ELECTRICAL&COMPUTER ENGINGEERING DEPARTMENT

LINUX LABORATORY ENCS313

Python - Project 2

Medical Test Management System

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Section: 1

Date: 22.8.2024

Test Cases

Please note that we might give a different file name because we edited the file multiple times each one alone, in different times.

Now let's go through the test cases in our medical test management system!

First, we created the two files MedicalTest and medicalRecord as requested in the project.

Below is what it looks like after running the program:

```
Menu:
1.Add new medical test.
2.Add new medical test record.
3.Update patient record.
4.Update medical tests.
5.Delete patient record.
6.Filter medical tests.
7.Generate textual summary reports.
8.Export medical records.
9.Import medical records.
10.Print all records.
11.Exit.
Choose an option:
```

It gives the user a menu to choose the operation he wants. Let's go through the menu

1. Add a New Medical Test

- ***Adding a Valid Input Test:***

```
Choose an option: 1
Enter test name: LDL
Enter range values (e.g., '> 13.8, < 17.2'): >14.8, <12.7
Enter unit: MG
Enter turnaround time (format DD-hh-mm): 00-07-08
Test added successfully.
```

- ***Adding Invalid Input Tests***

```
Choose an option: 1
Enter test name: Hgb
Enter range values (e.g., '> 13.8, < 17.2'): >14.a
Invalid range value: '14.a' is not a number.
```

```
Choose an option: 1
Enter test name: LDL
Enter range values (e.g., '> 13.8, < 17.2'): >13.8
Enter unit: mg
Enter turnaround time (format DD-hh-mm): 12-99-04
Invalid turnaround time values. Please ensure hours are between 0-23 and minutes between 0-59.
```

2. Add a New Medical Test Record

- ***Adding a Valid Input Test:***

```
Choose an option: 2
Adding a new test record:
Patient ID (7 digits): 1234567
Test Name (fixed length): LDL
Test Date and Time (YYYY-MM-DD HH:MM): 2020-01-04 01:03
Result Value (numeric): 14.9
Results Unit (fixed length): mg
Status (Pending, Completed, Reviewed): Pending
Test record added successfully.
```

- ***Invalid Patient ID:***

```
Choose an option: 2
Adding a new test record:
Patient ID (7 digits): 1234
Invalid Patient ID. It should be exactly 7 digits.
Patient ID (7 digits): 12a3456
Invalid Patient ID. It should consist of digits only.
Patient ID (7 digits): 123a4567
Invalid Patient ID. It should consist of digits only.
Patient ID (7 digits): 12,34566
Invalid Patient ID. It should consist of digits only.
Patient ID (7 digits): 1234567
```

- ***Invalid Test Date Format:***

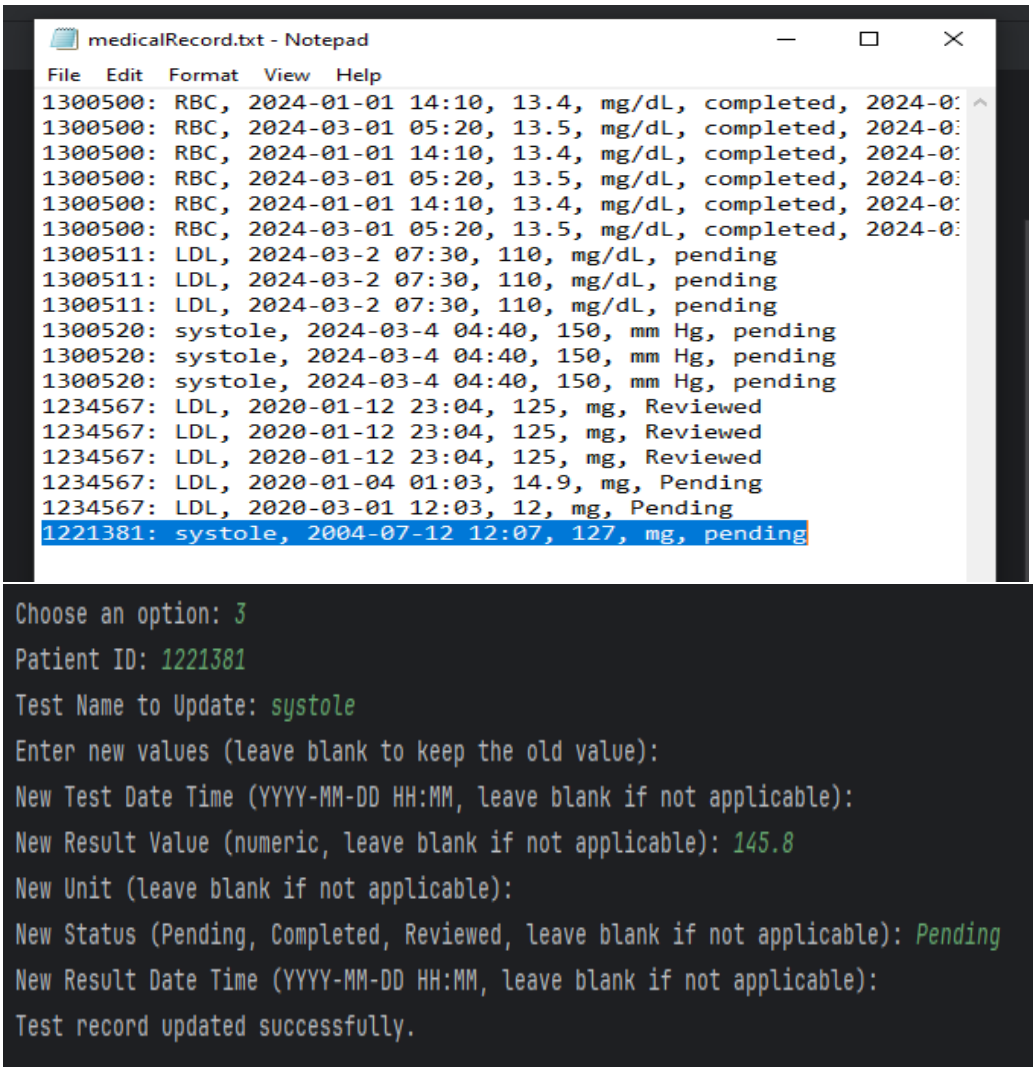
```
Choose an option: 2
Adding a new test record:
Patient ID (7 digits): 1234567
Test Name (fixed length): LDL
Test Date and Time (YYYY-MM-DD HH:MM): 2020-99-99 12:05
Invalid Date and Time. The month must be between 01 and 12.
Test Date and Time (YYYY-MM-DD HH:MM): 2020-01-99 12:05
Invalid Date and Time. The day must be valid for the given month.
Test Date and Time (YYYY-MM-DD HH:MM): 2020-01-a2 12:05
Invalid Date and Time format. Please use YYYY-MM-DD HH:MM.
```

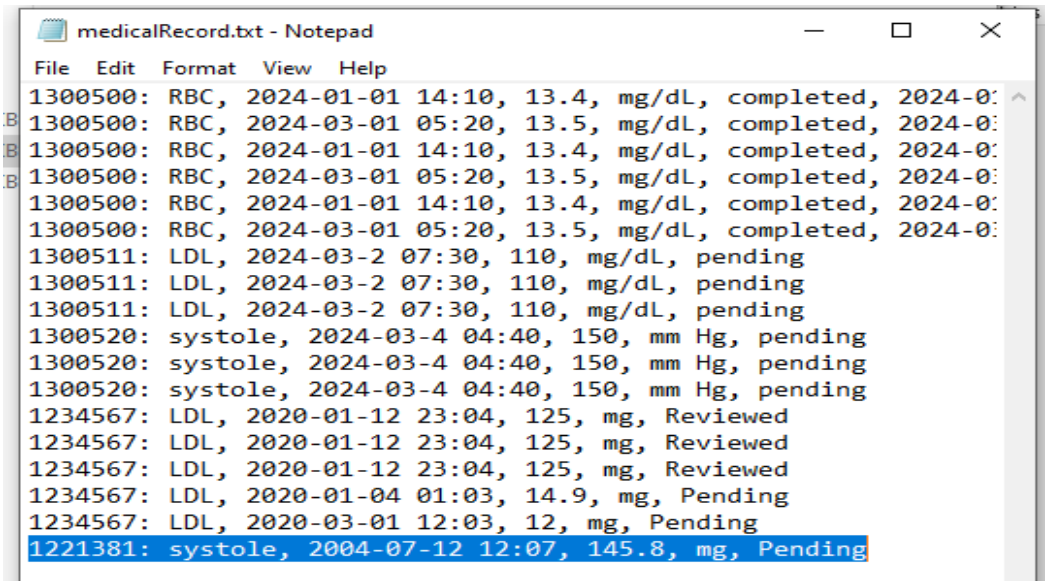
- ***Invalid Status:***

```
Status (Pending, Completed, Reviewed): joud
Invalid Status. It should be one of 'Pending', 'Completed', 'Reviewed'.
Status (Pending, Completed, Reviewed): Pending
```

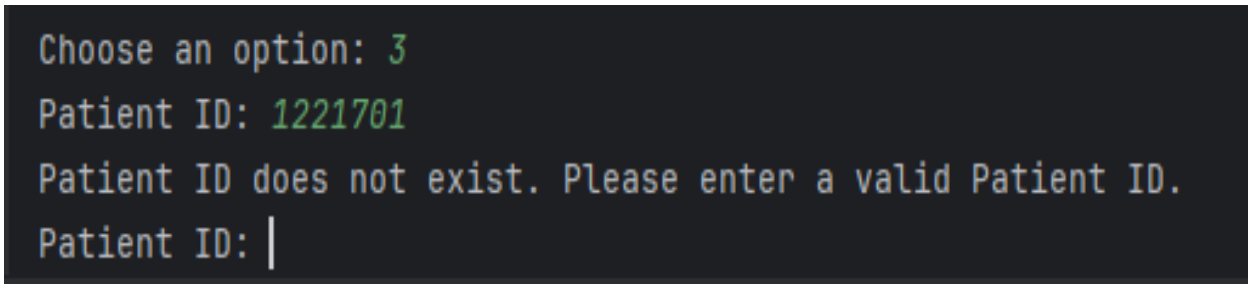
3. Update Patient Record

- ***Found***



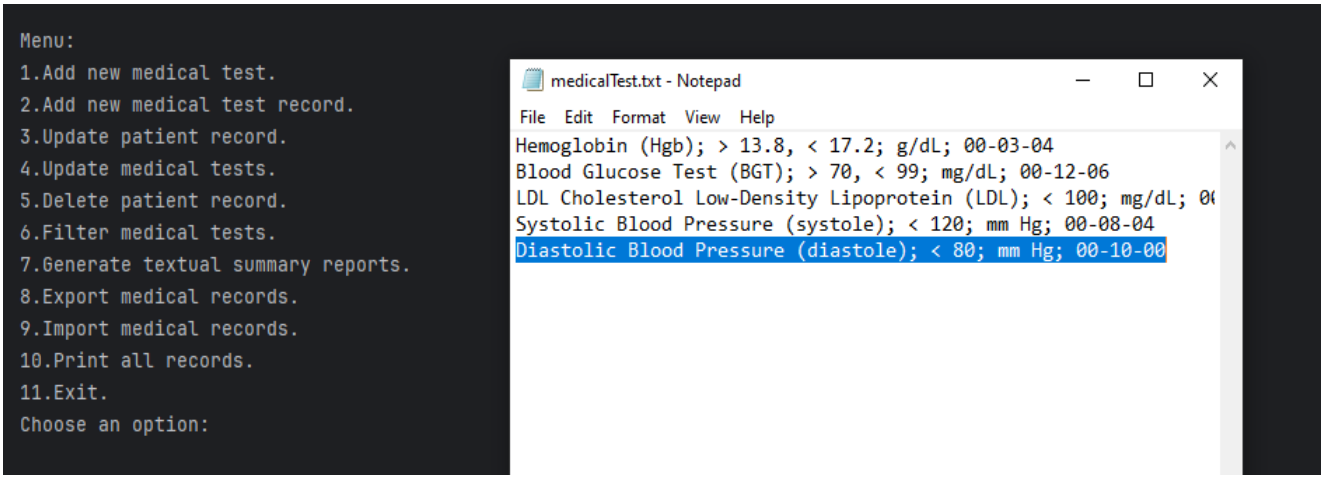


- ***Not Found***



4. Update Medical Tests

- ***Found***



```
Choose an option: 4
Enter the old test name to update: Diastolic Blood Pressure (diastole)
Enter the new test name: Diastolic Blood Pressure (DBP)
Enter the new range (e.g., > 13.8, < 17.2): >90, <75
Enter the new unit: mm Hg
Enter the new turnaround time (e.g., 00-03-04): 00-01-03
Medical test updated successfully.
```

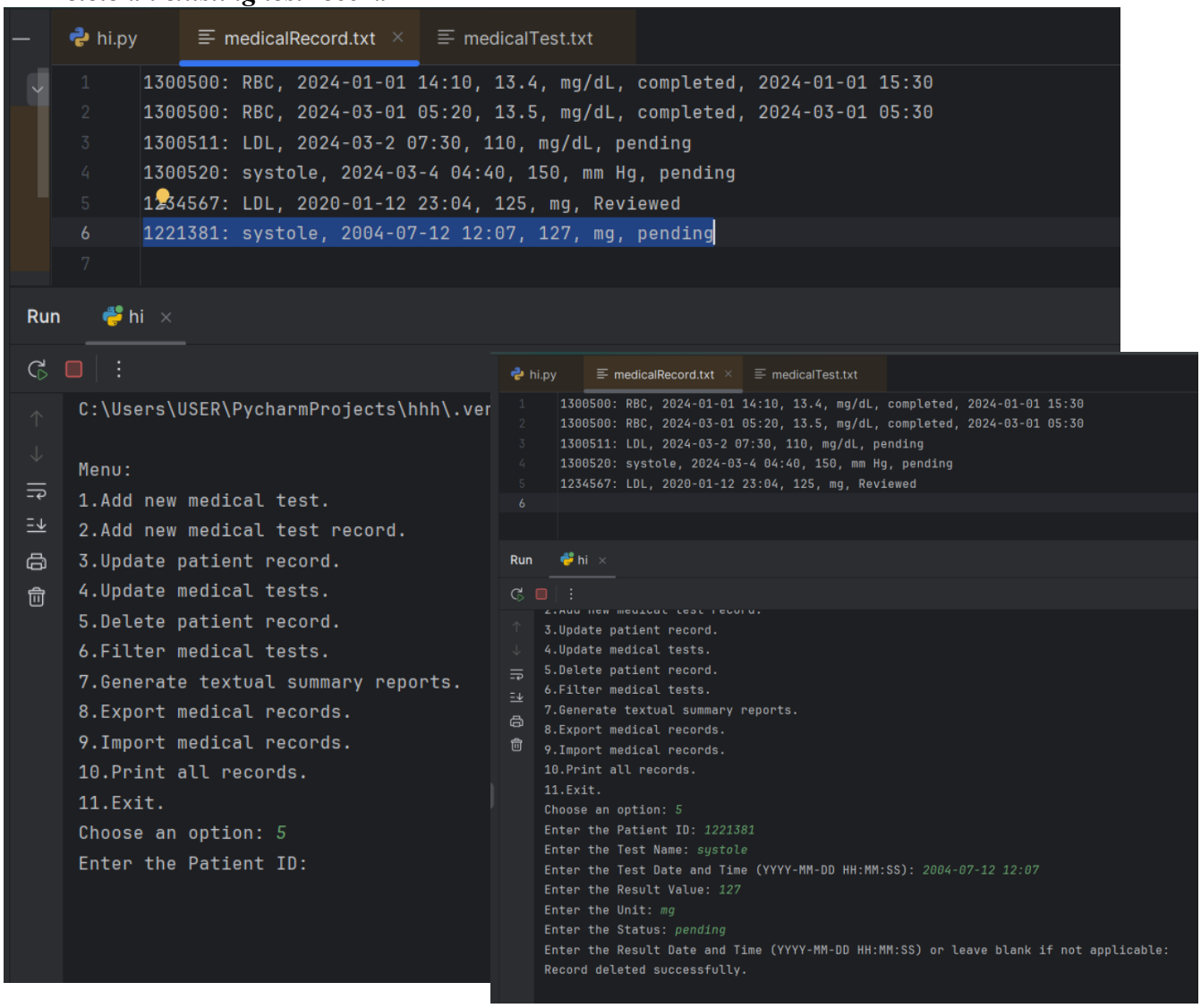
```
File  Edit  Format  View  Help
Hemoglobin (Hgb); > 13.8, < 17.2; g/dL; 00-03-04
Blood Glucose Test (BGT); > 70, < 99; mg/dL; 00-12-06
LDL Cholesterol Low-Density Lipoprotein (LDL); < 100; mg/d
Systolic Blood Pressure (systole); < 120; mm Hg; 00-08-04
Diastolic Blood Pressure (DBP); >90, <75; mm Hg; 00-01-03
```

- ***Not Found***

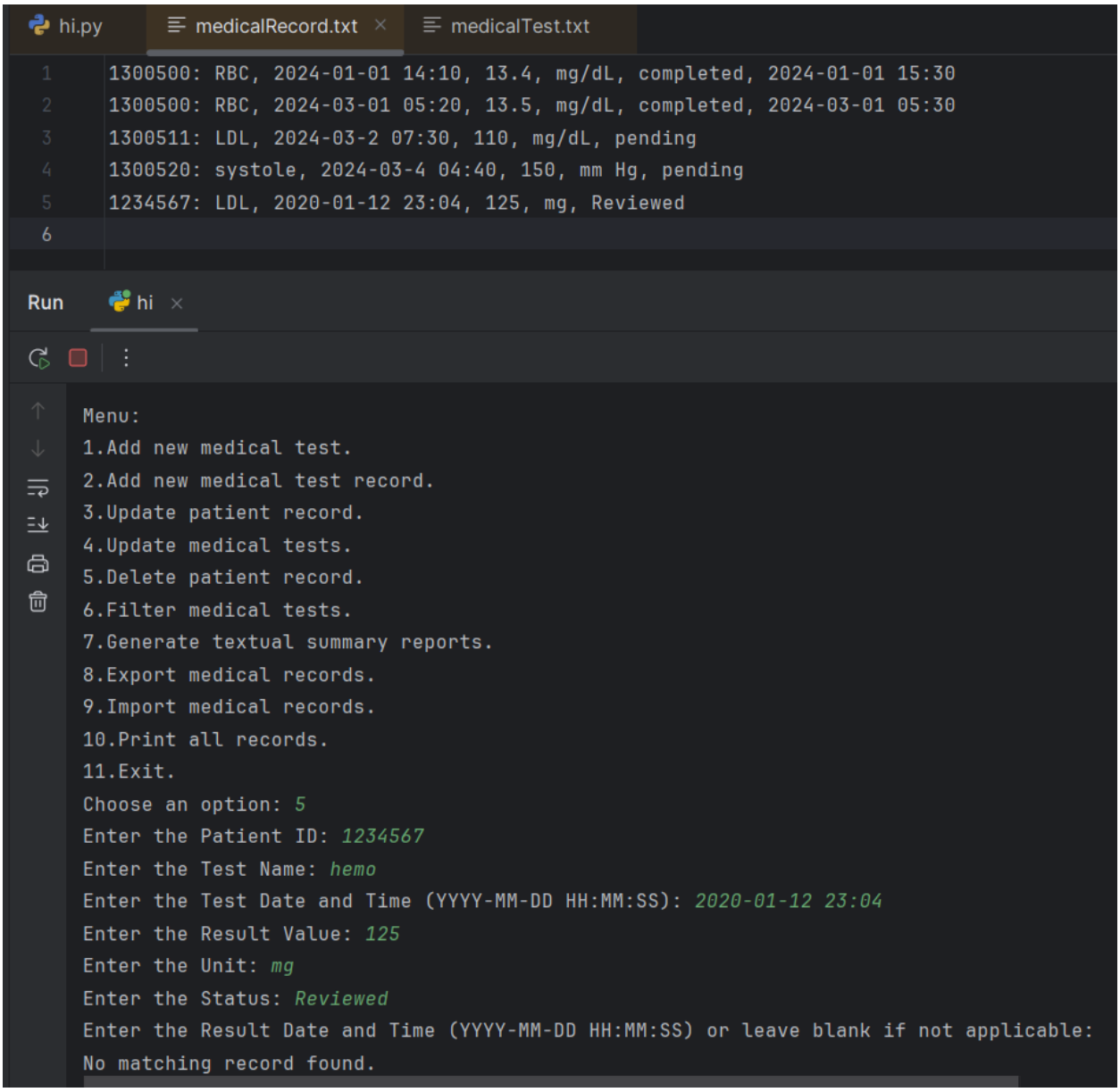
```
Choose an option: 4
Enter the old test name to update: hemo
Enter the new test name: hemoo
Enter the new range (e.g., > 13.8, < 17.2): >90
Enter the new unit: mg
Enter the new turnaround time (e.g., 00-03-04): 00-90-1
Invalid turnaround time values. Please ensure hours are between 0-23 and minutes between 0-59.
Invalid new turnaround time. Update aborted.
```

5. Delete Patient Records

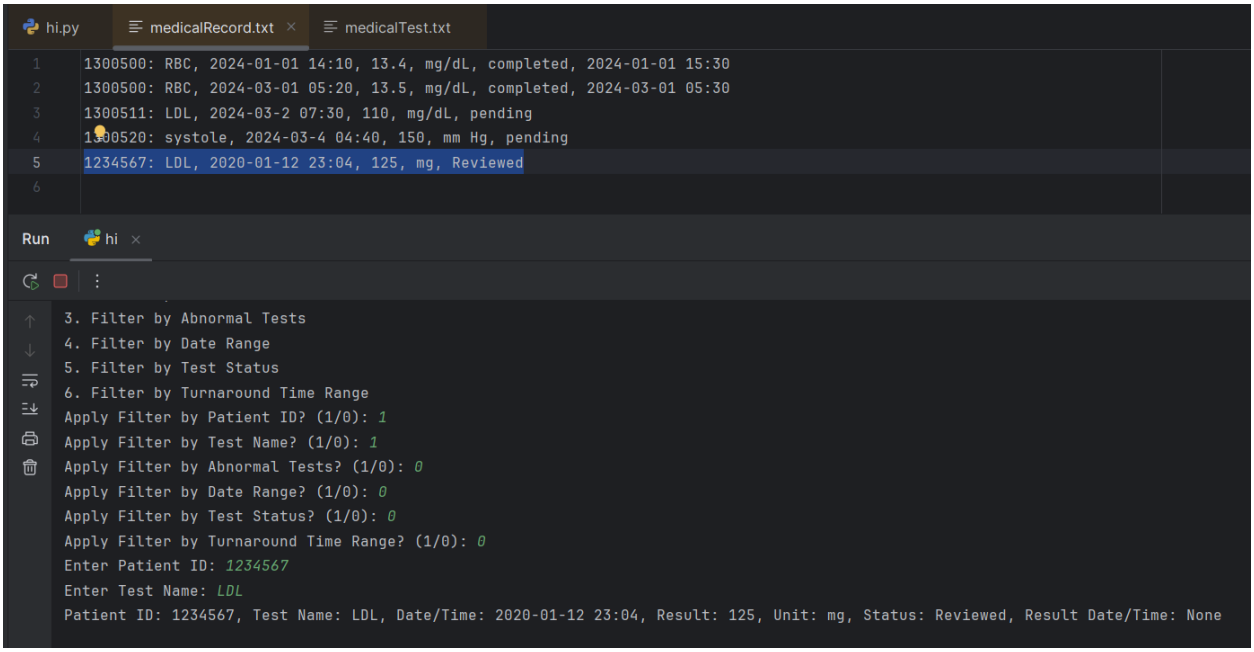
- ***Delete an existing test record***

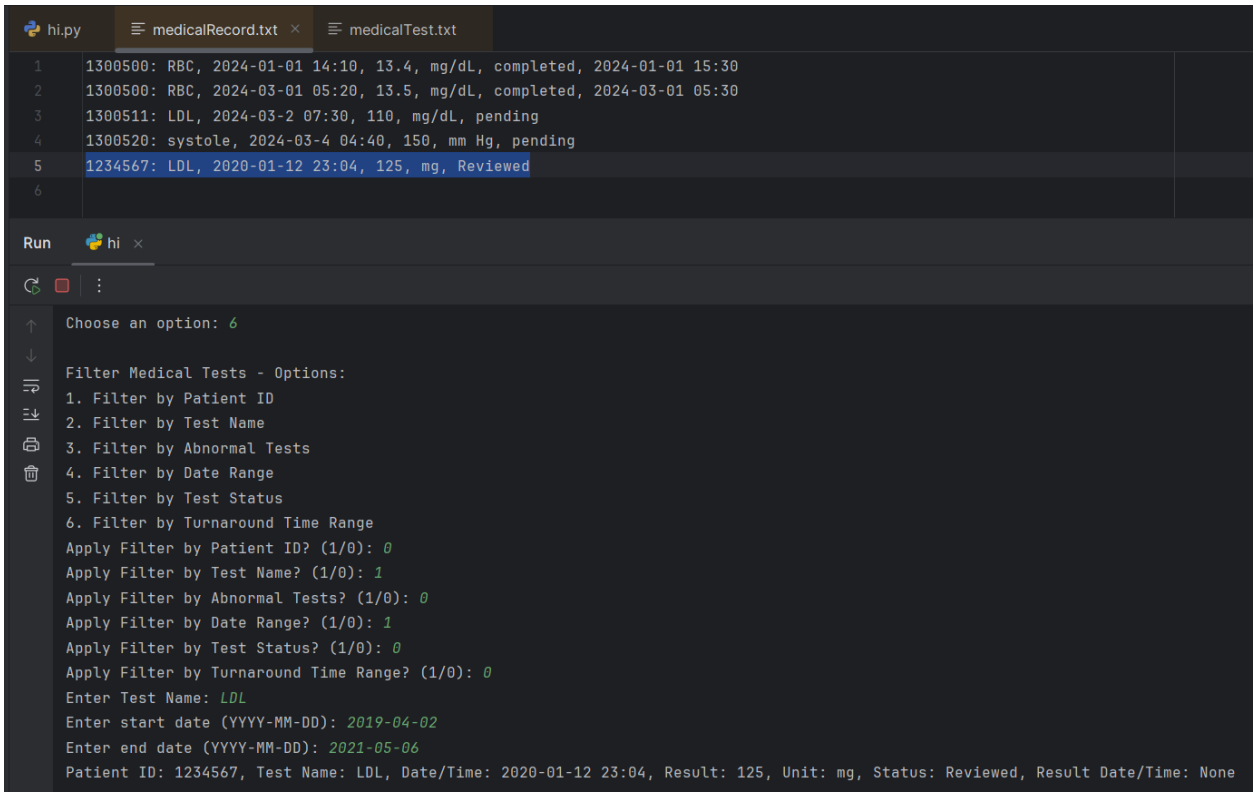


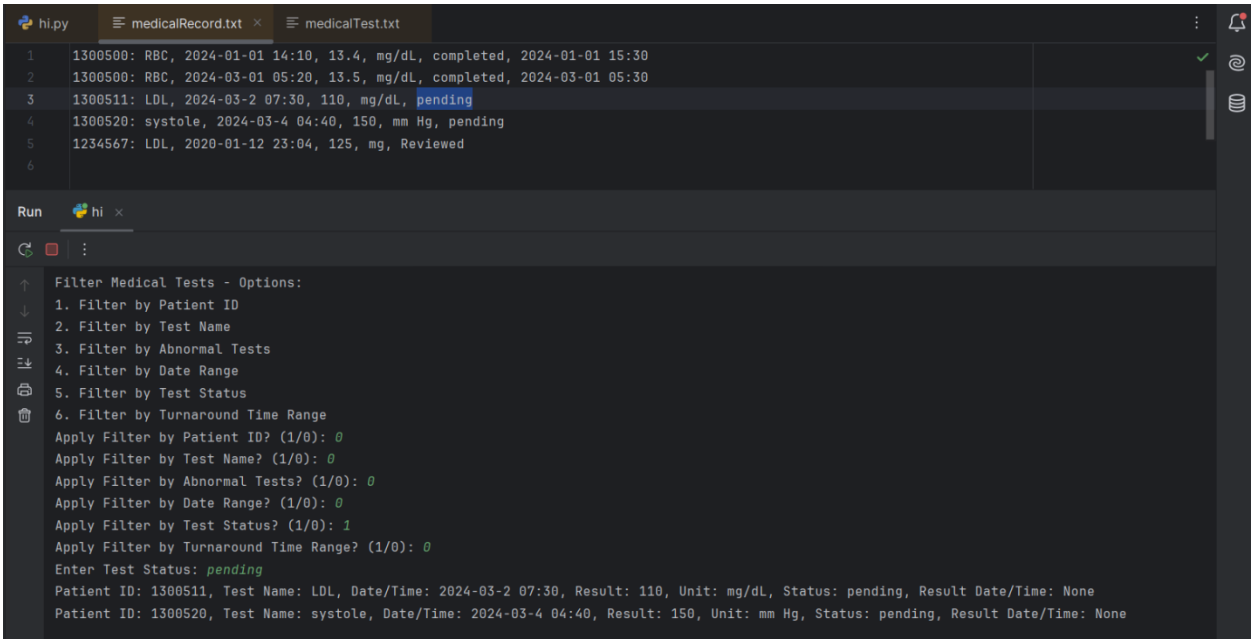
- ***Delete a test that does not exist***



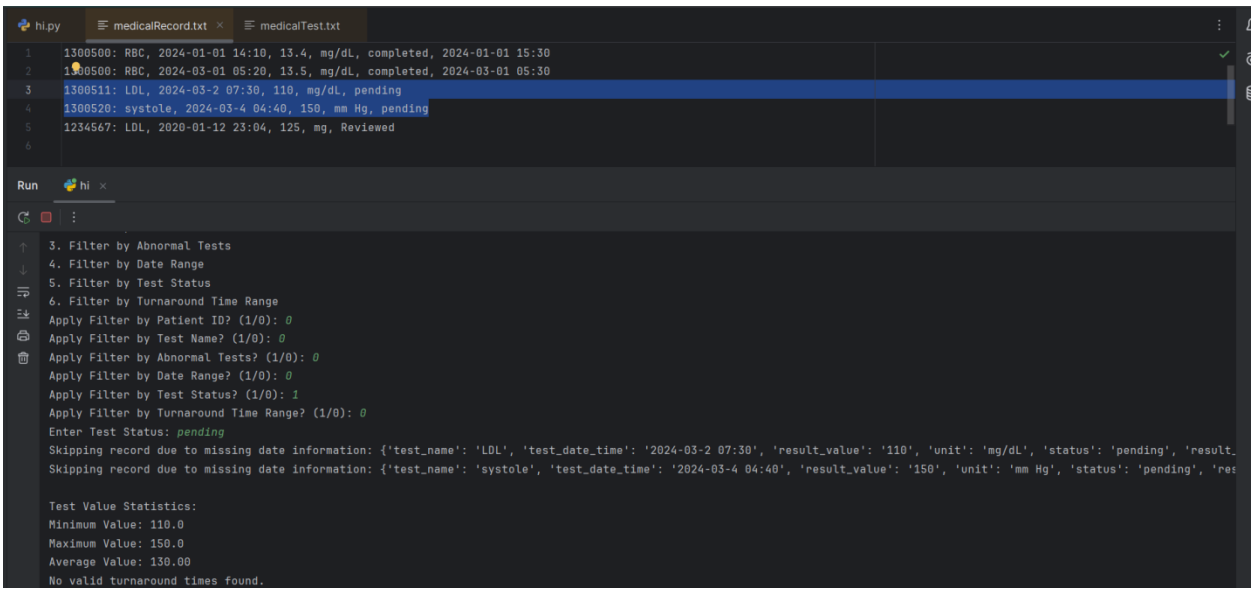
6. Filter Medical Tests

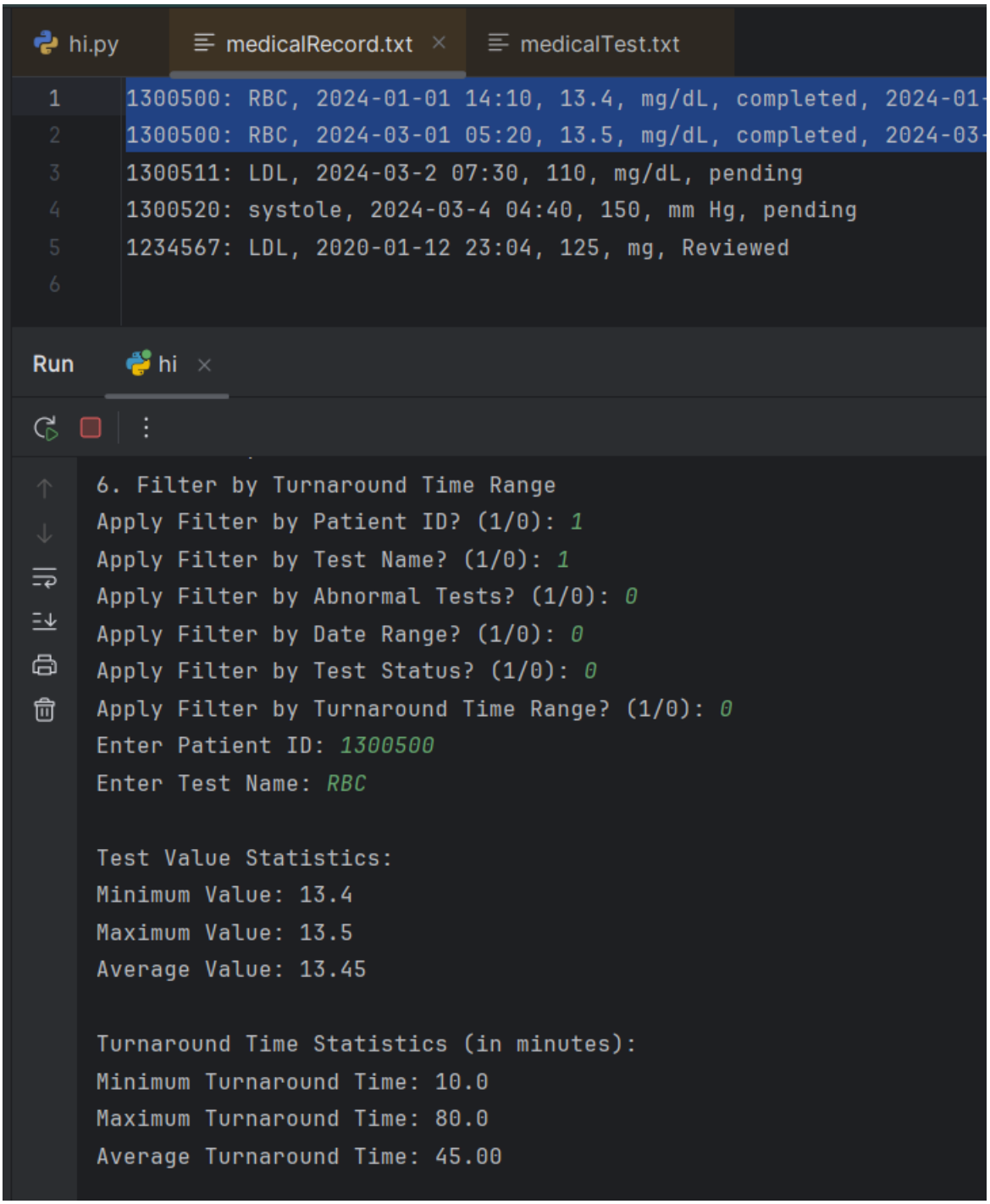






7. Generate Textual Summary Reports




hi.py
medicalRecord.txt
medicalTest.txt
1300500: RBC, 2024-01-01 14:10, 13.4, mg/dL, completed, 2024-01-
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, completed, 2024-03-
1300511: LDL, 2024-03-2 07:30, 110, mg/dL, pending
1300520: systole, 2024-03-4 04:40, 150, mm Hg, pending
1234567: LDL, 2020-01-12 23:04, 125, mg, Reviewed
Run
hi
6. Filter by Turnaround Time Range
Apply Filter by Patient ID? (1/0): 1
Apply Filter by Test Name? (1/0): 1
Apply Filter by Abnormal Tests? (1/0): 0
Apply Filter by Date Range? (1/0): 0
Apply Filter by Test Status? (1/0): 0
Apply Filter by Turnaround Time Range? (1/0): 0
Enter Patient ID: 1300500
Enter Test Name: RBC
Test Value Statistics:
Minimum Value: 13.4
Maximum Value: 13.5
Average Value: 13.45
Turnaround Time Statistics (in minutes):
Minimum Turnaround Time: 10.0
Maximum Turnaround Time: 80.0
Average Turnaround Time: 45.00

8. Export Medical Records

hi.py | medicalRecord.txt | medicalTest.txt

```
1300500: RBC, 2024-01-01 14:10, 13.4, mg/dL, completed, 2024-01-01 15:30
1300500: RBC, 2024-03-01 05:20, 13.5, mg/dL, completed, 2024-03-01 05:30
1300511: LDL, 2024-03-2 07:30, 110, mg/dL, pending
1300520: systole, 2024-03-4 04:40, 150, mm Hg, pending
1234567: LDL, 2020-01-12 23:04, 125, mg, Reviewed
```

Run | hi

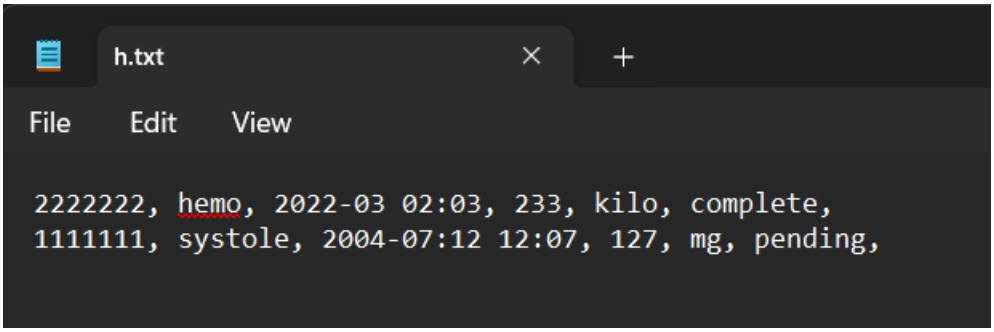
```
Menu:
1.Add new medical test.
2.Add new medical test record.
3.Update patient record.
4.Update medical tests.
5.Delete patient record.
6.Filter medical tests.
7.Generate textual summary reports.
8.Export medical records.
9.Import medical records.
10.Print all records.
11.Exit.
Choose an option: 8
Enter filename to export records: ahed.txt
Records exported successfully.
```

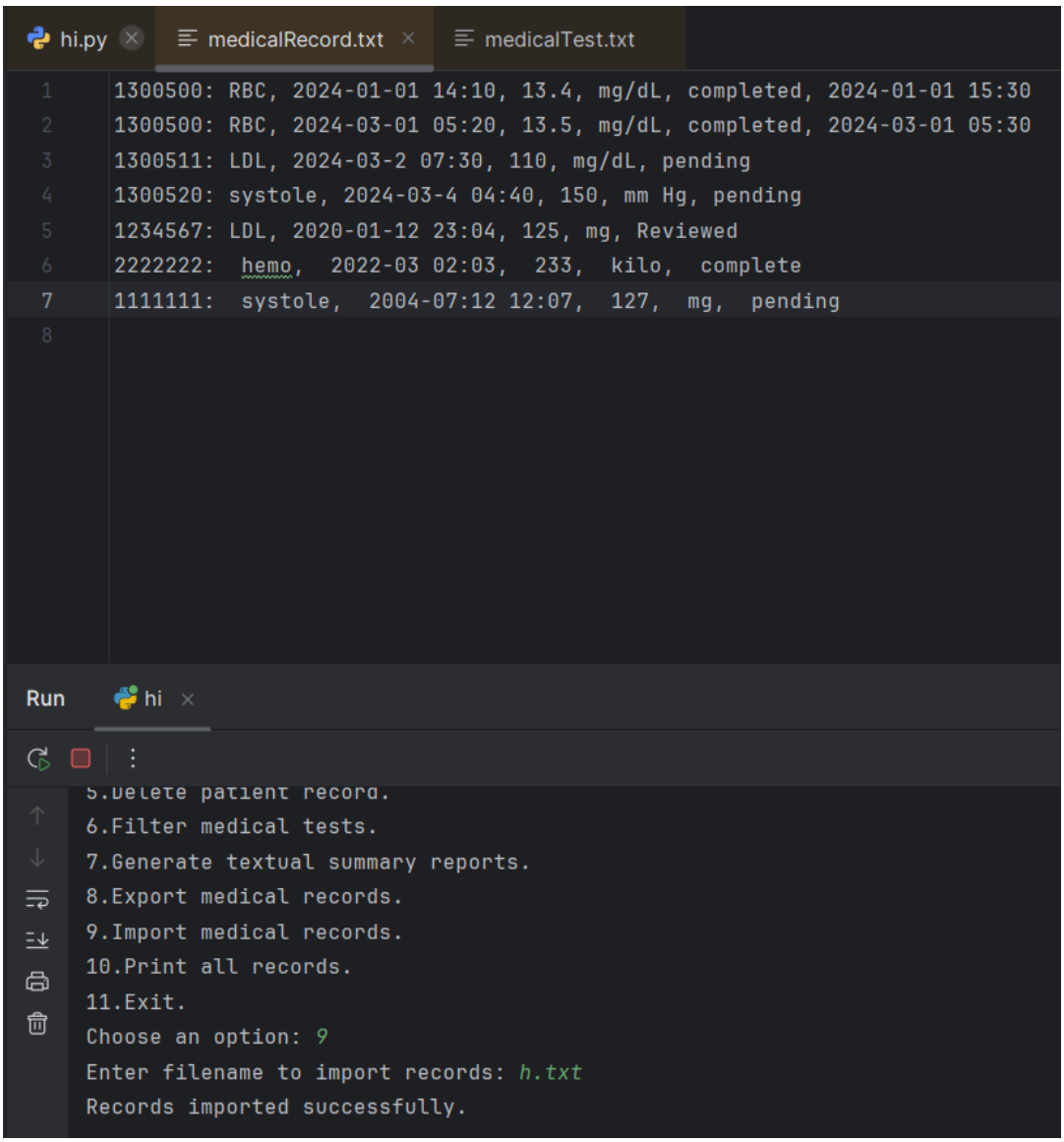
ahed.txt

File Edit View

```
Patient ID,Test Name,Test Date and Time,Result Value,Unit,Status,Result Date and Time
1300500,RBC,2024-01-01 14:10,13.4,mg/dL,completed,2024-01-01 15:30
1300500,RBC,2024-03-01 05:20,13.5,mg/dL,completed,2024-03-01 05:30
1300511,LDL,2024-03-2 07:30,110,mg/dL,pending,
1300520,systole,2024-03-4 04:40,150,mm Hg,pending,
1234567,LDL,2020-01-12 23:04,125,mg,Reviewed,
```

9. Import Medical Records





10. Error Handling

- ***Invalid File Name***

The program handles it when files don't exist by giving the user a message indicating the error as seen in the figure below: