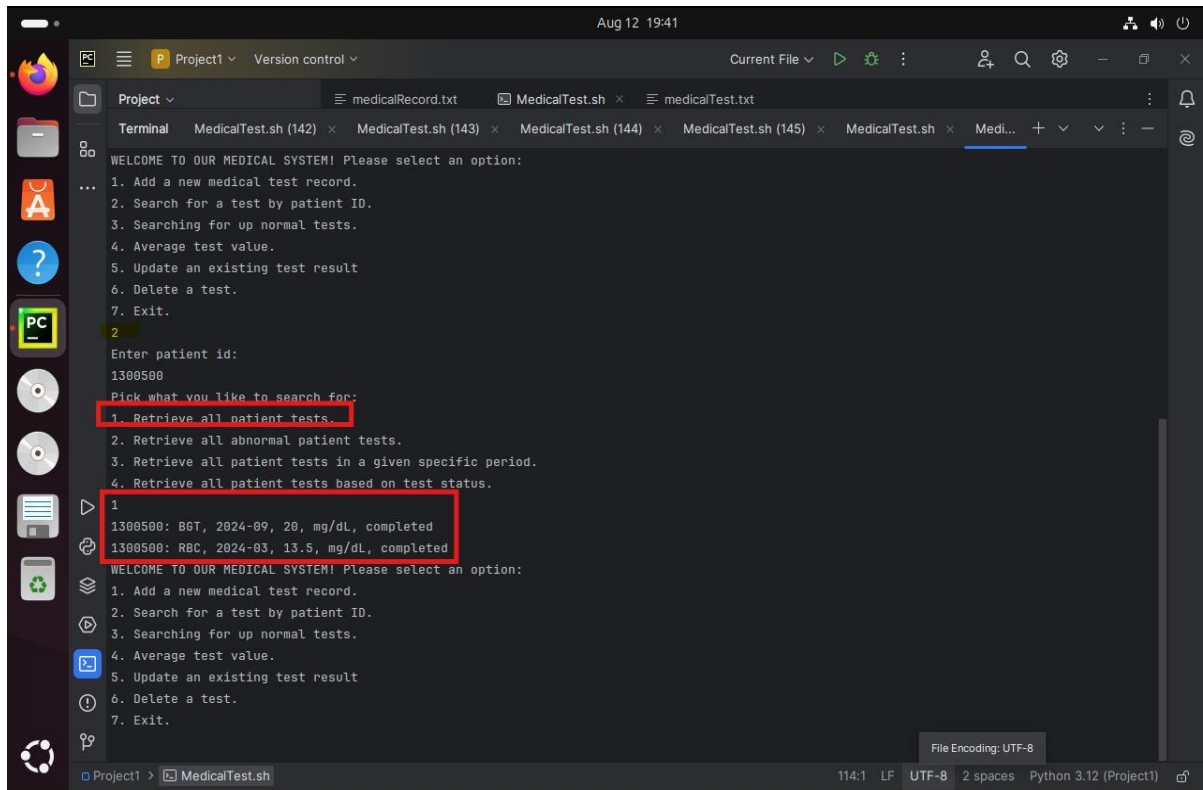
File after selecting option 1:

```
1 1300511: LDL, 2024-03, 100 mg/dL, pending,
2 1300511: LDL, 2024-03, 200, mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1111111: LDL, 2009-09, 100, mg/dL, completed
5 1111111: LDL, 2004-09, 100, mg/dL, completed
6 1111111: LDL, 2004-09, 101, mg/dL, pending
7 1300500: RBC, 2024-03, 13.5, mg/dL, completed
8 1305100: LDL, 2024-08, 120, mg/dL, Completed
9
10
11
12
13
14
15
16
17
18
```

2. Search for a test by Patient ID:
  - 2.1: Patient with Id 1300500 tests in the file

```
1 Retrieve all patient tests.
2 Retrieve all abnormal patient tests.
3 Retrieve all patient tests in a given specific period.
4 Retrieve all patient tests based on test status.
1
1300500: BGT, 2024-09, 20, mg/dL, completed
1300500: RBC, 2024-03, 13.5, mg/dL, completed
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
```

After searching for this id:



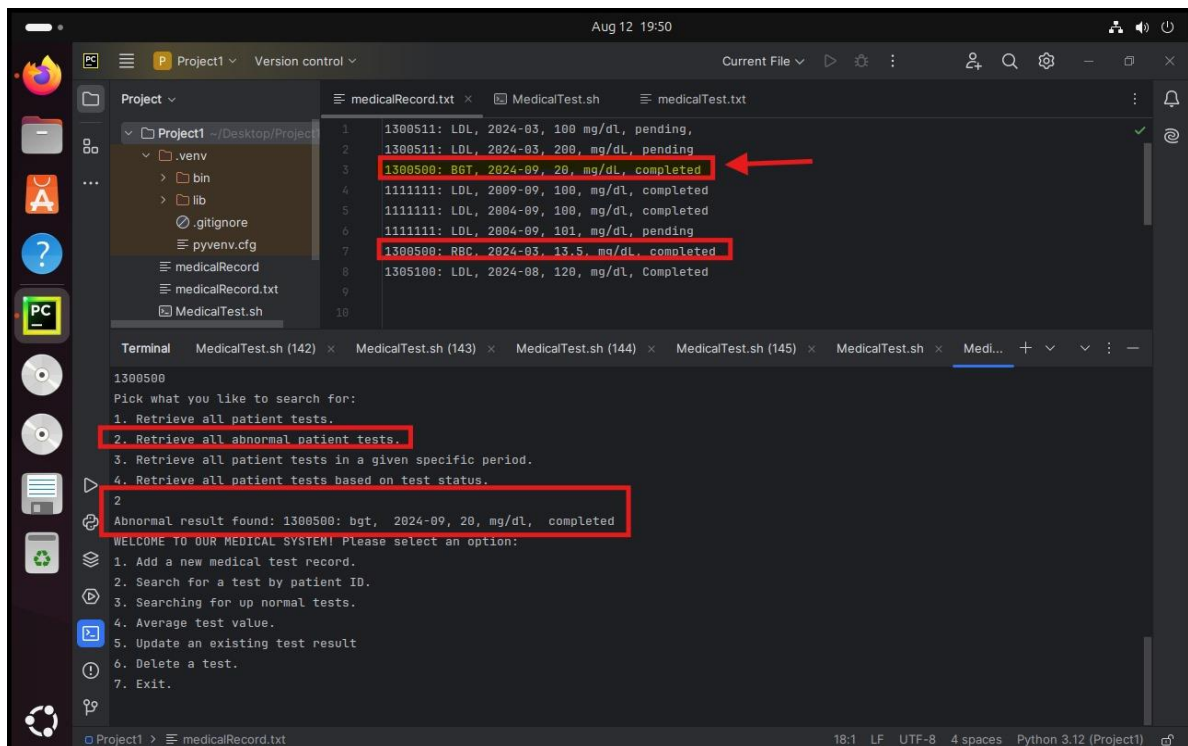
The screenshot shows a terminal window with a menu of options for a medical system. The user has entered the patient ID 1300500 and selected option 1, 'Retrieve all patient tests.' The search results are displayed as follows:

```
1300500: BGT, 2024-09, 20, mg/dL, completed
1300500: RBC, 2024-03, 13.5, mg/dL, completed
```

The menu options are:

1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.

2.2 up normal tests for the Patient :



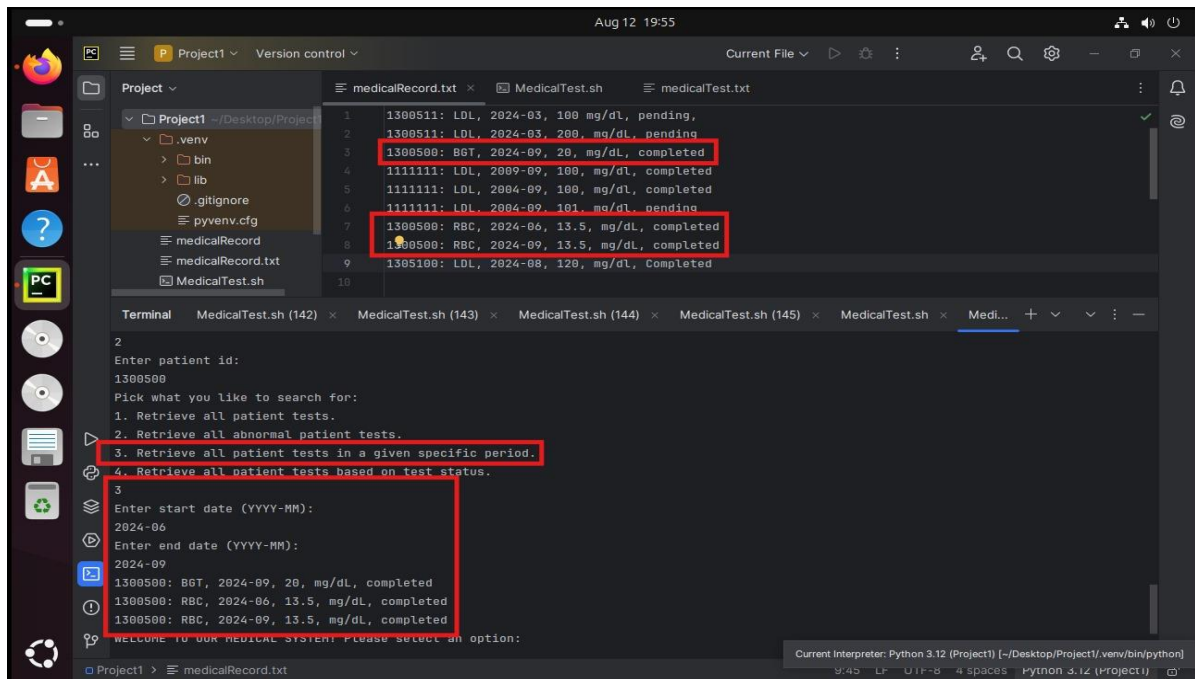
The screenshot shows the same terminal window as before, but with option 2, 'Retrieve all abnormal patient tests,' selected. The search results are displayed as follows:

```
1300511: LDL, 2024-03, 100 mg/dL, pending,
1300511: LDL, 2024-03, 200, mg/dL, pending
1300500: BGT, 2024-09, 20, mg/dL, completed
1111111: LDL, 2009-09, 100, mg/dL, completed
1111111: LDL, 2004-09, 100, mg/dL, completed
1111111: LDL, 2004-09, 101, mg/dL, pending
1300500: RBC, 2024-03, 13.5, mg/dL, completed
1305100: LDL, 2024-08, 120, mg/dL, Completed
```

The menu options are:

1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.

## 2.3 All Tests for specific period for the patient:



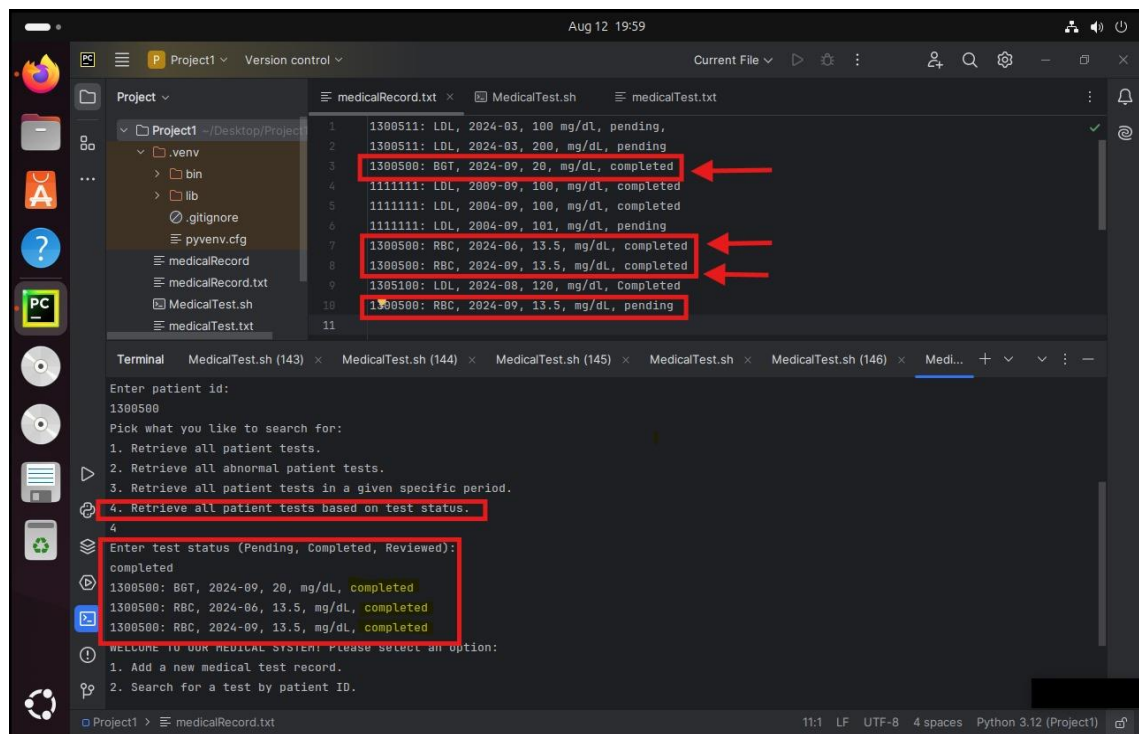
The screenshot shows a code editor with a file named `medicalRecord.txt` and a terminal window. The terminal displays the output of a script that filters tests by date range. The script prompts the user to enter a patient ID and a date range. The output shows tests for patient 1300500, filtered by the date range 2024-06 to 2024-09.

```
1 1300511: LDL, 2024-03, 100 mg/dL, pending,
2 1300511: LDL, 2024-03, 200 mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1111111: LDL, 2009-09, 100, mg/dL, completed
5 1111111: LDL, 2004-09, 100, mg/dL, completed
6 1111111: LDL, 2004-09, 101, mg/dL, pending
7 1300500: RBC, 2024-06, 13.5, mg/dL, completed
8 1300500: RBC, 2024-09, 13.5, mg/dL, completed
9 1305100: LDL, 2024-08, 120, mg/dL, Completed
```

Terminal output:

```
2
Enter patient id:
1300500
Pick what you like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
3
Enter start date (YYYY-MM):
2024-06
Enter end date (YYYY-MM):
2024-09
1300500: BGT, 2024-09, 20, mg/dL, completed
1300500: RBC, 2024-06, 13.5, mg/dL, completed
1300500: RBC, 2024-09, 13.5, mg/dL, completed
WELCOME TO OUR MEDICAL SYSTEM! PLEASE select an option:
```

## 2.4 All tests according to specific status for the patient :



The screenshot shows a code editor with a file named `medicalRecord.txt` and a terminal window. The terminal displays the output of a script that filters tests by status. The script prompts the user to enter a patient ID and a status. The output shows tests for patient 1300500, filtered by the status 'completed'.

```
1 1300511: LDL, 2024-03, 100 mg/dL, pending,
2 1300511: LDL, 2024-03, 200 mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1111111: LDL, 2009-09, 100, mg/dL, completed
5 1111111: LDL, 2004-09, 100, mg/dL, completed
6 1111111: LDL, 2004-09, 101, mg/dL, pending
7 1300500: RBC, 2024-06, 13.5, mg/dL, completed
8 1300500: RBC, 2024-09, 13.5, mg/dL, completed
9 1305100: LDL, 2024-08, 120, mg/dL, Completed
10 1300500: RBC, 2024-09, 13.5, mg/dL, pending
```

Terminal output:

```
Enter patient id:
1300500
Pick what you like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
4
Enter test status (Pending, Completed, Reviewed):
completed
1300500: BGT, 2024-09, 20, mg/dL, completed
1300500: RBC, 2024-06, 13.5, mg/dL, completed
1300500: RBC, 2024-09, 13.5, mg/dL, completed
WELCOME TO OUR MEDICAL SYSTEM! PLEASE select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
```

3. Searching for up normal tests: the system will retrieve all up normal patients' tests based on the input medical test.

```
Project1 --/Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   ├── medicalRecord.txt
│   ├── MedicalTest.sh
│   └── medicalTest.txt
└── External Libraries

Terminal MedicalTest.sh (215) × MedicalTest.sh (216) × MedicalTest.sh (217) × MedicalTest.sh (218) × MedicalTest.sh (219) × ...
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
3
Abnormal result found: 1300511: ldL, 2024-03, 200, mg/dL, pending
Abnormal result found: 1300500: bgt, 2024-09, 20, mg/dL, completed
Abnormal result found: 1111111: systole, 2004-09, 150, mmHg, pending
Abnormal result found: 1300500: diastole, 2024-09, 130, mmHg, pending
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
```

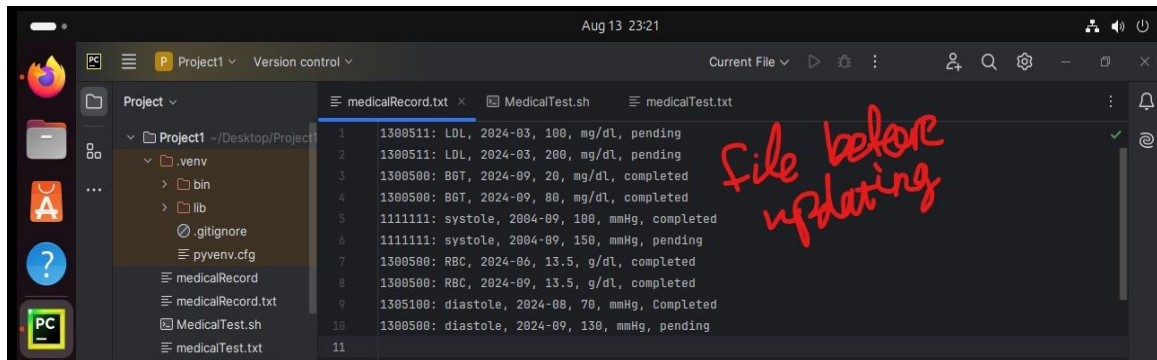
4. Average test value: the system will retrieve the average value of each medical test.

```
Project1 --/Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   ├── medicalRecord.txt
│   ├── MedicalTest.sh
│   └── medicalTest.txt
└── External Libraries

Terminal MedicalTest.sh (225) × MedicalTest.sh (226) × MedicalTest.sh (227) × MedicalTest.sh (228) × MedicalTest.sh (229) × ...
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
4
Average LDL test value = 150.00
Average RBC test value = 13.50
Average BGT test value = 50.00
Average diastole test value = 100.00
Average systole test value = 125.00
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
```

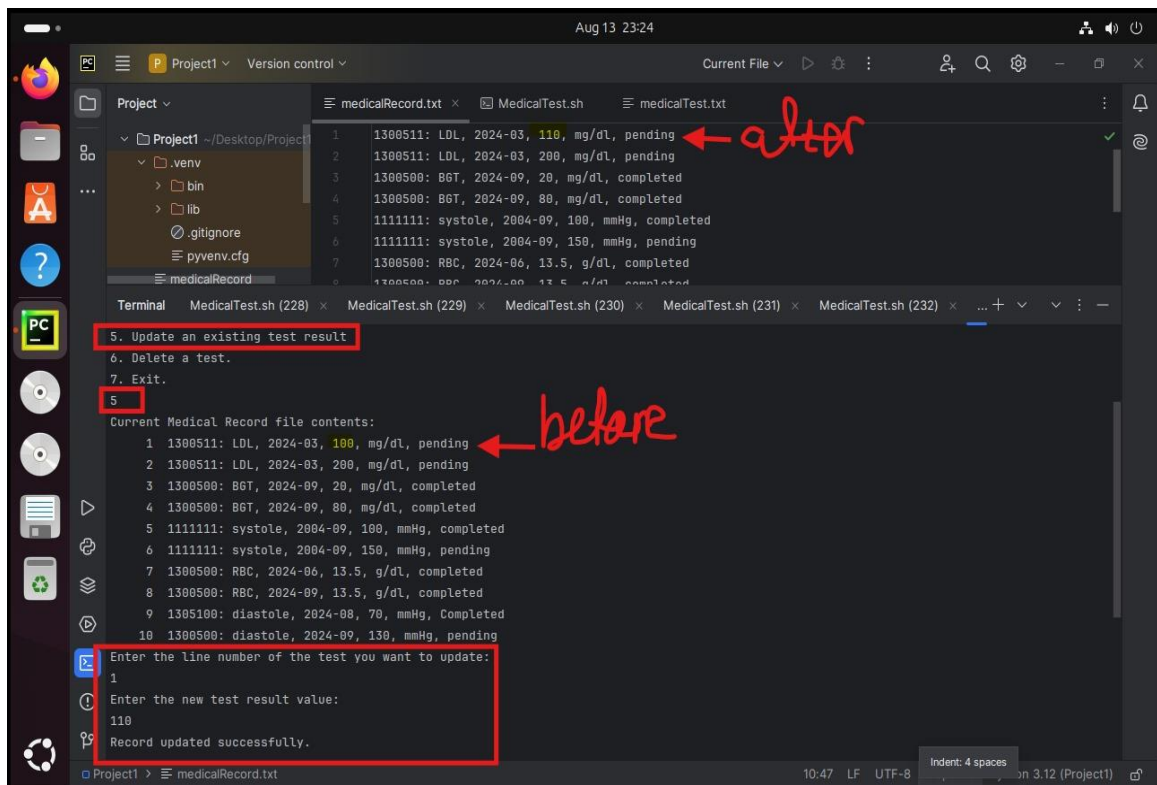


5. Update an existing test result.  
File before updating:



```
1 1300511: LDL, 2024-03, 100, mg/dL, pending
2 1300511: LDL, 2024-03, 200, mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1300500: BGT, 2024-09, 80, mg/dL, completed
5 1111111: systole, 2004-09, 100, mmHg, completed
6 1111111: systole, 2004-09, 150, mmHg, pending
7 1300500: RBC, 2024-06, 13.5, g/dL, completed
8 1300500: RBC, 2024-09, 13.5, g/dL, completed
9 1305100: diastole, 2024-08, 70, mmHg, Completed
10 1300500: diastole, 2024-09, 130, mmHg, pending
11
```

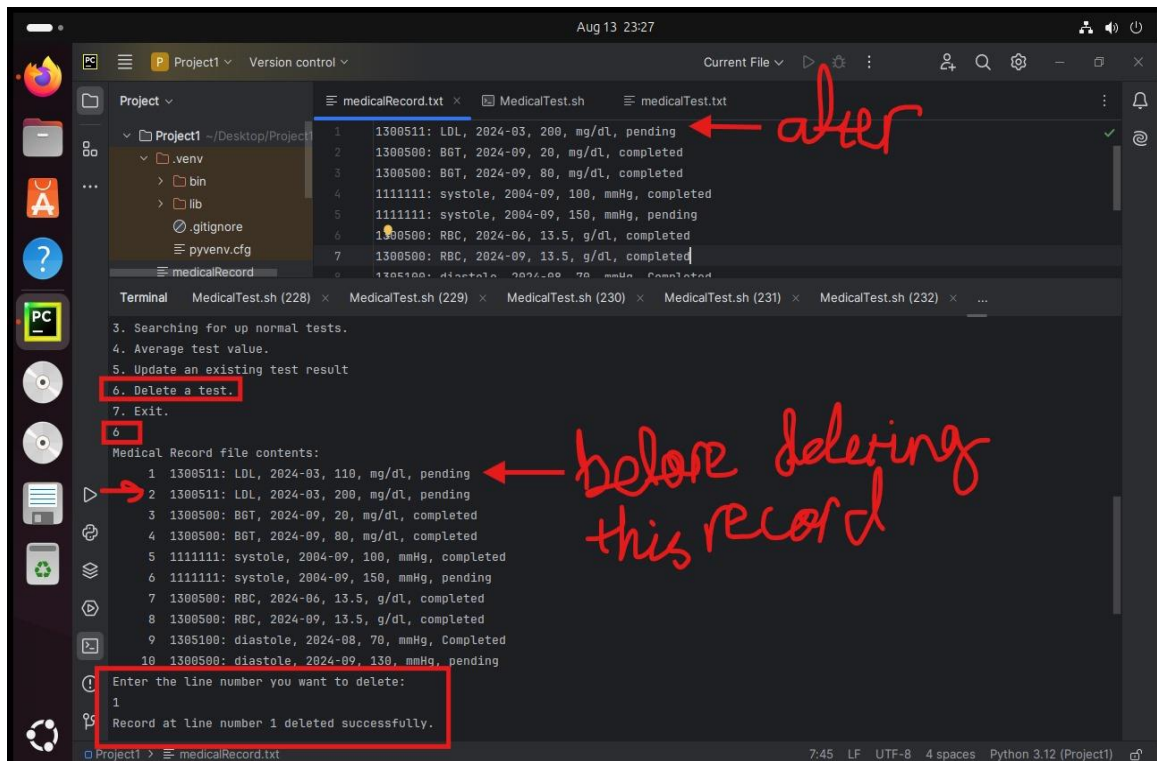
File after updating:



```
1 1300511: LDL, 2024-03, 100, mg/dL, pending
2 1300511: LDL, 2024-03, 200, mg/dL, pending
3 1300500: BGT, 2024-09, 20, mg/dL, completed
4 1300500: BGT, 2024-09, 80, mg/dL, completed
5 1111111: systole, 2004-09, 100, mmHg, completed
6 1111111: systole, 2004-09, 150, mmHg, pending
7 1300500: RBC, 2024-06, 13.5, g/dL, completed
8 1300500: RBC, 2024-09, 13.5, g/dL, completed
9 1305100: diastole, 2024-08, 70, mmHg, Completed
10 1300500: diastole, 2024-09, 130, mmHg, pending
11
```

5. Update an existing test result.  
6. Delete a test.  
7. Exit.  
5  
Current Medical Record file contents:  
1 1300511: LDL, 2024-03, 100, mg/dL, pending  
2 1300511: LDL, 2024-03, 200, mg/dL, pending  
3 1300500: BGT, 2024-09, 20, mg/dL, completed  
4 1300500: BGT, 2024-09, 80, mg/dL, completed  
5 1111111: systole, 2004-09, 100, mmHg, completed  
6 1111111: systole, 2004-09, 150, mmHg, pending  
7 1300500: RBC, 2024-06, 13.5, g/dL, completed  
8 1300500: RBC, 2024-09, 13.5, g/dL, completed  
9 1305100: diastole, 2024-08, 70, mmHg, Completed  
10 1300500: diastole, 2024-09, 130, mmHg, pending  
Enter the line number of the test you want to update:  
1  
Enter the new test result value:  
110  
Record updated successfully.

## 6. Delete an existing test result.



Aug 13 23:27

Project1 Version control

Current File

medicalRecord.txt

1 1300511: LDL, 2024-03, 200, mg/dl, pending

2 1300500: BGT, 2024-09, 20, mg/dl, completed

3 1300500: BGT, 2024-09, 80, mg/dl, completed

4 1111111: systole, 2004-09, 100, mmHg, completed

5 1111111: systole, 2004-09, 150, mmHg, pending

6 1300500: RBC, 2024-06, 13.5, g/dl, completed

7 1300500: RBC, 2024-09, 13.5, g/dl, completed

8 1305100: diastole, 2024-08, 70, mmHg, Completed

9 1305100: diastole, 2024-09, 130, mmHg, pending

10 1300500: diastole, 2024-09, 130, mmHg, pending

3. Searching for up normal tests.

4. Average test value.

5. Update an existing test result

6. Delete a test.

7. Exit.

6

Medical Record file contents:

1 1300511: LDL, 2024-03, 110, mg/dl, pending

2 1300511: LDL, 2024-03, 200, mg/dl, pending

3 1300500: BGT, 2024-09, 20, mg/dl, completed

4 1300500: BGT, 2024-09, 80, mg/dl, completed

5 1111111: systole, 2004-09, 100, mmHg, completed

6 1111111: systole, 2004-09, 150, mmHg, pending

7 1300500: RBC, 2024-06, 13.5, g/dl, completed

8 1300500: RBC, 2024-09, 13.5, g/dl, completed

9 1305100: diastole, 2024-08, 70, mmHg, Completed

10 1300500: diastole, 2024-09, 130, mmHg, pending

Enter the line number you want to delete:

1

Record at line number 1 deleted successfully.

Project1 > medicalRecord.txt

7:45 LF UTF-8 4 spaces Python 3.12 (Project1)



## PART #2: Tests for Invalid and edge Cases

1. Add a new medical test record:

### 1.1 Testing an invalid patient Id:

- Id digit less than 7.
- Contains a character.
- Contains a special character.
- Id digits more than 7

The image shows a Windows desktop environment with a Visual Studio Code (VS Code) editor open. The editor has a dark theme and displays a Python script named `MedicalTest.sh` in the `medicalRecord.txt` file. The script is a menu-driven program for a medical system. The terminal window at the bottom shows the execution of the script. The user has selected option 1, "Add a new medical test record," and is prompted to enter a 7-digit patient ID. The terminal shows several invalid inputs: "121", "121121", "1211512", and "12121212". Handwritten red notes explain the validation logic: "less than 7" for "121", "contains a char." and "contains special char." for "1211512", and "more than 7" for "12121212". The valid input "1210455" is accepted, and the user is prompted to enter a test name.

**VS Code Editor:**

- Project: `Project1` (~/Desktop/Project1)
- File Explorer: `Project1` (~/Desktop/Project1)
- Source Control: `Project1` (~/Desktop/Project1)
- Terminal: `MedicalTest.sh (231)`, `MedicalTest.sh (232)`, `MedicalTest.sh (233)`, `MedicalTest.sh`, `MedicalTest.sh`, `MedicalTest.sh`, `MedicalTest.sh`

**MedicalTest.sh Script:**

```
1 #Lane Musaffer || 1210455
2 #Mayar Masalmeh || 1211246
3
4 menu() {
5     echo "WELCOME TO OUR MEDICAL SYSTEM! Please select an option:"
6     echo "1. Add a new medical test record."
7     echo "2. Search for a test by patient ID."
8     echo "3. Searching for up normal tests."
```

**Terminal Output:**

```
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
1
Enter a 7-digit Patient ID:
121
Invalid Patient ID! Please enter a 7-digit Patient ID
121121
Invalid Patient ID! Please enter a 7-digit Patient ID
1211512
Invalid Patient ID! Please enter a 7-digit Patient ID
12121212
Invalid Patient ID! Please enter a 7-digit Patient ID
1210455
Enter test name:
```

**Handwritten Notes:**

- less than 7 (pointing to 121)
- contains a char. (pointing to 1211512)
- contains special char. (pointing to 1211512)
- more than 7 (pointing to 12121212)
- valid (pointing to 1210455)

## 1.2 Testing invalid test name:

- Not exist testname.
- With numeric number.

The screenshot shows a terminal window with a medical record management program. The program prompts for a patient ID, test name, and test date. Red arrows point to the input fields for test name and test date, which are highlighted in red. The test name input is 'RdL' and the test date input is '12/12/2023'.

```

1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
1
Enter a 7-digit Patient ID:
1234567
Enter test name:
RdL
Invalid test name! Please enter a valid test name:
Valid test names are: Hgb BGT LDL systole diastole RBC
LDL1
Invalid test name! Please enter a valid test name:
Valid test names are: Hgb BGT LDL systole diastole RBC
ldL
Enter date of the test (YYYY-MM):
12/12/2023

```

### 1.3 Testing Date:

- No hyphen.
- Hyphen in wrong place.
- Invalid month.
- Wrong format.

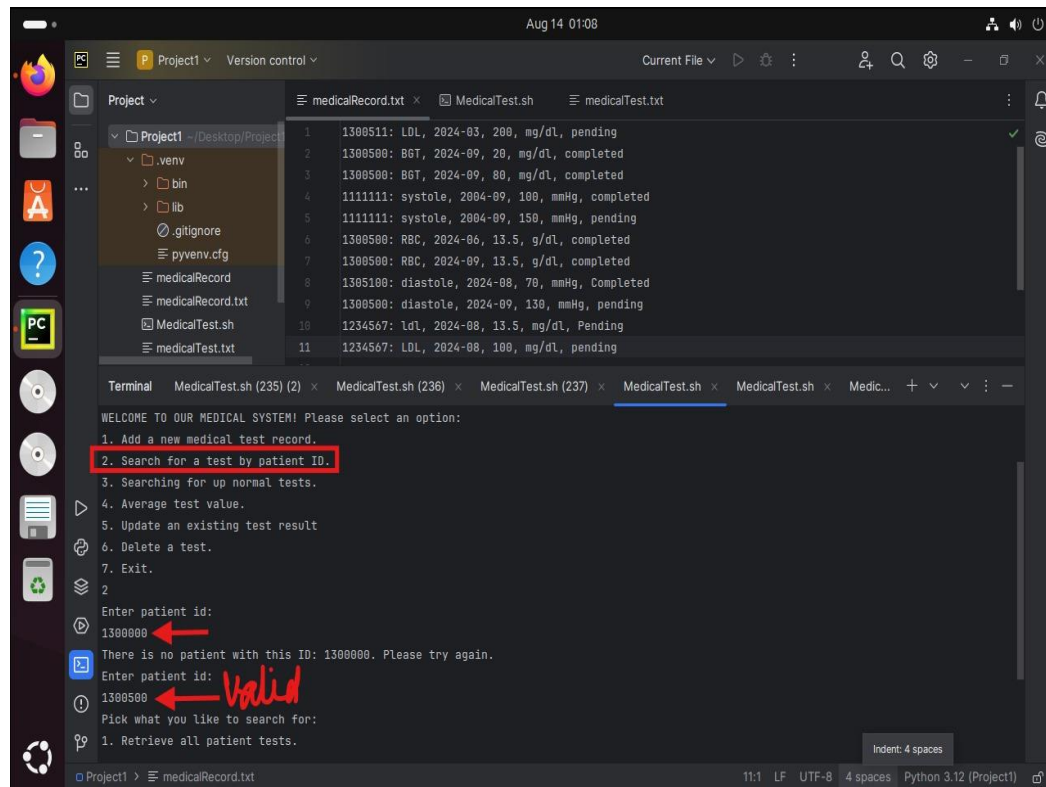
```
Enter test name:
R60
Invalid test name! Please enter a valid test name:
Valid test names are: Hgb B6T LDL systole diastole RBC
LDL1
Invalid test name! Please enter a valid test name:
Valid test names are: Hgb B6T LDL systole diastole RBC
ldl
Enter date of the test (YYYY-MM):
202408
Invalid date format! Please enter the date in YYYY-MM format:
20240-8
Invalid date format! Please enter the date in YYYY-MM format:
2024-21
Invalid year or month! Please enter a valid date in YYYY-MM format:
2024-00
Invalid year or month! Please enter a valid date in YYYY-MM format:
2024-8
Invalid year or month! Please enter a valid date in YYYY-MM format:
2024-08
Enter result value:
```

➤ This is our file after adding the new record, Note that the status is considered case-insensitive.

```
1 1308511: LDL, 2024-03, 200, mg/dl, pending
2 1308500: B6T, 2024-09, 20, mg/dl, completed
3 1308500: B6T, 2024-09, 80, mg/dl, completed
4 1111111: systole, 2004-09, 100, mmHg, completed
5 1111111: systole, 2004-09, 150, mmHg, pending
6 1308500: RBC, 2024-06, 13.5, g/dl, completed
7 1308500: RBC, 2024-09, 13.5, g/dl, completed
8 1305100: diastole, 2024-08, 70, mmHg, Completed
9 1308500: diastole, 2024-09, 130, mmHg, pending
10 1234567: LDL, 2024-08, 13.5, mg/dl, Pending
11 1234567: LDL, 2024-08, 100, mg/dl, pending
5. Update an existing test result
6. Delete a test.
7. Exit.
1
Enter a 7-digit Patient ID:
1234567
Enter test name:
LDL
Enter date of the test [USING THIS FORMAT: YYYY-MM]:
2024-08
Enter result value:
100
Enter status (Pending, Completed, or Reviewed):
pending
Record added successfully.
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
```

## 2. Search for a test by patient Id.

2.1 No patient in medicalRecord.txt file has the entered id, however we have a patient with id 1300500:

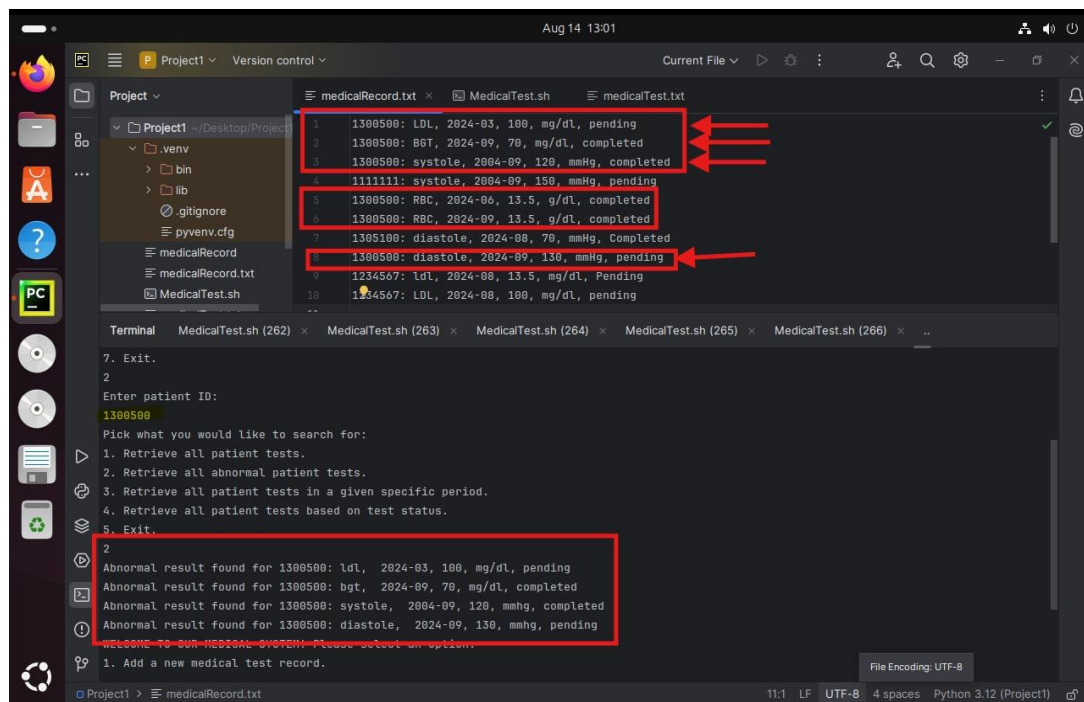


```
Aug 14 01:08
Project1 Version control
Current File
medicalRecord.txt MedicalTest.sh medicalTest.txt

1 1300511: LDL, 2024-03, 200, mg/dl, pending
2 1300500: BGT, 2024-09, 20, mg/dl, completed
3 1300500: BGT, 2024-09, 80, mg/dl, completed
4 1111111: systole, 2004-09, 100, mmHg, completed
5 1111111: systole, 2004-09, 150, mmHg, pending
6 1300500: RBC, 2024-06, 13.5, g/dl, completed
7 1300500: RBC, 2024-09, 13.5, g/dl, completed
8 1305100: diastole, 2024-08, 70, mmHg, Completed
9 1300500: diastole, 2024-09, 130, mmHg, pending
10 1234567: ldl, 2024-08, 13.5, mg/dl, Pending
11 1234567: LDL, 2024-08, 100, mg/dl, pending

Terminal MedicalTest.sh (235) (2) MedicalTest.sh (236) MedicalTest.sh (237) MedicalTest.sh MedicalTest.sh Medic...
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
2
Enter patient id:
1300000
There is no patient with this ID: 1300000. Please try again.
Enter patient id:
1300500
Pick what you like to search for:
1. Retrieve all patient tests.
```

2.2 We tried to test the edge cases when the result value is exactly on the boundaries.

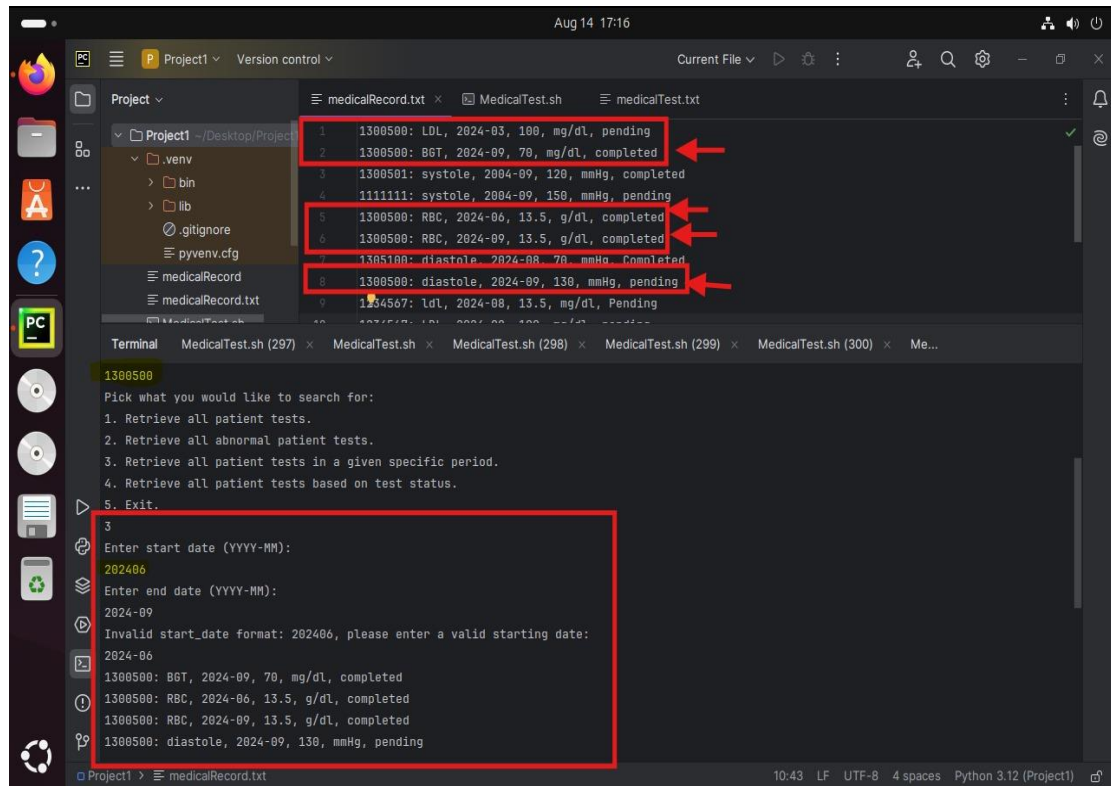


```
Aug 14 13:01
Project1 Version control
Current File
medicalRecord.txt MedicalTest.sh medicalTest.txt

1 1300500: LDL, 2024-03, 100, mg/dl, pending
2 1300500: BGT, 2024-09, 70, mg/dl, completed
3 1300500: systole, 2004-09, 120, mmHg, completed
4 1111111: systole, 2004-09, 150, mmHg, pending
5 1300500: RBC, 2024-06, 13.5, g/dl, completed
6 1300500: RBC, 2024-09, 13.5, g/dl, completed
7 1305100: diastole, 2024-08, 70, mmHg, Completed
8 1300500: diastole, 2024-09, 130, mmHg, pending
9 1234567: ldl, 2024-08, 13.5, mg/dl, Pending
10 1234567: LDL, 2024-08, 100, mg/dl, pending

Terminal MedicalTest.sh (262) MedicalTest.sh (263) MedicalTest.sh (264) MedicalTest.sh (265) MedicalTest.sh (266)
7. Exit.
2
Enter patient ID:
1300500
Pick what you would like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
5. Exit.
2
Abnormal result found for 1300500: ldl, 2024-03, 100, mg/dl, pending
Abnormal result found for 1300500: bgt, 2024-09, 70, mg/dl, completed
Abnormal result found for 1300500: systole, 2004-09, 120, mmHg, completed
Abnormal result found for 1300500: diastole, 2024-09, 130, mmHg, pending
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
```

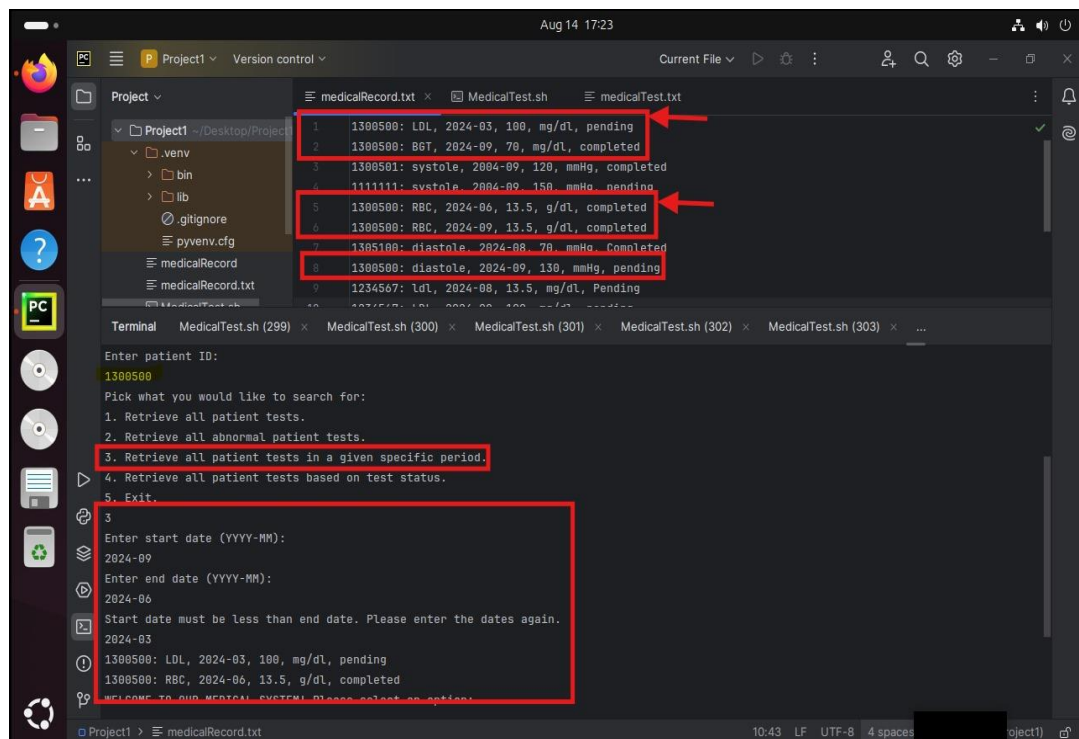
## 2.3 Search for tests in a specific period for the entered patient Id:



```
Project1 --/Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── gitignore
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   └── medicalRecord.txt
└── MedicalTest.sh

Terminal MedicalTest.sh (297) MedicalTest.sh (300) MedicalTest.sh (298) MedicalTest.sh (299) MedicalTest.sh (300) Me...
1300500
Pick what you would like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
5. Exit.
3
Enter start date (YYYY-MM):
2024-06
Enter end date (YYYY-MM):
2024-09
Invalid start_date format: 2024-06, please enter a valid starting date:
2024-06
1300500: BGT, 2024-09, 70, mg/dL, completed
1300500: RBC, 2024-06, 13.5, g/dL, completed
1300500: RBC, 2024-09, 13.5, g/dL, completed
1300500: diastole, 2024-09, 130, mmHg, pending
```

➤ If the user enters a start date larger than the end date:

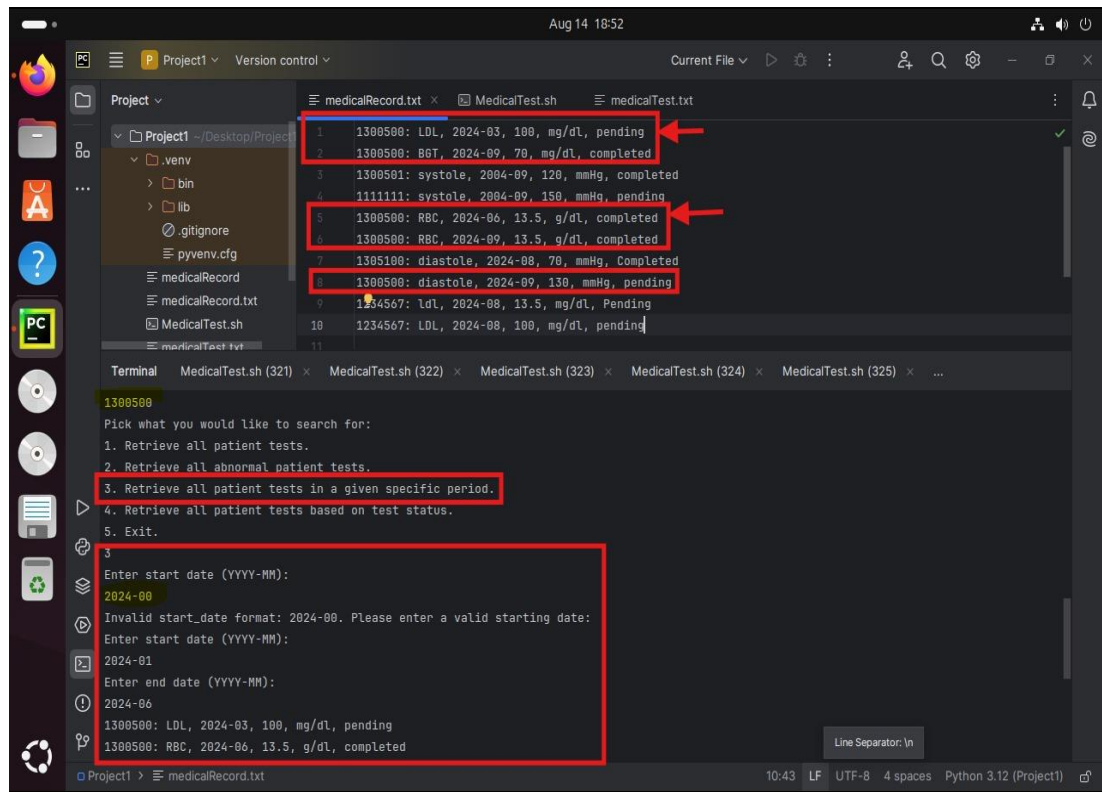


```
Project1 --/Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── gitignore
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   └── medicalRecord.txt
└── MedicalTest.sh

Terminal MedicalTest.sh (299) MedicalTest.sh (300) MedicalTest.sh (301) MedicalTest.sh (302) MedicalTest.sh (303) ...
Enter patient ID:
1300500
Pick what you would like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
5. Exit.
3
Enter start date (YYYY-MM):
2024-09
Enter end date (YYYY-MM):
2024-06
Start date must be less than end date. Please enter the dates again.
2024-03
1300500: LDL, 2024-03, 100, mg/dL, pending
1300500: RBC, 2024-06, 13.5, g/dL, completed
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
```



- If the user enters an invalid month:



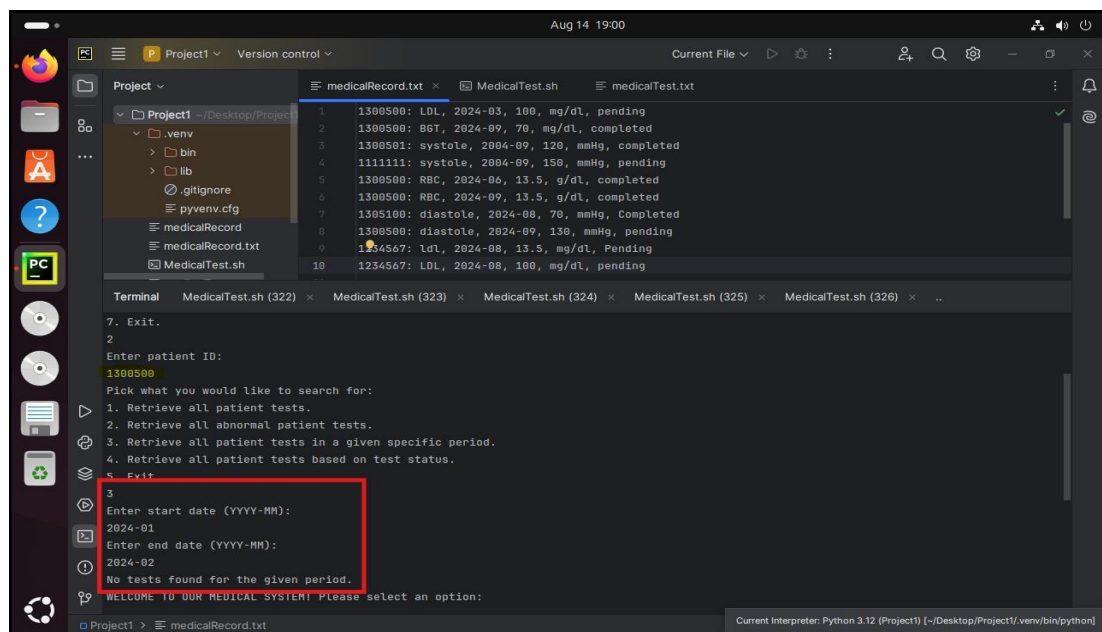
The screenshot shows a code editor with a file explorer on the left and a terminal window at the bottom. The file explorer shows a project named 'Project1' with a file named 'medicalRecord.txt'. The terminal window displays the following output:

```
1300500
Pick what you would like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
5. Exit.
3
Enter start date (YYYY-MM):
2024-00
Invalid start_date format: 2024-00. Please enter a valid starting date:
Enter start date (YYYY-MM):
2024-01
Enter end date (YYYY-MM):
2024-06
1300500: LDL, 2024-03, 100, mg/dL, pending
1300500: RBC, 2024-06, 13.5, g/dL, completed
```

The list of records in the file explorer is as follows:

Line	Record
1	1300500: LDL, 2024-03, 100, mg/dL, pending
2	1300500: BGT, 2024-09, 70, mg/dL, completed
3	1300501: systole, 2004-09, 120, mmHg, completed
4	1111111: systole, 2004-09, 150, mmHg, pending
5	1300500: RBC, 2024-06, 13.5, g/dL, completed
6	1300500: RBC, 2024-09, 13.5, g/dL, completed
7	1305100: diastole, 2024-08, 70, mmHg, Completed
8	1300500: diastole, 2024-09, 130, mmHg, pending
9	1234567: LDL, 2024-08, 13.5, mg/dL, Pending
10	1234567: LDL, 2024-08, 100, mg/dL, pending

- If the user searches for tests under a selected patient ID and no tests are found for the specified period, display a message indicating that there are no tests available for that patient within the selected timeframe:



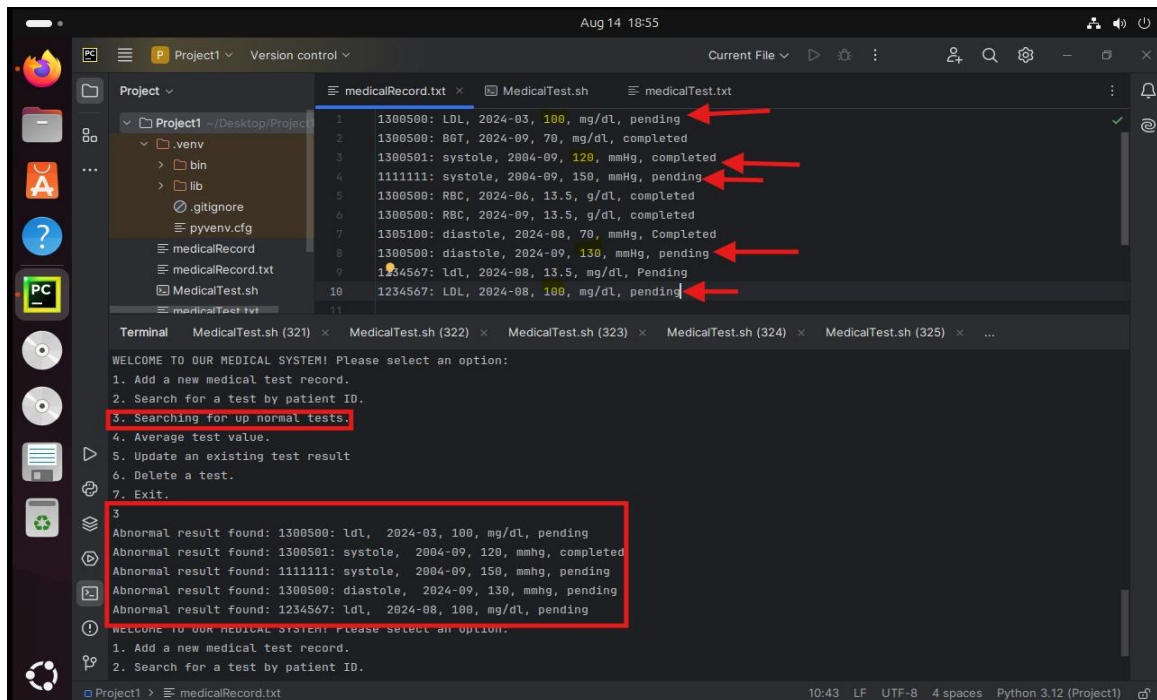
The screenshot shows a code editor with a file explorer on the left and a terminal window at the bottom. The file explorer shows a project named 'Project1' with a file named 'medicalRecord.txt'. The terminal window displays the following output:

```
7. Exit.
2
Enter patient ID:
1300500
Pick what you would like to search for:
1. Retrieve all patient tests.
2. Retrieve all abnormal patient tests.
3. Retrieve all patient tests in a given specific period.
4. Retrieve all patient tests based on test status.
5. Exit.
3
Enter start date (YYYY-MM):
2024-01
Enter end date (YYYY-MM):
2024-02
No tests found for the given period.
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
```

The list of records in the file explorer is as follows:

Line	Record
1	1300500: LDL, 2024-03, 100, mg/dL, pending
2	1300500: BGT, 2024-09, 70, mg/dL, completed
3	1300501: systole, 2004-09, 120, mmHg, completed
4	1111111: systole, 2004-09, 150, mmHg, pending
5	1300500: RBC, 2024-06, 13.5, g/dL, completed
6	1300500: RBC, 2024-09, 13.5, g/dL, completed
7	1305100: diastole, 2024-08, 70, mmHg, Completed
8	1300500: diastole, 2024-09, 130, mmHg, pending
9	1234567: LDL, 2024-08, 13.5, mg/dL, Pending
10	1234567: LDL, 2024-08, 100, mg/dL, pending

### 3. Abnormal with edge cases

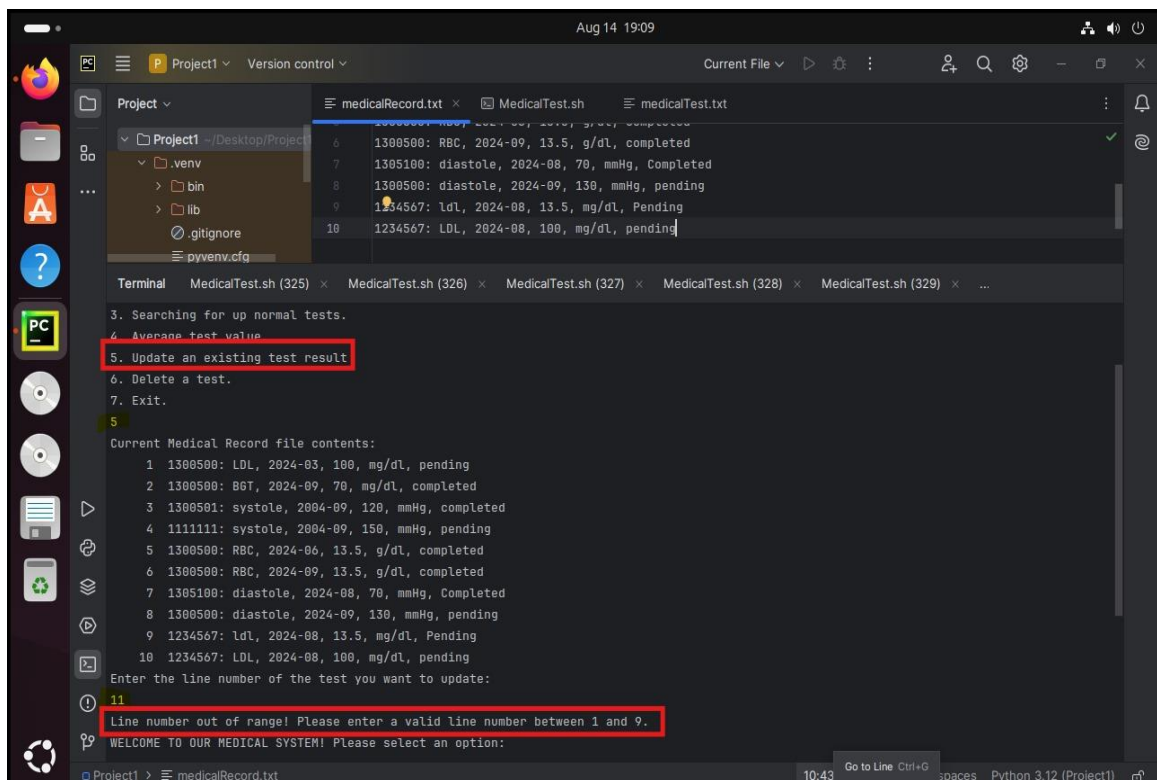


```
Project1 ~ /Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── .gitignore
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   ├── medicalRecord.txt
│   ├── MedicalTest.sh
│   └── medicalTest.txt
└── ...

medicalRecord.txt
1 1300500: LDL, 2024-03, 100, mg/dL, pending
2 1300500: BGT, 2024-09, 70, mg/dL, completed
3 1300501: systole, 2004-09, 120, mmHg, completed
4 1111111: systole, 2004-09, 150, mmHg, pending
5 1300500: RBC, 2024-06, 13.5, g/dL, completed
6 1300500: RBC, 2024-09, 13.5, g/dL, completed
7 1305100: diastole, 2024-08, 70, mmHg, Completed
8 1300500: diastole, 2024-09, 130, mmHg, pending
9 1234567: ldl, 2024-08, 13.5, mg/dL, Pending
10 1234567: LDL, 2024-08, 100, mg/dL, pending
11

Terminal MedicalTest.sh (321) x MedicalTest.sh (322) x MedicalTest.sh (323) x MedicalTest.sh (324) x MedicalTest.sh (325) x ...
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
3
Abnormal result found: 1300500: ldl, 2024-03, 100, mg/dL, pending
Abnormal result found: 1300501: systole, 2004-09, 120, mmHg, completed
Abnormal result found: 1111111: systole, 2004-09, 150, mmHg, pending
Abnormal result found: 1300500: diastole, 2024-09, 130, mmHg, pending
Abnormal result found: 1234567: ldl, 2024-08, 100, mg/dL, pending
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
1. Add a new medical test record.
2. Search for a test by patient ID.
```

### 4. If the user tries to update an un-existing record:



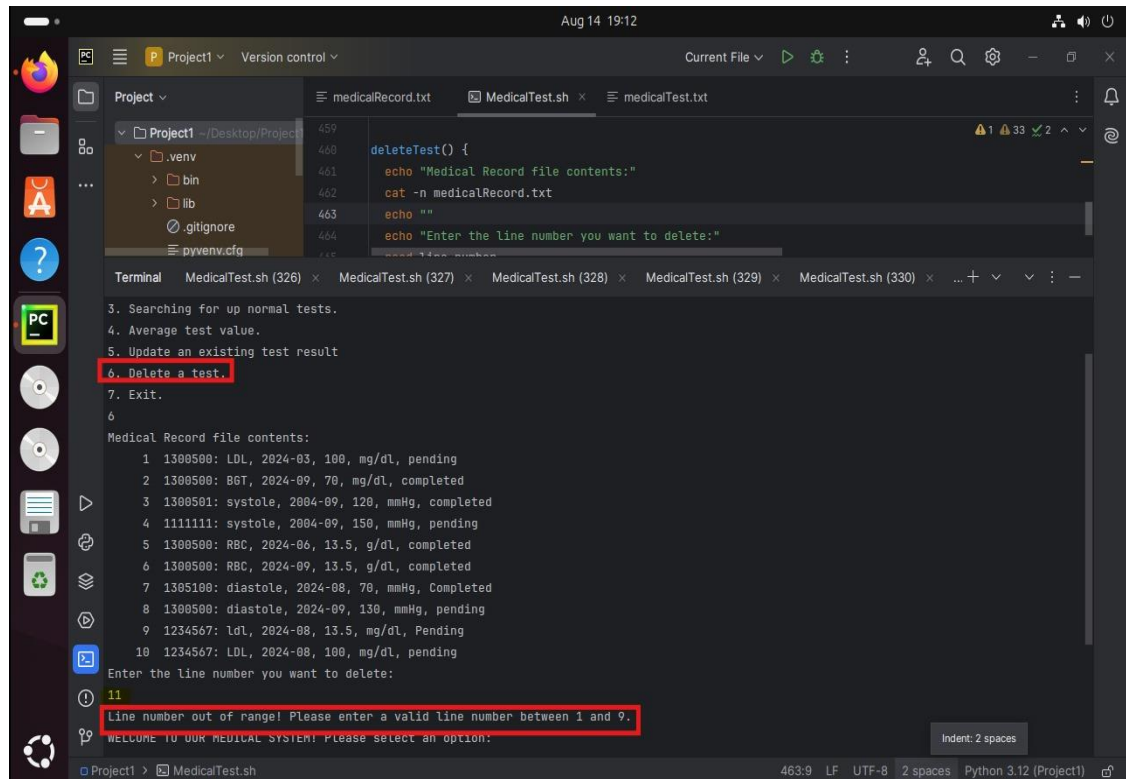
```
Project1 ~ /Desktop/Project1
├── .venv
│   ├── bin
│   ├── lib
│   ├── .gitignore
│   ├── pyvenv.cfg
│   ├── medicalRecord
│   ├── medicalRecord.txt
│   ├── MedicalTest.sh
│   └── medicalTest.txt
└── ...

medicalRecord.txt
6 1300500: RBC, 2024-09, 13.5, g/dL, completed
7 1305100: diastole, 2024-08, 70, mmHg, Completed
8 1300500: diastole, 2024-09, 130, mmHg, pending
9 1234567: ldl, 2024-08, 13.5, mg/dL, Pending
10 1234567: LDL, 2024-08, 100, mg/dL, pending

Terminal MedicalTest.sh (325) x MedicalTest.sh (326) x MedicalTest.sh (327) x MedicalTest.sh (328) x MedicalTest.sh (329) x ...
3. Searching for up normal tests.
4. Average test value
5. Update an existing test result
6. Delete a test.
7. Exit.
5
Current Medical Record file contents:
1 1300500: LDL, 2024-03, 100, mg/dL, pending
2 1300500: BGT, 2024-09, 70, mg/dL, completed
3 1300501: systole, 2004-09, 120, mmHg, completed
4 1111111: systole, 2004-09, 150, mmHg, pending
5 1300500: RBC, 2024-06, 13.5, g/dL, completed
6 1300500: RBC, 2024-09, 13.5, g/dL, completed
7 1305100: diastole, 2024-08, 70, mmHg, Completed
8 1300500: diastole, 2024-09, 130, mmHg, pending
9 1234567: ldl, 2024-08, 13.5, mg/dL, Pending
10 1234567: LDL, 2024-08, 100, mg/dL, pending
Enter the line number of the test you want to update:
11
Line number out of range! Please enter a valid line number between 1 and 9.
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
```



5. If the user attempts to delete a record that does not exist:



```
Aug 14 19:12
Project1 Version control
Project1 ~/Desktop/Project1
.venv
bin
lib
.gitignore
pyvenv.cfg
medicalRecord.txt
MedicalTest.sh
medicalTest.txt
deleteTest() {
  echo "Medical Record file contents:"
  cat -n medicalRecord.txt
  echo ""
  echo "Enter the line number you want to delete:"
  read line_number
  # Delete the record
}

3. Searching for up normal tests.
4. Average test value.
5. Update an existing test result
6. Delete a test.
7. Exit.
6
Medical Record file contents:
1 1300500: LDL, 2024-03, 100, mg/dL, pending
2 1300500: BGT, 2024-09, 70, mg/dL, completed
3 1300501: systole, 2004-09, 120, mmHg, completed
4 1111111: systole, 2004-09, 150, mmHg, pending
5 1300500: RBC, 2024-06, 13.5, g/dL, completed
6 1300500: RBC, 2024-09, 13.5, g/dL, completed
7 1305100: diastole, 2024-08, 70, mmHg, Completed
8 1300500: diastole, 2024-09, 130, mmHg, pending
9 1234567: ldl, 2024-08, 13.5, mg/dL, Pending
10 1234567: LDL, 2024-08, 100, mg/dL, pending
Enter the line number you want to delete:
11
Line number out of range! Please enter a valid line number between 1 and 9.
WELCOME TO OUR MEDICAL SYSTEM! Please select an option:
Indent: 2 spaces
Project1 > MedicalTest.sh 463:9 LF UTF-8 2 spaces Python 3.12 (Project1)
```