



Faculty of Engineering & Technology
Department of Electrical & Computer Engineering
ENCS3130, LINUX LABORATORY

Project #2
Python project

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Date:

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The files before Run the program:

medicalRecord.txt file:

```
1300520: Hgb, 2018-05-4 04:40, 150, g/dL, pending
1210444: systole, 2024-03-01 05:20, 13.5, mm Hg, Reviewed
1210737: BGT, 2008-08-22 8:06, 120, mg/dL, Completed, 2016-08-22 8:10
1300511: diastole, 2024-04-2 07:30, 110, mm Hg, pending
1300511: LDL, 2020-10-03 3:09, 500, mg/dL, Reviewed
1210737: Hgb, 2024-01-10 3:30, 15, g/dL, Pending
1210444: diastole, 2000-06-01 05:20, 13.5, mg/dL, completed, 2009-03-01 05:30
1300511: BGT, 2014-09-2 07:30, 110.9, mg/dL, Reviewed
1300520: systole, 2009-07-4 04:40, 150, mm Hg, completed, 2024-8-21 15:30
1210444: LDL, 2010-10-11 6:09, 20, mg/dL, Pending
1210737: systole, 2020-10-09 5:09, 15, mm Hg, Reviewed
1300511: BGT, 2024-01-12 14:10, 80, mg/dL, completed, 2011-01-01 7:54
```

medicalTest.txt file:

```
Name: Hgb; Range: > 13.8, < 17.2; Unit: g/dL; 00-03-05
Name: BGT; Range: > 70, < 99; Unit: mg/dL; 00-12-06
Name: LDL; Range: < 100; Unit: mg/dL; 00-17-06
Name: systole; Range: > , < 120; Unit: mm Hg; 00-08-04
Name: diastole; Range: > , < 80; Unit: mm Hg; 00-10-00
```

Tests:

1. Add new medical test definition

Medical Test System Menu:

1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: **1**

Enter Test Name : **LSL**

Enter Minimum Range (leave empty if N/A): **30**

Enter Maximum Range (leave empty if N/A): **70**

Enter Unit of Measurement: **L/s**

Enter Turnaround Time (format: DD-HH-MM): **00-10-00**

Medical test 'LSL' added successfully :)

2. Add new medical Test record (with reviewed status)

Medical Test System Menu:

1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: 2

Enter Patient ID (7 digits): 1234567

Enter Test Name: LSL

Enter Test Date and Time (format: YYYY-MM-DD HH:mm): 2024-08-23 3:43

Enter Result Value: 90

Enter Unit of Measurement: l/s

Enter Status (Pending, Completed, Reviewed): Reviewed

Medical test record for Patient ID '1234567' added successfully.

3. Add new medical Test record (with Completed status)

Medical Test System Menu:

1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: 2

Enter Patient ID (7 digits): 1234567

Enter Test Name: LDL

Enter Test Date and Time (format: YYYY-MM-DD HH:mm): 2024-08-22 12:00

Enter Result Value: 18.5

Enter Unit of Measurement: g/l

Enter Status (Pending, Completed, Reviewed): Completed

Enter Results Date and Time (format: YYYY-MM-DD HH:mm): 2024-08-23 3:46

Medical test record for Patient ID '1234567' added successfully.

4.Update Medical Test Record .

```
1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit
Enter your choice: 3
Enter Patient ID (7 digits): 1210737
1. BGT on 2008-08-22 8:06 - Status: Completed
2. Hgb on 2024-01-10 3:30 - Status: Pending
3. systole on 2020-10-09 5:09 - Status: Reviewed
Enter the number of the test record you want to update: 1
Leave the field blank if you do not want to change it :)
Enter new Test Name (current: BGT): LDL
Enter new Test Date and Time (format: YYYY-MM-DD HH:mm) (current: 2008-08-22 8:06):
Enter new Result Value (current: 120): 130
Enter new Unit of Measurement (current: mg/dL):
Enter new Status (Pending, Completed, Reviewed) (current: Completed):
Medical test record updated successfully.
```

5.Update medical tests in the medicalTest file .

```
Medical Test System Menu:
1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit
Enter your choice: 4

Available Medical Tests:
1. Name: Hgb
2. Name: BGT
3. Name: LDL
4. Name: systole
5. Name: diastole
6. Name: LSL
Enter the number of the medical test you want to update: 6
Selected Test: Name: LSL; Range: > 30, < 70; Unit: l/s; 00-10-00

Leave any field empty if you do not want to update it :)
Enter new Test Name (current: LSL):
Enter new Minimum Range (current: 30): 100
Enter new Maximum Range (current: 70): 150
Enter new Unit (current: l/s):
Enter new Turnaround Time (current: 00-10-00): 00-10-01
Medical test 'LSL' updated successfully.
```

6.Filter medical tests:

6.1 Filter medical tests using single criterion:

Medical Test System Menu:

1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: 5

Filter Medical Records

Enter filter criteria if you want to filter otherwise click enter:

Patient ID (7 digits): 1300511

Test Name:

Abnormal tests only? (yes/no):

Start Date (format: YYYY-MM-DD):

End Date (format: YYYY-MM-DD):

Status (Pending, Completed, Reviewed):

Minimum Turnaround Time (in minutes):

Maximum Turnaround Time (in minutes):

Patient ID: 1300511, Test Name: diastole, Result: 110 mm Hg, Status: pending, Turnaround Time: 600 minutes, Test Date: 2024-04-2 07:30

Patient ID: 1300511, Test Name: LDL, Result: 500 mg/dL, Status: Reviewed, Turnaround Time: 1026 minutes, Test Date: 2020-10-03 3:09

Patient ID: 1300511, Test Name: BGT, Result: 110.9 mg/dL, Status: Reviewed, Turnaround Time: 726 minutes, Test Date: 2014-09-2 07:30

Patient ID: 1300511, Test Name: BGT, Result: 80 mg/dL, Status: completed, Turnaround Time: 726 minutes, Test Date: 2024-01-12 14:10

6.2 Filter medical tests using two criteria (other than test period and turnaround period)

7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: 5

Filter Medical Records

Enter filter criteria if you want to filter otherwise click enter:

Patient ID (7 digits): 1300511

Test Name: BGT

Abnormal tests only? (yes/no):

Start Date (format: YYYY-MM-DD):

End Date (format: YYYY-MM-DD):

Status (Pending, Completed, Reviewed):

Minimum Turnaround Time (in minutes):

Maximum Turnaround Time (in minutes):

Patient ID: 1300511, Test Name: BGT, Result: 110.9 mg/dL, Status: Reviewed, Turnaround Time: 726 minutes, Test Date: 2014-09-2 07:30

Patient ID: 1300511, Test Name: BGT, Result: 80 mg/dL, Status: completed, Turnaround Time: 726 minutes, Test Date: 2024-01-12 14:10

6.3 Filter medical tests based on test period

Enter your choice: 5

Filter Medical Records

Enter filter criteria if you want to filter otherwise click enter:

Patient ID (7 digits):

Test Name:

Abnormal tests only? (yes/no):

Start Date (format: YYYY-MM-DD): 2014-05-10

End Date (format: YYYY-MM-DD): 2024-02-01

Status (Pending, Completed, Reviewed):

Minimum Turnaround Time (in minutes):

Maximum Turnaround Time (in minutes):

Patient ID: 1300520, Test Name: Hgb, Result: 150 g/dL, Status: pending, Turnaround Time: 185 minutes, Test Date: 2018-05-4 04:40

Patient ID: 1210737, Test Name: Hgb, Result: 15 g/dL, Status: Pending, Turnaround Time: 185 minutes, Test Date: 2024-01-10 3:30

Patient ID: 1210737, Test Name: systole, Result: 15 mm Hg, Status: Reviewed, Turnaround Time: 484 minutes, Test Date: 2020-10-09 5:09

Patient ID: 1300511, Test Name: LDL, Result: 500 mg/dL, Status: Reviewed, Turnaround Time: 1026 minutes, Test Date: 2020-10-03 3:09

Patient ID: 1300511, Test Name: BGT, Result: 110.9 mg/dL, Status: Reviewed, Turnaround Time: 726 minutes, Test Date: 2014-09-2 07:30

Patient ID: 1300511, Test Name: BGT, Result: 80 mg/dL, Status: completed, Turnaround Time: 726 minutes, Test Date: 2024-01-12 14:10

6.4 Filter medical tests based on test turnaround period

Enter your choice: 5

Filter Medical Records

Enter filter criteria if you want to filter otherwise click enter:

Patient ID (7 digits):

Test Name:

Abnormal tests only? (yes/no):

Start Date (format: YYYY-MM-DD):

End Date (format: YYYY-MM-DD):

Status (Pending, Completed, Reviewed):

Minimum Turnaround Time (in minutes): 100

Maximum Turnaround Time (in minutes): 500

Patient ID: 1300520, Test Name: Hgb, Result: 150 g/dL, Status: pending, Turnaround Time: 185 minutes, Test Date: 2018-05-4 04:40

Patient ID: 1300520, Test Name: systole, Result: 150 mm Hg, Status: completed, Turnaround Time: 484 minutes, Test Date: 2009-07-4 04:40

Patient ID: 1210444, Test Name: systole, Result: 13.5 mm Hg, Status: Reviewed, Turnaround Time: 484 minutes, Test Date: 2024-03-01 05:20

Patient ID: 1210737, Test Name: Hgb, Result: 15 g/dL, Status: Pending, Turnaround Time: 185 minutes, Test Date: 2024-01-10 3:30

Patient ID: 1210737, Test Name: systole, Result: 15 mm Hg, Status: Reviewed, Turnaround Time: 484 minutes, Test Date: 2020-10-09 5:09

7. Generate textual summary reports

Enter your choice: 6

Filter Medical Records

Enter filter criteria if you want to filter otherwise click enter:

Patient ID (7 digits): 1300511

Test Name:

Abnormal tests only? (yes/no):

Start Date (format: YYYY-MM-DD):

End Date (format: YYYY-MM-DD):

Status (Pending, Completed, Reviewed):

Minimum Turnaround Time (in minutes):

Maximum Turnaround Time (in minutes):

```
-----Summary Report-----
|
| Minimum Test Value from the filter record test: 80.0
| Maximum Test Value from the filter record test: 500.0
| Average Test Value from the filter record test: 200.22
|
| -----
| Minimum Turnaround Time from the filter record test: 600 minutes
| Maximum Turnaround Time from the filter record test: 1026 minutes
| Average Turnaround Time from the filter record test: 769.50 minutes
|
| -----
```

8. Export medical records to a comma separated file

Enter your choice: 7

Enter the file you want to export to it: a.csv

Records successfully exported to a.csv.

a.csv file :

The screenshot shows a Microsoft Excel window with a CSV file named 'a.csv' open. The file contains medical records for patient 1300520. The data is organized into columns for Patient ID, Test Name, Test Value, and Test Date. The records are sorted by Test Date in descending order.

Patient ID	Test Name	Test Value	Test Date
1300520	pending g/dl	150	5/4/2018 4:40 Hgb
1300520	completed mm Hg	150	7/4/2009 4:40 systole
1210444	Reviewed mm Hg	13.5	3/1/2024 5:20 systole
1210444	completed mg/dL	13.5	6/1/2000 5:20 diastole
1210444	Pending mg/dl	20	10/11/2010 6:09 LDL
1210737	Completed mg/dL	130	8/22/2008 8:06 LDL
1210737	Pending g/dl	15	1/10/2024 3:30 Hgb
1210737	Reviewed mm Hg	15	10/9/2020 5:09 systole
1300511	pending mm Hg	110	4/2/2024 7:30 diastole
1300511	Reviewed mg/dL	500	10/3/2020 3:09 LDL
1300511	Reviewed mg/dL	110.9	9/2/2014 7:30 BGT
1300511	completed mg/dL	80	1/12/2024 14:10 BGT
1234567	Reviewed l/s	90	8/23/2024 3:43 LSL
1234567	Completed g/l	18.5	8/22/2024 12:00 LDL

9. Import medical records from a comma separated file

9.1 print to terminal:

```
Enter your choice: 8
Enter the file you want to import from it: a.csv
Please select your choice
1. Print to terminal
2. Print to another file
1
1300520: Hgb, 2018-05-4 04:40, 150, g/dL, pending
1300520: systole, 2009-07-4 04:40, 150, mm Hg, completed, 2024-8-21 15:30
1210444: systole, 2024-03-01 05:20, 13.5, mm Hg, Reviewed
1210444: diastole, 2000-06-01 05:20, 13.5, mg/dL, completed, 2009-03-01 05:30
1210444: LDL, 2010-10-11 6:09, 20, mg/dL, Pending
1210737: LDL, 2008-08-22 8:06, 130, mg/dL, Completed, 2016-08-22 8:10
1210737: Hgb, 2024-01-10 3:30, 15, g/dL, Pending
1210737: systole, 2020-10-09 5:09, 15, mm Hg, Reviewed
1300511: diastole, 2024-04-2 07:30, 110, mm Hg, pending
1300511: LDL, 2020-10-03 3:09, 500, mg/dL, Reviewed
1300511: BGT, 2014-09-2 07:30, 110.9, mg/dL, Reviewed
1300511: BGT, 2024-01-12 14:10, 80, mg/dL, completed, 2011-01-01 7:54
1234567: LSL, 2024-08-23 3:43, 90, l/s, Reviewed
1234567: LDL, 2024-08-22 12:00, 18.5, g/l, Completed, 2024-08-23 3:46

Records successfully imported from a.csv.
```

9.2 print to another file (medicalRecord.txt):

```
Enter your choice: 8
Enter the file you want to import from it: a.csv
Please select your choice
1. Print to terminal
2. Print to another file
2
Enter the file you want to print into: medicalRecord.txt
Records successfully imported from a.csv.
```

medicalRecord.txt:

File	Edit	View
1300520: Hgb, 2018-05-4 04:40, 150, g/dL, pending		
1300520: systole, 2009-07-4 04:40, 150, mm Hg, completed, 2024-8-21 15:30		
1210444: systole, 2024-03-01 05:20, 13.5, mm Hg, Reviewed		
1210444: diastole, 2000-06-01 05:20, 13.5, mg/dL, completed, 2009-03-01 05:30		
1210444: LDL, 2010-10-11 6:09, 20, mg/dL, Pending		
1210737: LDL, 2008-08-22 8:06, 130, mg/dL, Completed, 2016-08-22 8:10		
1210737: Hgb, 2024-01-10 3:30, 15, g/dL, Pending		
1210737: systole, 2020-10-09 5:09, 15, mm Hg, Reviewed		
1300511: diastole, 2024-04-2 07:30, 110, mm Hg, pending		
1300511: LDL, 2020-10-03 3:09, 500, mg/dL, Reviewed		
1300511: BGT, 2014-09-2 07:30, 110.9, mg/dL, Reviewed		
1300511: BGT, 2024-01-12 14:10, 80, mg/dL, completed, 2011-01-01 7:54		
1234567: LSL, 2024-08-23 3:43, 90, l/s, Reviewed		
1234567: LDL, 2024-08-22 12:00, 18.5, g/l, Completed, 2024-08-23 3:46		

10.exit:

Medical Test System Menu:

1. Add New Medical Test Definition
2. Add New Medical Test Record
3. Update Medical Test Record
4. Update medical tests in the medicalTest file
5. Filter medical tests
6. Generate textual summary reports
7. Export medical records to a comma separated file
8. Import medical records from a comma separated file
9. Exit

Enter your choice: 9

Exiting the system.

The files after Run the program:

medicalRecord.txt

```
1 1300520: Hgb, 2018-05-4 04:40, 150, g/dL, pending
2 1300520: systole, 2009-07-4 04:40, 150, mm Hg, completed, 2024-8-21 15:30
3 1210444: systole, 2024-03-01 05:20, 13.5, mm Hg, Reviewed
4 1210444: diastole, 2000-06-01 05:20, 13.5, mg/dL, completed, 2009-03-01 05:30
5 1210444: LDL, 2010-10-11 6:09, 20, mg/dL, Pending
6 1210737: LDL, 2008-08-22 8:06, 130, mg/dL, Completed, 2016-08-22 8:10
7 1210737: Hgb, 2024-01-10 3:30, 15, g/dL, Pending
8 1210737: systole, 2020-10-09 5:09, 15, mm Hg, Reviewed
9 1300511: diastole, 2024-04-2 07:30, 110, mm Hg, pending
10 1300511: LDL, 2020-10-03 3:09, 500, mg/dL, Reviewed
11 1300511: BGT, 2014-09-2 07:30, 110.9, mg/dL, Reviewed
12 1300511: BGT, 2024-01-12 14:10, 80, mg/dL, completed, 2011-01-01 7:54
13 1234567: LSL, 2024-08-23 3:43, 90, l/s, Reviewed
14 1234567: LDL, 2024-08-22 12:00, 18.5, g/l, Completed, 2024-08-23 3:46
15
```

medicalTest.txt

```
1 Name: Hgb; Range: > 13.8, < 17.2; Unit: g/dL; 00-03-05
2 Name: BGT; Range: > 70, < 99; Unit: mg/dL; 00-12-06
3 Name: LDL; Range: < 100; Unit: mg/dL; 00-17-06
4 Name: systole; Range: > , < 120; Unit: mm Hg; 00-08-04
5 Name: diastole; Range: > , < 80; Unit: mm Hg; 00-10-00
6 Name: LSL; Range: > 100, < 150; Unit: l/s; 00-10-01
7
```