



Faculty of Engineering and Technology  
Department of Electrical and Computer Engineering

## **Computer Architecture**

### **ENCS 4370**

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**Medical Test Management System**

**Test Cases**

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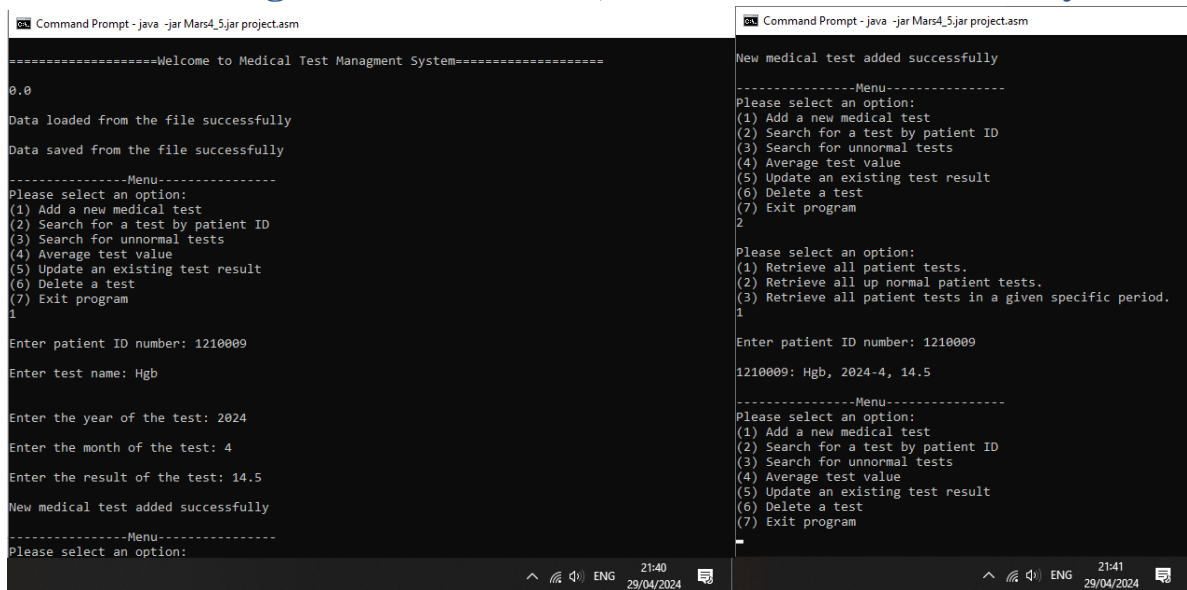
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## Case 1: Adding new medical test, and search for it to verify.



```
Command Prompt - java -jar Mars4_5.jar project.asm

-----Welcome to Medical Test Management System-----
0.0
Data loaded from the file successfully
Data saved from the file successfully

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
1
Enter patient ID number: 1210009
Enter test name: Hgb
Enter the year of the test: 2024
Enter the month of the test: 4
Enter the result of the test: 14.5
New medical test added successfully

-----Menu-----
Please select an option:

Command Prompt - java -jar Mars4_5.jar project.asm

New medical test added successfully

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
2
Please select an option:
(1) Retrieve all patient tests.
(2) Retrieve all up normal patient tests.
(3) Retrieve all patient tests in a given specific period.
1
Enter patient ID number: 1210009
1210009: Hgb, 2024-4, 14.5

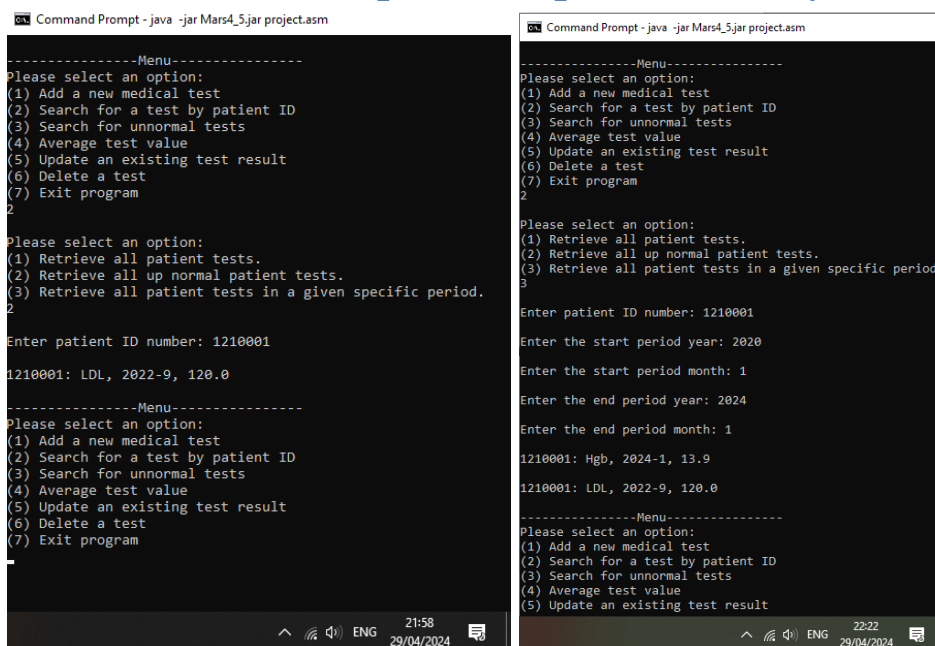
-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
-
```

Figure 1 Add new test

Figure 2 Check if test added or not

- Notice adding new test with all required data and searching to verify add operation.

## Case 2: Search for up normal patient tests by entering its ID.



```
Command Prompt - java -jar Mars4_5.jar project.asm

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
2
Please select an option:
(1) Retrieve all patient tests.
(2) Retrieve all up normal patient tests.
(3) Retrieve all patient tests in a given specific period.
2
Enter patient ID number: 1210001
1210001: LDL, 2022-9, 120.0

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
-
```

```
Command Prompt - java -jar Mars4_5.jar project.asm

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
(6) Delete a test
(7) Exit program
2
Please select an option:
(1) Retrieve all patient tests.
(2) Retrieve all up normal patient tests.
(3) Retrieve all patient tests in a given specific period.
3
Enter patient ID number: 1210001
Enter the start period year: 2020
Enter the start period month: 1
Enter the end period year: 2024
Enter the end period month: 1
1210001: Hgb, 2024-1, 13.9
1210001: LDL, 2022-9, 120.0

-----Menu-----
Please select an option:
(1) Add a new medical test
(2) Search for a test by patient ID
(3) Search for unnormal tests
(4) Average test value
(5) Update an existing test result
-
```

Figure 3 Search up normal test by patient ID

Figure 4 Search all patient tests in specific period by patient ID

- Notice in figure 3 that result of LDL test is **greater than 100** which is **up normal** result.
- Also, in figure 4 notice the user enters the period between start 2020 and 2024 years and the tests in 2022 and 2024 displayed on the screen.

### Case 3: Search for unnormal tests.

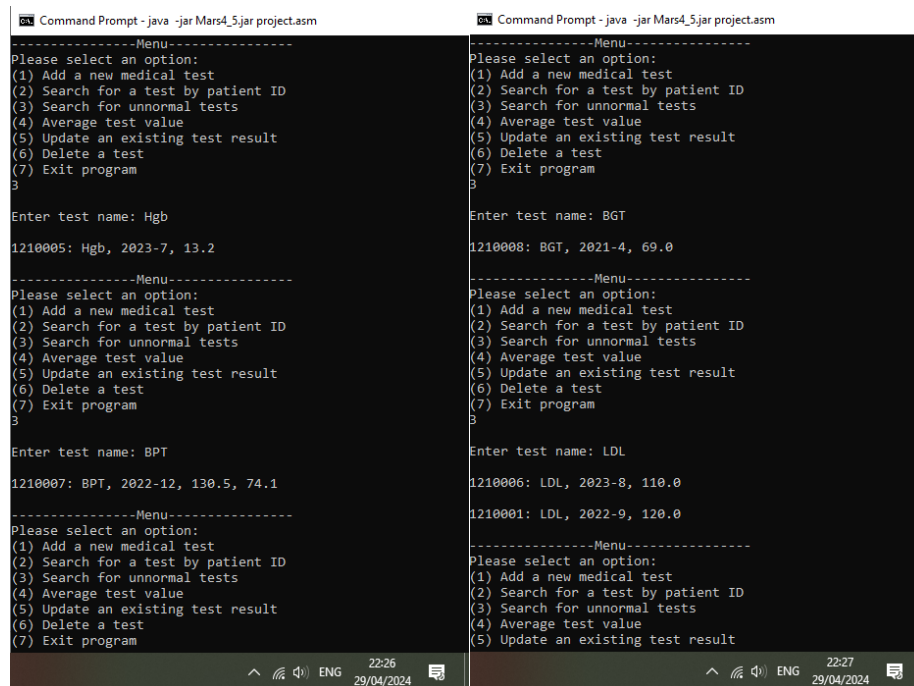


Figure 5 Search Hgb and BPT unnormal tests

Figure 6 Search BGT and LDL unnormal tests

- Notice in figure 5 for both Hgb and BPT tests the tests shown on the screen their results are unnormal since Hgb normal range between 13.8 to 17.2 and BPT first result less than 120 and second less than 80, and the result of Hgb shown is 13.2 which is less than 13.8. Also, the first result of BPT is greater than 120.
- Notice in figure 6 for both BGT and LDL tests the tests shown on the screen their results are unnormal since BGT normal range between 70 to 99 and LDL less than 100, so the result of Hgb shown is 69 which is less than 70. Also, the result of LDL is 110 and 120 are greater than 100.

### Case 4: Find average tests results.

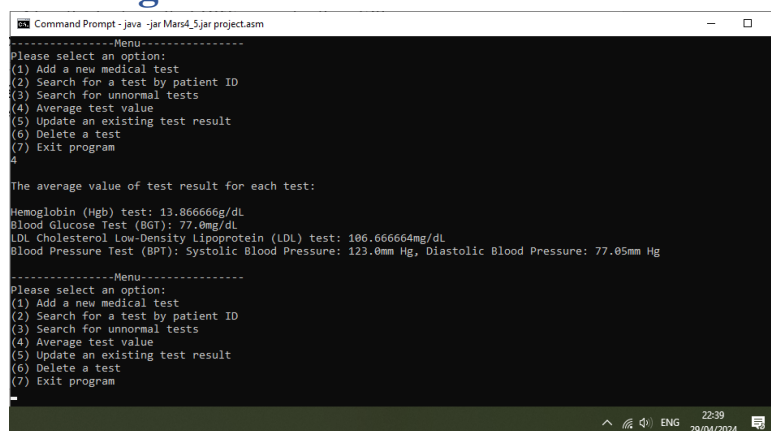


Figure 7 Find average tests results value

- Notice in figure 7 when user enter option 4 the system compute average result value for each type of medical tests and show on the screen with their specific periods.

## Case 5: Update an existing test result, and verify the update.

The figure consists of three side-by-side screenshots of a Java application running in a Windows Command Prompt. The application is titled 'Mars4\_5.jar MedicalTest.asm'.  
The first screenshot shows the main menu with options: (1) Add a new medical test, (2) Search for a test by patient ID, (3) Search for unnormal tests, (4) Average test value, (5) Update an existing test result, (6) Delete a test, and (7) Exit program. Option 5 is selected.  
The second screenshot shows the user entering patient ID '1210001' and test name 'Hgb'. The system displays the current test results for Hgb: 1210001: Hgb, 2024-3, 13.9 and 1210001: Hgb, 2024-2, 15.3. The user is prompted to enter the year (2024), month (2), and result (16.8). The system confirms 'New result for given test updated!'.  
The third screenshot shows the updated test results: 1210001: Hgb, 2024-3, 13.9 and 1210001: Hgb, 2024-2, 16.8. The user then selects option 2 to search for a test by patient ID, and the system displays the updated test results for patient ID 1210001: 1210001: LDL, 2024-1, 55.0.

Figure 8 Update tests' result

- Notice that in figure 8 the user updates the result of patient ID 1210001 and its Hgb test result from 15.3 which is the original result to the new result 16.8 on given specific date, and the system shown that update operation successfully applied by searching for this test.

## Case 6: Delete a test, and verify that.

The screenshot shows a Java application running in a Windows Command Prompt, titled 'Mars4\_5.jar project.asm'. The main menu is displayed with options: (1) Add a new medical test, (2) Search for a test by patient ID, (3) Search for unnormal tests, (4) Average test value, (5) Update an existing test result, (6) Delete a test, and (7) Exit program. Option 6 is selected.  
The user enters patient ID '1210001' and test name 'LDL'. The system displays 'Test for given patient ID deleted!'.  
The user then selects option 2 to search for a test by patient ID, and the system displays the updated test results for patient ID 1210001: 1210001: Hgb, 2024-1, 13.9.

Figure 9 Delete test

- Notice that in figure 9 the user deleted LDL test for patients' ID = 1210001 which is shown in figure 4 for this patient and the system shown by search that LDL test actually deleted.