Faculty of Engineering and Technology Electrical and Computer Engineering Department

Linux Laboratory

ENCS3130

PROJECT #2 – Python

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Section: 6

BIRZEIT

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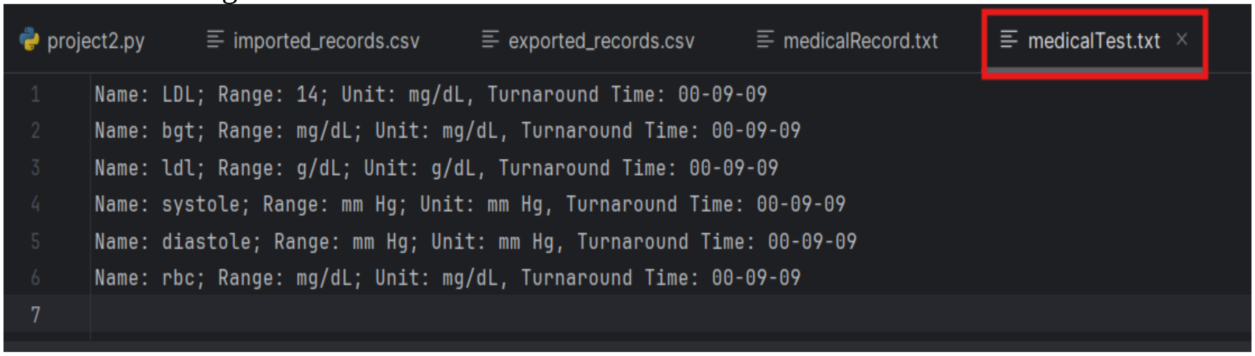
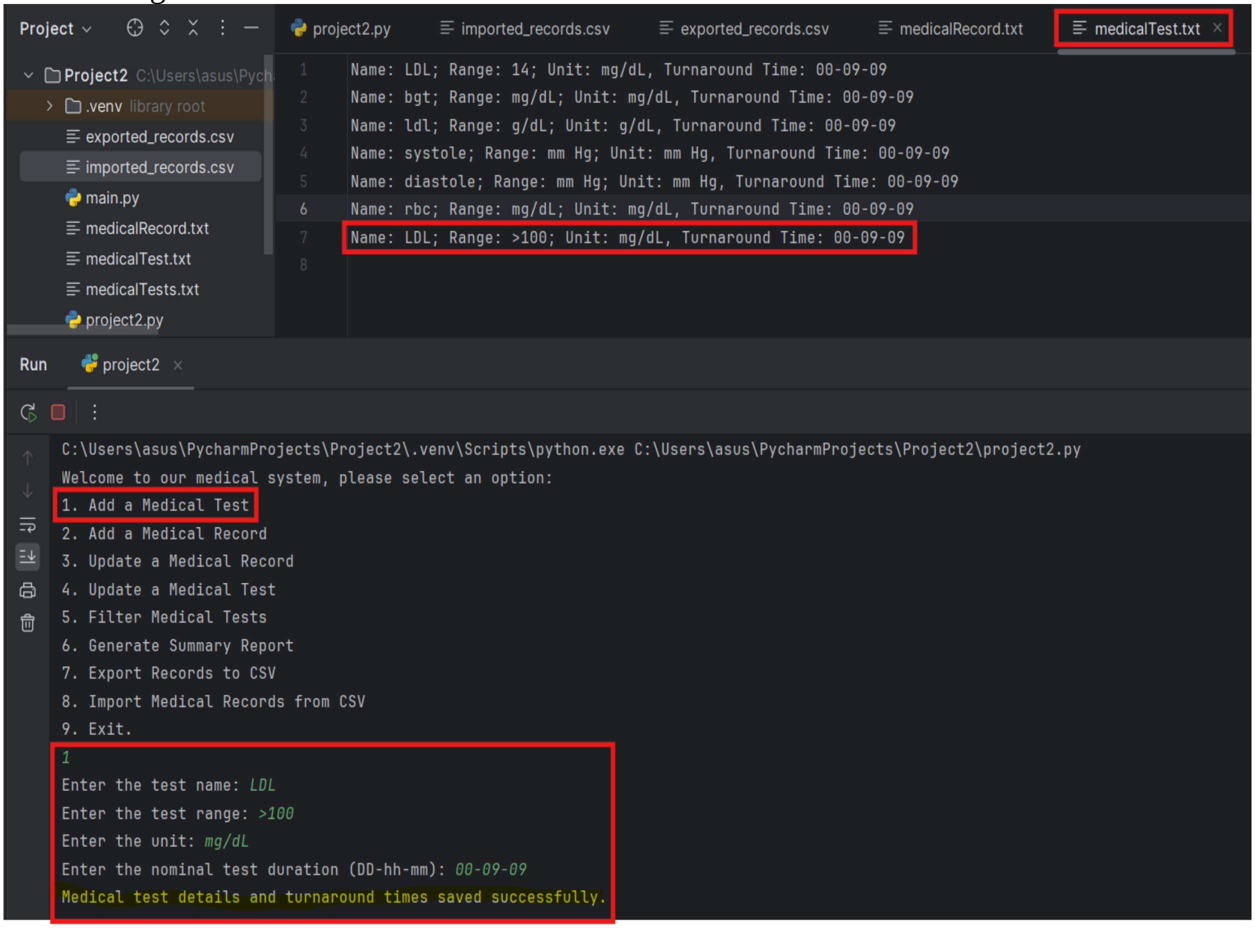
Add new medical test

File before adding a new medical test:



```
Name: LDL; Range: 14; Unit: mg/dL, Turnaround Time: 00-09-09
Name: bgt; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
Name: ldl; Range: g/dL; Unit: g/dL, Turnaround Time: 00-09-09
Name: systole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: diastole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: rbc; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
```

After adding a new medical test:

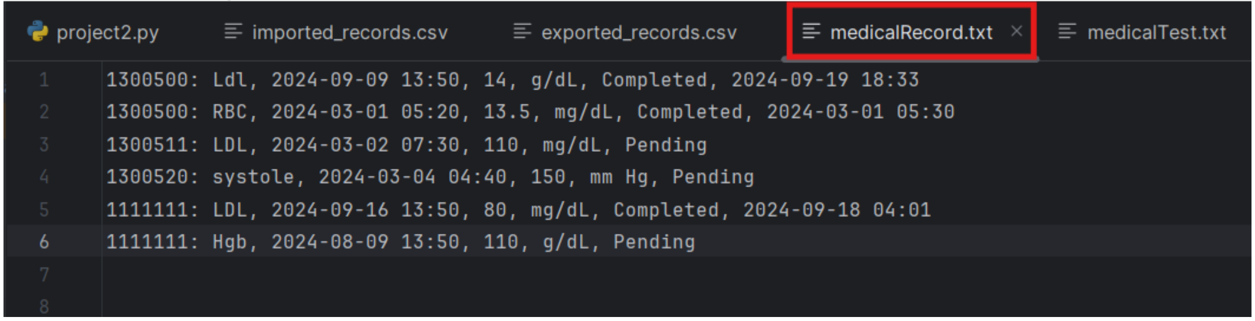


```
Name: LDL; Range: 14; Unit: mg/dL, Turnaround Time: 00-09-09
Name: bgt; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
Name: ldl; Range: g/dL; Unit: g/dL, Turnaround Time: 00-09-09
Name: systole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: diastole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: rbc; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
Name: LDL; Range: >100; Unit: mg/dL, Turnaround Time: 00-09-09
```

```
C:\Users\asus\PycharmProjects\Project2\.venv\Scripts\python.exe C:\Users\asus\PycharmProjects\Project2\project2.py
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
1
Enter the test name: LDL
Enter the test range: >100
Enter the unit: mg/dL
Enter the nominal test duration (DD-hh-mm): 00-09-09
Medical test details and turnaround times saved successfully.
```

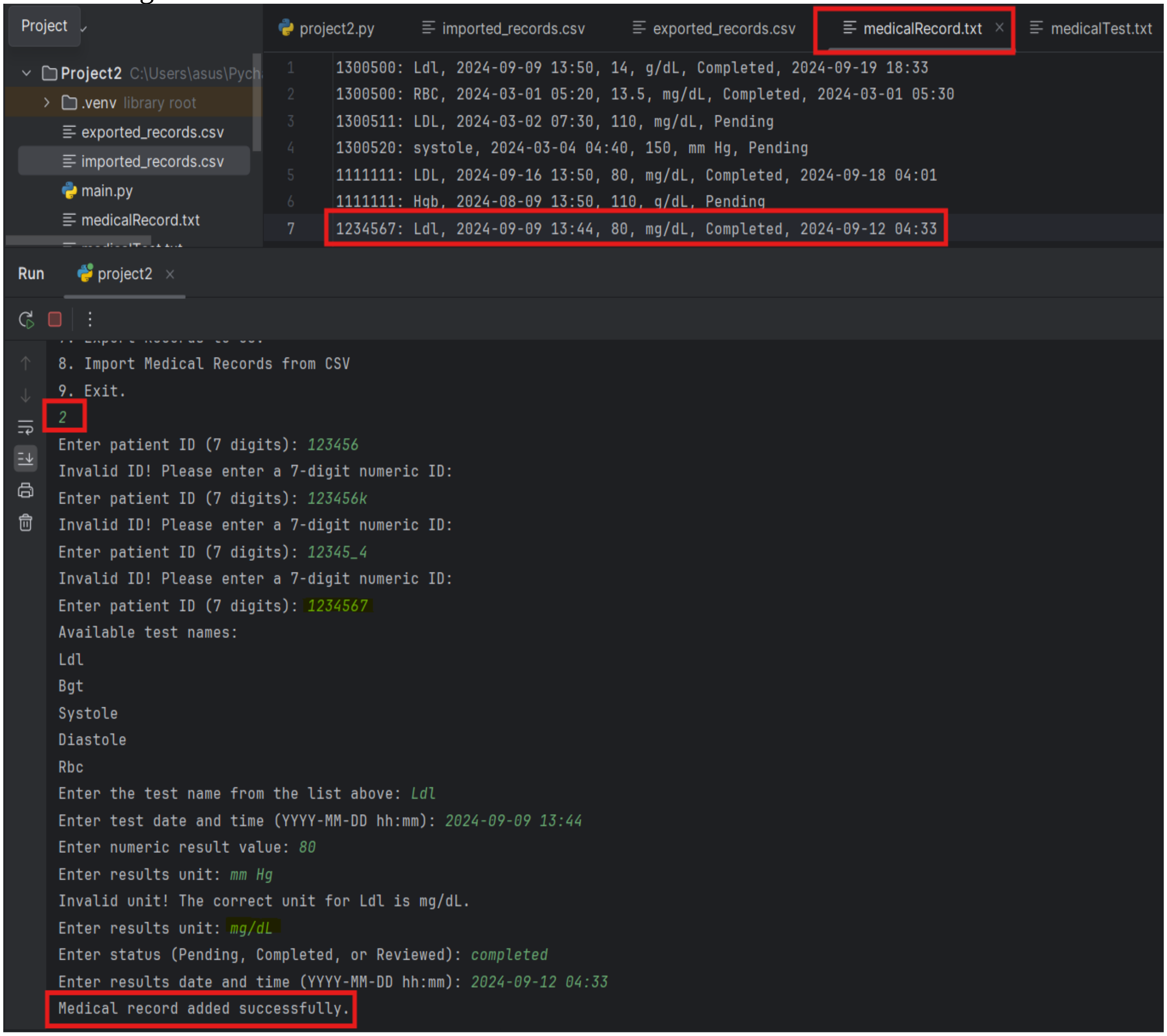
Add new medical record

File before adding a new medical record:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
```

After adding a new medical record:

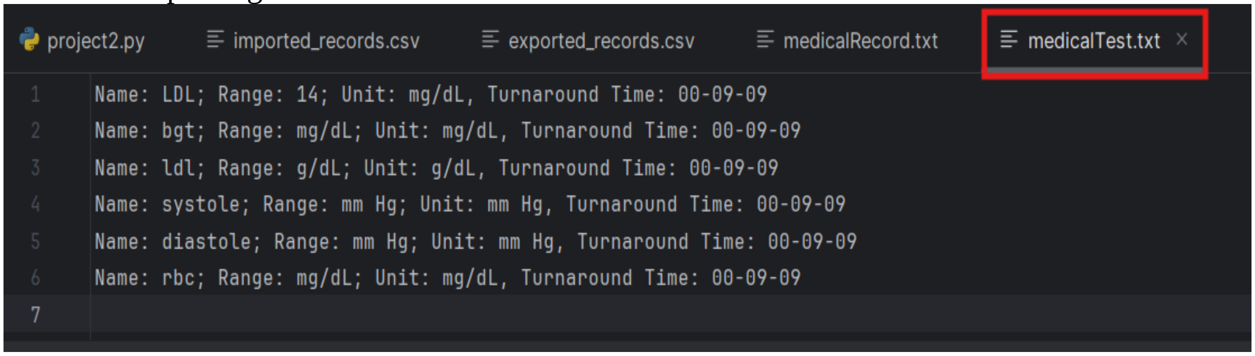


```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
```

```
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
2
Enter patient ID (7 digits): 123456
Invalid ID! Please enter a 7-digit numeric ID:
Enter patient ID (7 digits): 123456k
Invalid ID! Please enter a 7-digit numeric ID:
Enter patient ID (7 digits): 12345_4
Invalid ID! Please enter a 7-digit numeric ID:
Enter patient ID (7 digits): 1234567
Available test names:
Ldl
Bgt
Systole
Diastole
Rbc
Enter the test name from the list above: Ldl
Enter test date and time (YYYY-MM-DD hh:mm): 2024-09-09 13:44
Enter numeric result value: 80
Enter results unit: mm Hg
Invalid unit! The correct unit for Ldl is mg/dL.
Enter results unit: mg/dL
Enter status (Pending, Completed, or Reviewed): completed
Enter results date and time (YYYY-MM-DD hh:mm): 2024-09-12 04:33
Medical record added successfully.
```

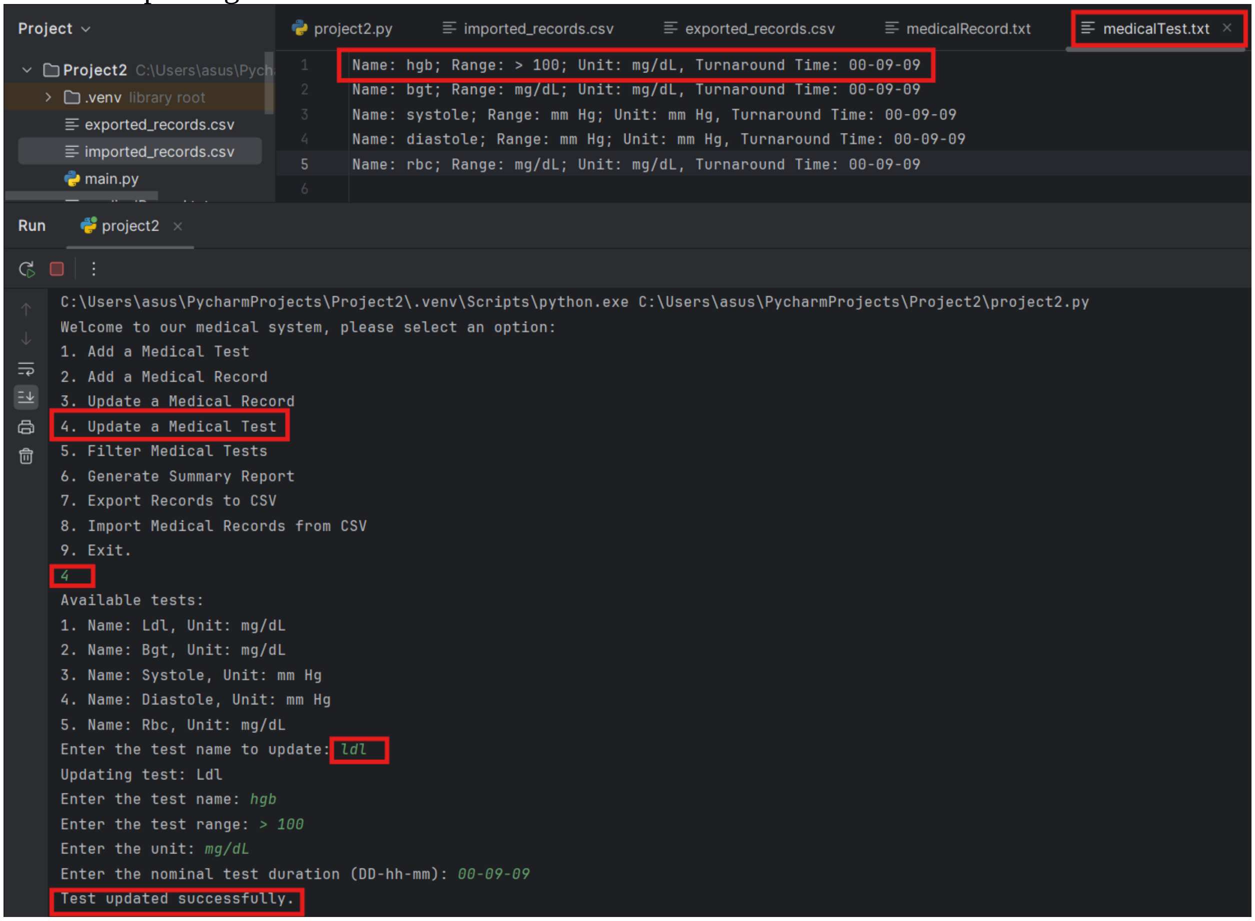
Update medical tests

File before updating a new medical test:



```
Name: LDL; Range: 14; Unit: mg/dL, Turnaround Time: 00-09-09
Name: bgt; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
Name: ldl; Range: g/dL; Unit: g/dL, Turnaround Time: 00-09-09
Name: systole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: diastole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: rbc; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
```

File after updating a new medical test:

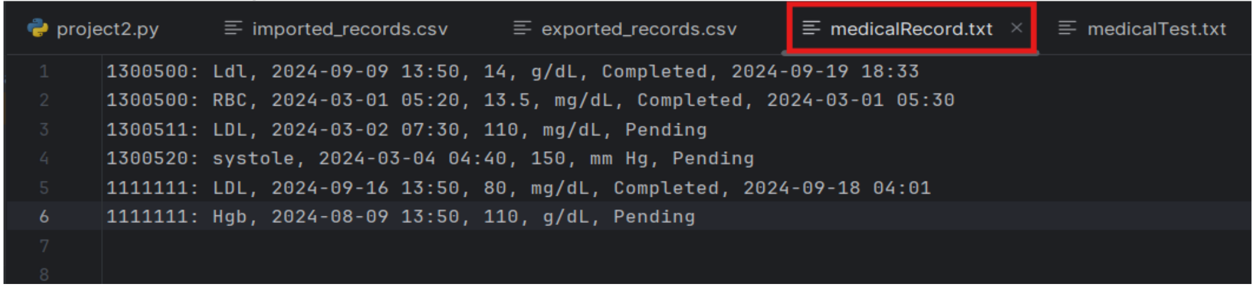


```
Name: hgb; Range: > 100; Unit: mg/dL, Turnaround Time: 00-09-09
Name: bgt; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
Name: systole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: diastole; Range: mm Hg; Unit: mm Hg, Turnaround Time: 00-09-09
Name: rbc; Range: mg/dL; Unit: mg/dL, Turnaround Time: 00-09-09
```

```
C:\Users\asus\PycharmProjects\Project2\.venv\Scripts\python.exe C:\Users\asus\PycharmProjects\Project2\project2.py
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
4
Available tests:
1. Name: Ldl, Unit: mg/dL
2. Name: Bgt, Unit: mg/dL
3. Name: Systole, Unit: mm Hg
4. Name: Diastole, Unit: mm Hg
5. Name: Rbc, Unit: mg/dL
Enter the test name to update: ldl
Updating test: Ldl
Enter the test name: hgb
Enter the test range: > 100
Enter the unit: mg/dL
Enter the nominal test duration (DD-hh-mm): 00-09-09
Test updated successfully.
```

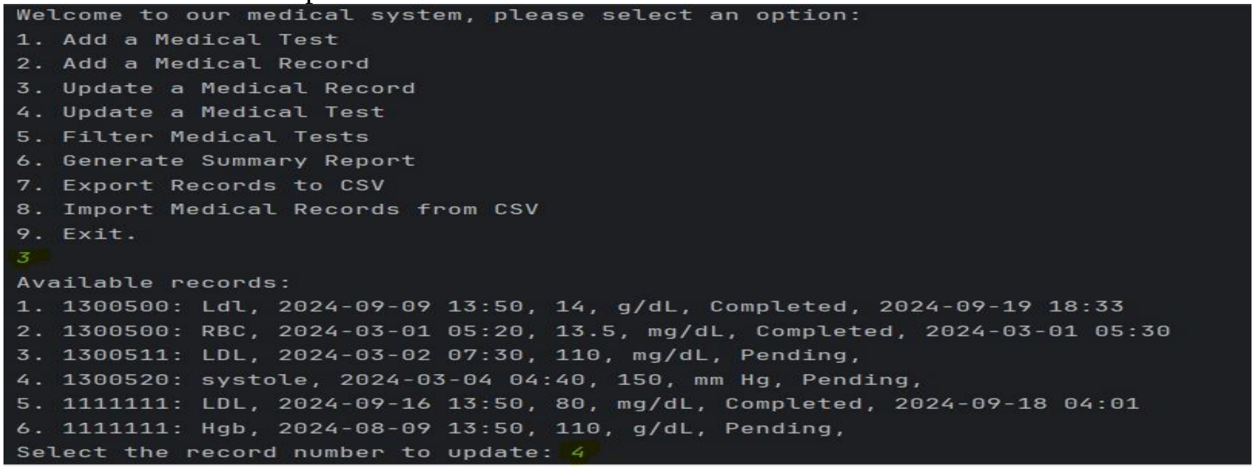
Update medical records

File before updating a new medical record:

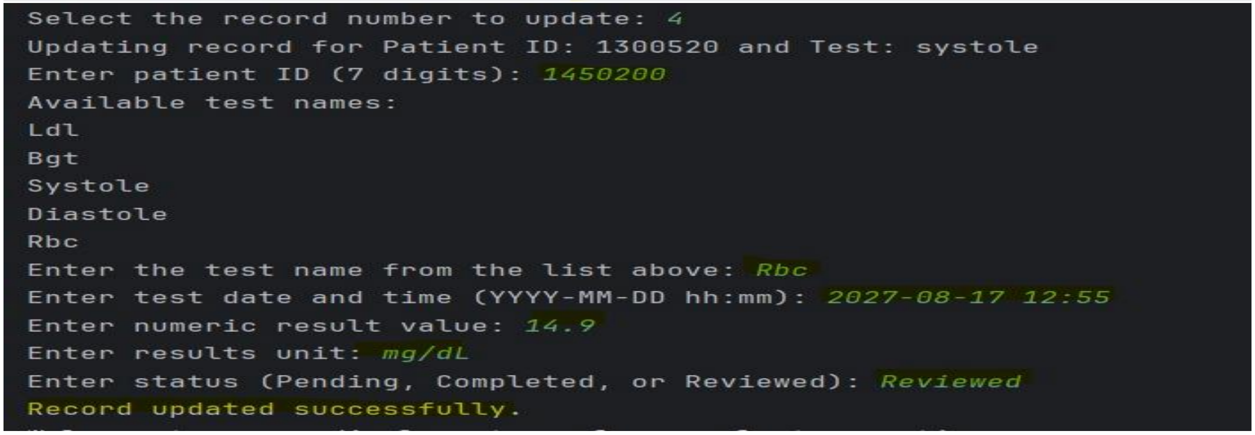


```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
```

When the user selects option 3:

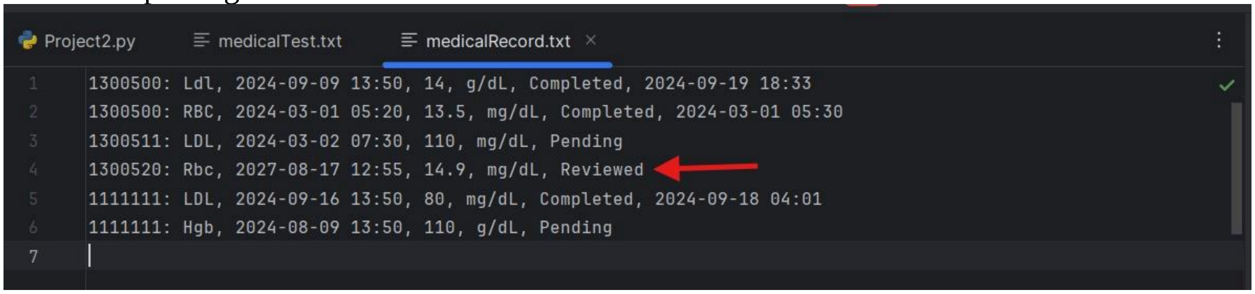


```
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
3
Available records:
1. 1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
2. 1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
3. 1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending,
4. 1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending,
5. 1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
6. 1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending,
Select the record number to update: 4
```



```
Select the record number to update: 4
Updating record for Patient ID: 1300520 and Test: systole
Enter patient ID (7 digits): 1450200
Available test names:
Ldl
Bgt
Systole
Diastole
Rbc
Enter the test name from the list above: Rbc
Enter test date and time (YYYY-MM-DD hh:mm): 2027-08-17 12:55
Enter numeric result value: 14.9
Enter results unit: mg/dL
Enter status (Pending, Completed, or Reviewed): Reviewed
Record updated successfully.
```

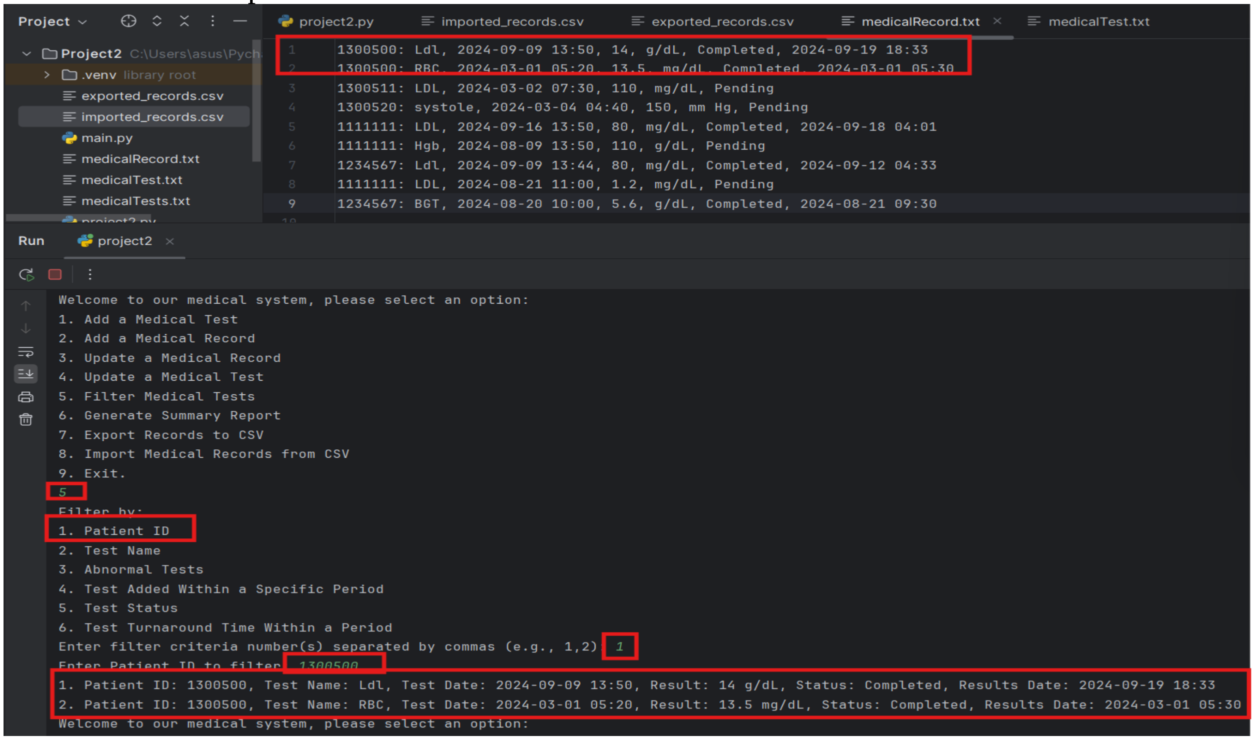
File after updating a new medical record:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: Rbc, 2027-08-17 12:55, 14.9, mg/dL, Reviewed
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
```

Filter medical tests

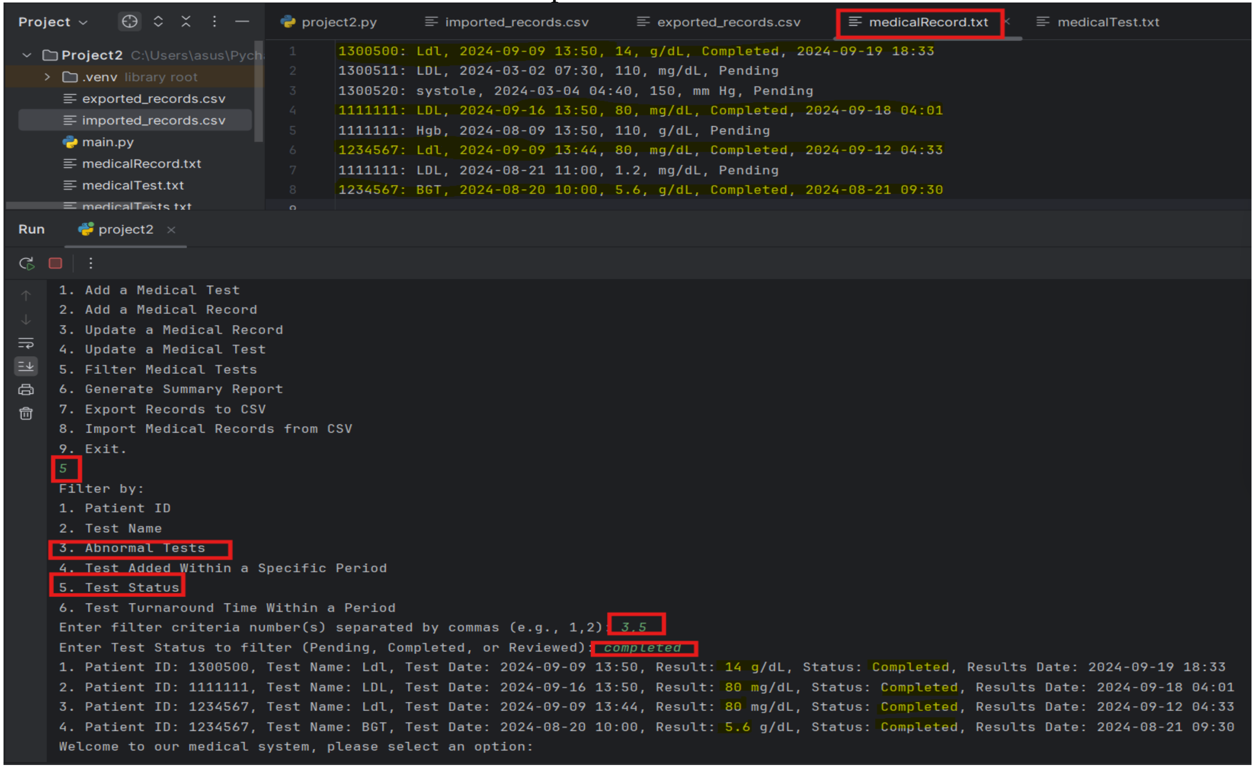
Filter records with patients with id = 1300500:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
1111111: LDL, 2024-08-21 11:00, 1.2, mg/dL, Pending
1234567: BGT, 2024-08-20 10:00, 5.6, g/dL, Completed, 2024-08-21 09:30
```

```
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
5
Filter by:
1. Patient ID
2. Test Name
3. Abnormal Tests
4. Test Added Within a Specific Period
5. Test Status
6. Test Turnaround Time Within a Period
Enter filter criteria number(s) separated by commas (e.g., 1,2): 1
Enter Patient ID to filter: 1300500
1. Patient ID: 1300500, Test Name: Ldl, Test Date: 2024-09-09 13:50, Result: 14 g/dL, Status: Completed, Results Date: 2024-09-19 18:33
2. Patient ID: 1300500, Test Name: RBC, Test Date: 2024-03-01 05:20, Result: 13.5 mg/dL, Status: Completed, Results Date: 2024-03-01 05:30
Welcome to our medical system, please select an option:
```

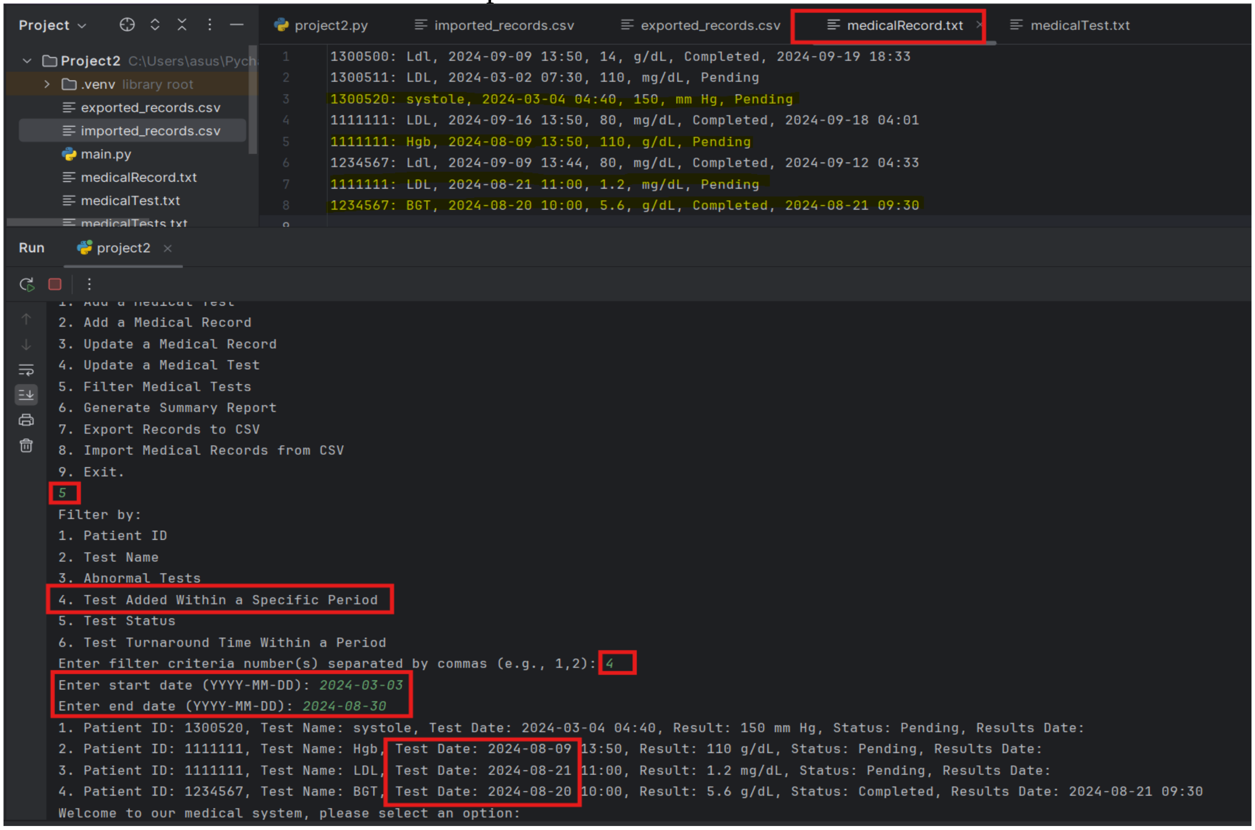
Filter records with abnormal tests and completed status:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
1111111: LDL, 2024-08-21 11:00, 1.2, mg/dL, Pending
1234567: BGT, 2024-08-20 10:00, 5.6, g/dL, Completed, 2024-08-21 09:30
```

```
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
5
Filter by:
1. Patient ID
2. Test Name
3. Abnormal Tests
4. Test Added Within a Specific Period
5. Test Status
6. Test Turnaround Time Within a Period
Enter filter criteria number(s) separated by commas (e.g., 1,2): 3,5
Enter Test Status to filter (Pending, Completed, or Reviewed): completed
1. Patient ID: 1300500, Test Name: Ldl, Test Date: 2024-09-09 13:50, Result: 14 g/dL, Status: Completed, Results Date: 2024-09-19 18:33
2. Patient ID: 1111111, Test Name: LDL, Test Date: 2024-09-16 13:50, Result: 80 mg/dL, Status: Completed, Results Date: 2024-09-18 04:01
3. Patient ID: 1234567, Test Name: Ldl, Test Date: 2024-09-09 13:44, Result: 80 mg/dL, Status: Completed, Results Date: 2024-09-12 04:33
4. Patient ID: 1234567, Test Name: BGT, Test Date: 2024-08-20 10:00, Result: 5.6 g/dL, Status: Completed, Results Date: 2024-08-21 09:30
Welcome to our medical system, please select an option:
```

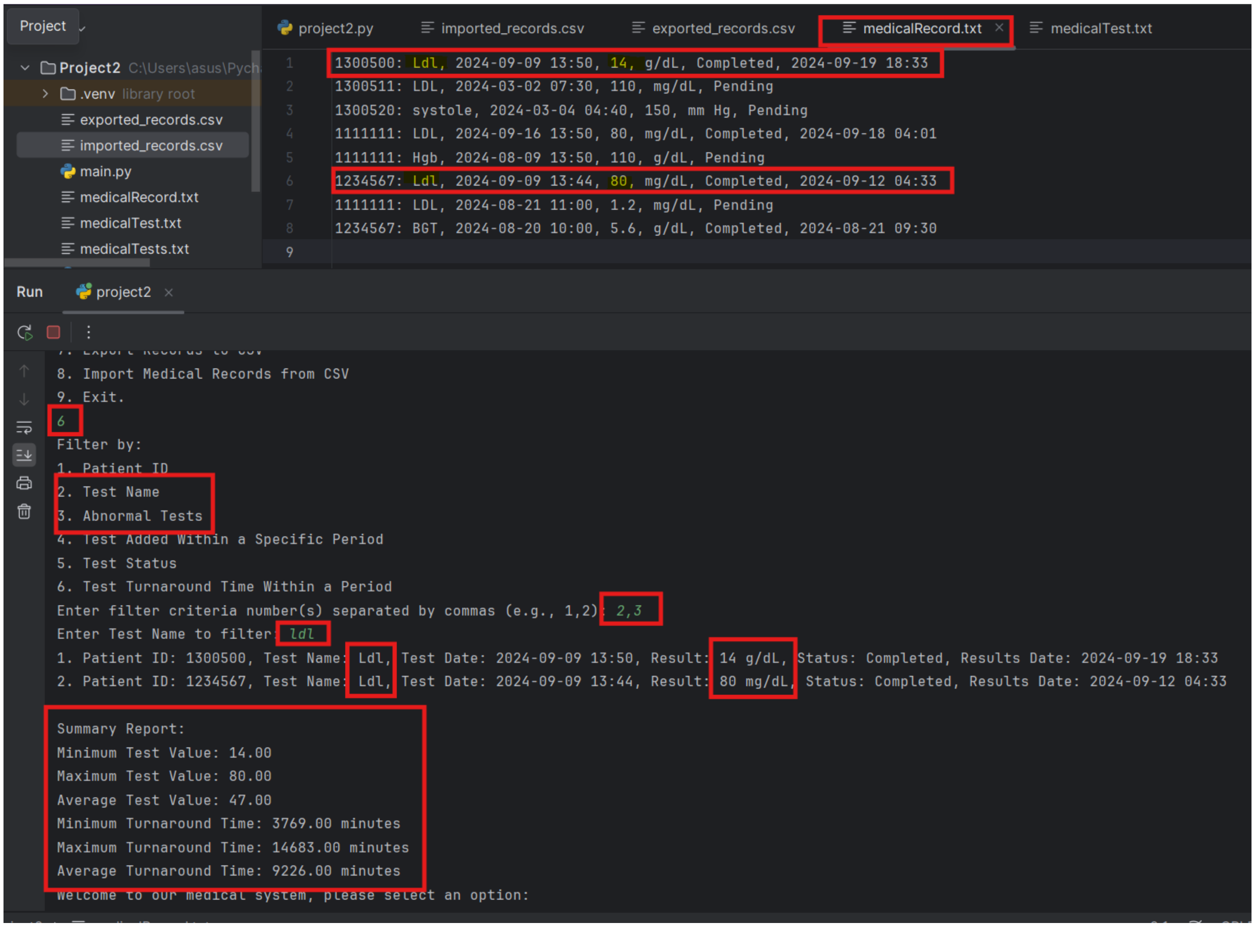
Filter records with tests based on test period:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
1111111: LDL, 2024-08-21 11:00, 1.2, mg/dL, Pending
1234567: BGT, 2024-08-20 10:00, 5.6, g/dL, Completed, 2024-08-21 09:30
```

```
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
5
Filter by:
1. Patient ID
2. Test Name
3. Abnormal Tests
4. Test Added Within a Specific Period
5. Test Status
6. Test Turnaround Time Within a Period
Enter filter criteria number(s) separated by commas (e.g., 1,2): 4
Enter start date (YYYY-MM-DD): 2024-03-03
Enter end date (YYYY-MM-DD): 2024-08-30
1. Patient ID: 1300520, Test Name: systole, Test Date: 2024-03-04 04:40, Result: 150 mm Hg, Status: Pending, Results Date:
2. Patient ID: 1111111, Test Name: Hgb, Test Date: 2024-08-09 13:50, Result: 110 g/dL, Status: Pending, Results Date:
3. Patient ID: 1111111, Test Name: LDL, Test Date: 2024-08-21 11:00, Result: 1.2 mg/dL, Status: Pending, Results Date:
4. Patient ID: 1234567, Test Name: BGT, Test Date: 2024-08-20 10:00, Result: 5.6 g/dL, Status: Completed, Results Date: 2024-08-21 09:30
Welcome to our medical system, please select an option:
```

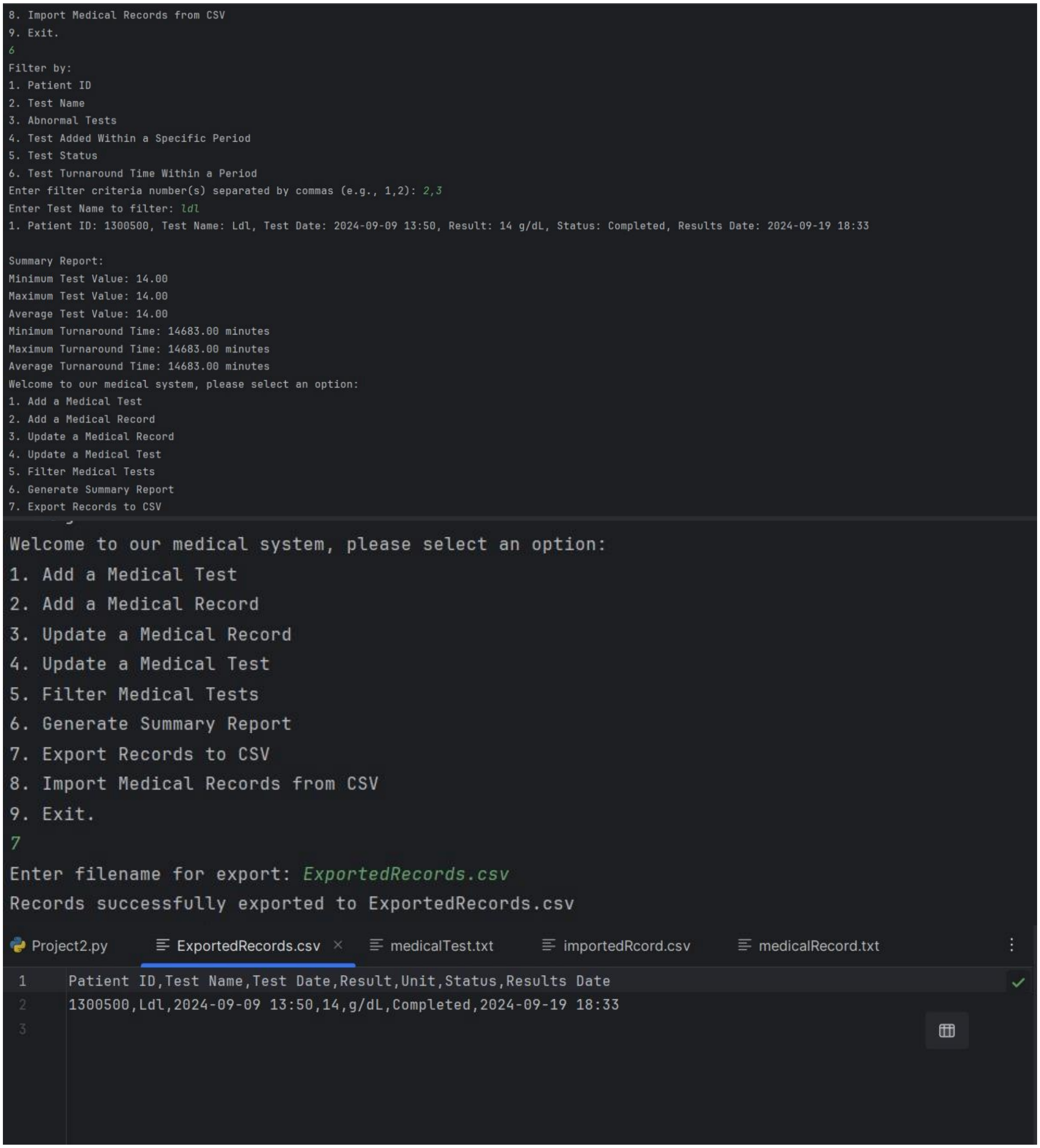
Generate textual summary reports



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
1111111: LDL, 2024-08-21 11:00, 1.2, mg/dL, Pending
1234567: BGT, 2024-08-20 10:00, 5.6, g/dL, Completed, 2024-08-21 09:30
```

```
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
6
Filter by:
1. Patient ID
2. Test Name
3. Abnormal Tests
4. Test Added Within a Specific Period
5. Test Status
6. Test Turnaround Time Within a Period
Enter filter criteria number(s) separated by commas (e.g., 1,2): 2,3
Enter Test Name to filter: ldl
1. Patient ID: 1300500, Test Name: Ldl, Test Date: 2024-09-09 13:50, Result: 14 g/dL, Status: Completed, Results Date: 2024-09-19 18:33
2. Patient ID: 1234567, Test Name: Ldl, Test Date: 2024-09-09 13:44, Result: 80 mg/dL, Status: Completed, Results Date: 2024-09-12 04:33

Summary Report:
Minimum Test Value: 14.00
Maximum Test Value: 80.00
Average Test Value: 47.00
Minimum Turnaround Time: 3769.00 minutes
Maximum Turnaround Time: 14683.00 minutes
Average Turnaround Time: 9226.00 minutes
Welcome to our medical system, please select an option:
```

Export medical records to a comma separated file



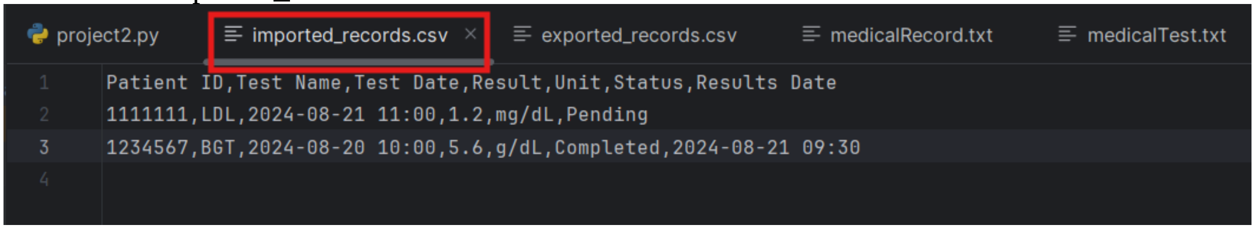
```
8. Import Medical Records from CSV
9. Exit.
6
Filter by:
1. Patient ID
2. Test Name
3. Abnormal Tests
4. Test Added Within a Specific Period
5. Test Status
6. Test Turnaround Time Within a Period
Enter filter criteria number(s) separated by commas (e.g., 1,2): 2,3
Enter Test Name to filter: ldl
1. Patient ID: 1300500, Test Name: Ldl, Test Date: 2024-09-09 13:50, Result: 14 g/dL, Status: Completed, Results Date: 2024-09-19 18:33

Summary Report:
Minimum Test Value: 14.00
Maximum Test Value: 14.00
Average Test Value: 14.00
Minimum Turnaround Time: 14683.00 minutes
Maximum Turnaround Time: 14683.00 minutes
Average Turnaround Time: 14683.00 minutes
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
```

```
Welcome to our medical system, please select an option:
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
7
Enter filename for export: ExportedRecords.csv
Records successfully exported to ExportedRecords.csv
```

```
Patient ID,Test Name,Test Date,Result,Unit,Status,Results Date
1300500,Ldl,2024-09-09 13:50,14,g/dL,Completed,2024-09-19 18:33
```

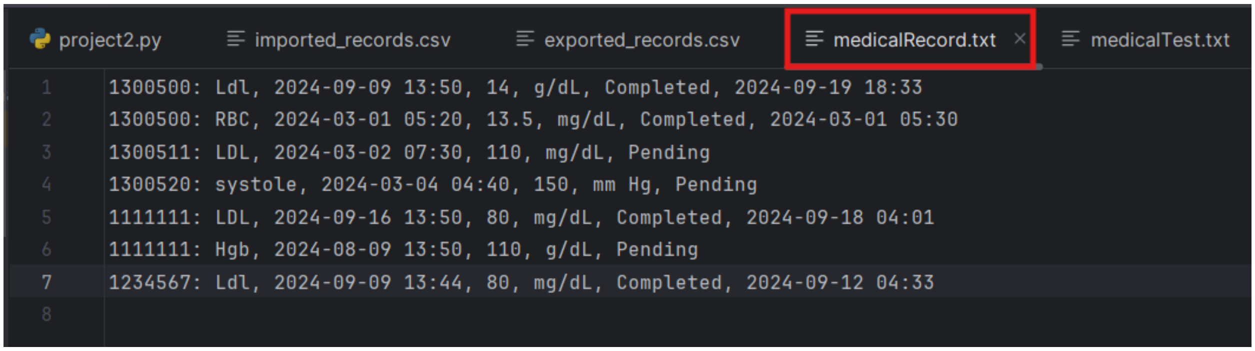
Import medical records from a comma separated file

Contents in imported_records.csv file:



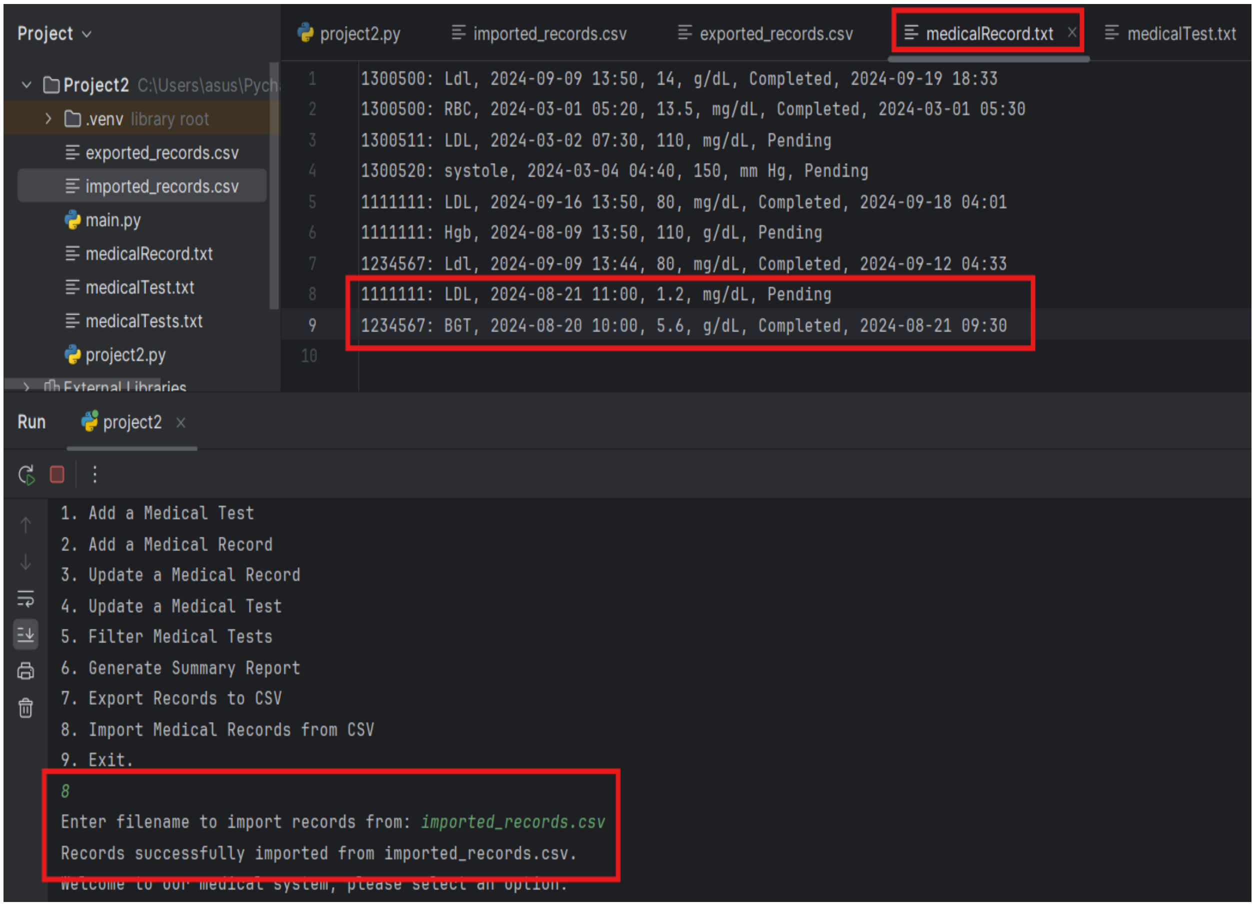
```
Patient ID,Test Name,Test Date,Result,Unit,Status,Results Date
1111111,LDL,2024-08-21 11:00,1.2,mg/dL,Pending
1234567,BGT,2024-08-20 10:00,5.6,g/dL,Completed,2024-08-21 09:30
```

medicalRecord.txt file before:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
```

medicalRecord.txt file after:



```
1300500: Ldl, 2024-09-09 13:50, 14, g/dL, Completed, 2024-09-19 18:33
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, Completed, 2024-03-01 05:30
1300511: LDL, 2024-03-02 07:30, 110, mg/dL, Pending
1300520: systole, 2024-03-04 04:40, 150, mm Hg, Pending
1111111: LDL, 2024-09-16 13:50, 80, mg/dL, Completed, 2024-09-18 04:01
1111111: Hgb, 2024-08-09 13:50, 110, g/dL, Pending
1234567: Ldl, 2024-09-09 13:44, 80, mg/dL, Completed, 2024-09-12 04:33
1111111: LDL, 2024-08-21 11:00, 1.2, mg/dL, Pending
1234567: BGT, 2024-08-20 10:00, 5.6, g/dL, Completed, 2024-08-21 09:30
```

```
1. Add a Medical Test
2. Add a Medical Record
3. Update a Medical Record
4. Update a Medical Test
5. Filter Medical Tests
6. Generate Summary Report
7. Export Records to CSV
8. Import Medical Records from CSV
9. Exit.
8
Enter filename to import records from: imported_records.csv
Records successfully imported from imported_records.csv.
Welcome to our medical system, please select an option.
```