



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

Computer Architecture

ENCS4370

First Project

Medical Test Management System

First Test

Prepared by:

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Instructor: Dr. Aziz Qaroush

Section: One

Date: 30_4_2024

File Contents:

1300500: HGB, 2020-01, 12.1
1300511: BGT, 2021-02, 50.2
1300522: LDL, 2022-03, 120.3
1300533: BPTS, 2023-04, 180.4
1300523: HGB, 2020-01, 18.1
1300544: BPTD, 2024-05, 90.5
1300555: HGB, 2025-06, 14.6
1300566: BGT, 2026-07, 79.9
1300577: LDL, 2027-09, 60.8
1300588: BPTS, 2028-09, 100.9
1300599: BPTD, 2029-10, 40.0

1. Load Data From File:

C:\Users\ASUS\Desktop\ENC54370_ARCHITECTURE\Project\MedicalTest.asm - MARS 4.5

File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

0- Load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 0
data loaded successfully

Clear

0- Load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):

Registers		Coproc 1	Coproc 0
Name	Number		Value
\$zero	0		0x00000000
\$at	1		0x00000000
\$v0	2		0x00000000
\$v1	3		0x00000000
\$a0	4		0x00000000
\$a1	5		0x00000000
\$a2	6		0x00000000
\$a3	7		0x00000000
\$t0	8		0x00000000
\$t1	9		0x00000000
\$t2	10		0x00000000
\$t3	11		0x00000000
\$t4	12		0x00000000
\$t5	13		0x00000000
\$t6	14		0x00000000
\$t7	15		0x00000000
\$s0	16		0x00000000
\$s1	17		0x00000000
\$s2	18		0x00000000
\$s3	19		0x00000000
\$s4	20		0x00000000
\$s5	21		0x00000000
\$s6	22		0x00000000
\$s7	23		0x00000000
\$s8	24		0x00000000
\$s9	25		0x00000000
\$k0	26		0x00000000
\$k1	27		0x00000000
\$gp	28		0x10008000
\$sp	29		0x7ffffc
\$fp	30		0x00000000
\$ra	31		0x00000000
pc			0x00400000
hi			0x00000000
lo			0x00000000

2. Add a New Medical Test:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 0
data loaded successfully

0- Load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 1
enter patient ID (int only): 123
id is invalid the id should contain 7 digits and take this shape: 'axxxxxx' where a cant be '0'
enter patient ID (int only): 1300600
enter test name: RRR
invalid test name only: 'HGB,BGT,LDL,BFTS,BFTD' (upper case) are available
enter test name: LDL
enter test date (YYYY-MM): 2030
invalid date format! right format: 'yyyy-mm'
enter test date (YYYY-MM): 2030-01
enter test result (nums only eg. 15.3 15 15.0 ...): 48.3
data loaded successfully

0- Load data
1- Add a new medical test
```

Clear

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7fffffc0
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

3. Search for a Test by patient ID:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
data loaded successfully

0- Load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 2
enter patient ID (int only): 1300600

1300600 LDL 2030-01 48.3

0- Load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):
```

Clear

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7fffffc0
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

4. Retrieve all patient Tests:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 3
1300500 HGB 2020-01 12.1
300511 BGT 2021-02 50.2
300522 LDL 2022-03 120.3
300533 BFTS 2023-04 180.4
300523 HGB 2020-01 18.1
300544 BFTD 2024-05 90.5
300555 HGB 2025-06 14.6
300566 BGT 2026-07 79.9
300577 LDL 2027-08 60.8
300588 BFTS 2028-09 100.9
300599 BFTD 2029-10 40.0
1300600 LDL 2030-01 48.3

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):
```

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$a0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffeffc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

5. Retrieve all up Normal patient Tests:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 4
1300555 HGB 2025-06 14.6
1300566 BGT 2026-07 79.9
1300577 LDL 2027-08 60.8
1300588 BFTS 2028-09 100.9
1300599 BFTD 2029-10 40.0
1300600 LDL 2030-01 48.3

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):
```

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$a0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffeffc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

6. Retrieve all patient tests in a given specific period:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

10- Save to file
11- Exit

Your choice: enter a choice (0-11): 5
enter start date (YYYY-MM): 2022
invalid date format! right format: 'yyyy-mm'
enter start date (YYYY-MM): 2022-01
enter end date (YYYY-MM): 2030
invalid date format! right format: 'yyyy-mm'
enter end date (YYYY-MM): 2030-02
1300522 LDL 2022-03 120.3
1300533 BPTS 2023-04 180.4
1300544 BPTD 2024-05 90.5
1300555 HGB 2025-06 14.6
1300566 BGT 2026-07 79.9
1300577 LDL 2027-08 60.8
1300588 BPTS 2028-09 100.9
1300599 BPTD 2029-10 40.0
1300600 LDL 2030-01 48.3

Clear

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$s8	24	0x00000000
\$s9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

7. Retrieve all Unnormal patient Tests:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 6
1300500 HGB 2020-01 12.1
1300511 BGT 2021-02 50.2
1300522 LDL 2022-03 120.3
1300533 BPTS 2023-04 180.4
1300523 HGB 2020-01 18.1
1300544 BPTD 2024-05 90.5

Clear

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$s8	24	0x00000000
\$s9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

8. Retrieve the Average value of each Medical Test:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 7
average HGB tests' results: 14.93334
average BGT tests' results: 65.05
average LDL tests' results: 76.46667
average BPTS tests' results: 140.65
average BPTD tests' results: 65.25

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11):
```

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$a0	16	0x00000000
\$a1	17	0x00000000
\$a2	18	0x00000000
\$a3	19	0x00000000
\$a4	20	0x00000000
\$a5	21	0x00000000
\$a6	22	0x00000000
\$a7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10080000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

9. Update an existing Test:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 8

0 1300500 HGB 2020-01 12.1
1 1300511 BGT 2021-02 50.2
2 1300522 LDL 2022-03 120.3
3 1300533 BPTS 2023-04 180.4
4 1300523 HGB 2020-01 18.1
5 1300544 BPTD 2024-05 90.5
6 1300555 HGB 2025-06 14.6
7 1300566 BGT 2026-07 79.9
8 1300577 LDL 2027-09 60.8
9 1300588 BPTS 2028-09 100.9
10 1300599 BPTD 2029-10 40.0
11 1300600 LDL 2030-01 48.3

enter index of test to update: 11
enter test name: RRR
invalid test name only : 'HGB,BGT,LDL,BPTS,BPTD' (upper case) are available
enter test name: LDL
enter test date (YYYY-MM): 2021
invalid date format! right format: 'yyyy-mm'
```

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$a0	16	0x00000000
\$a1	17	0x00000000
\$a2	18	0x00000000
\$a3	19	0x00000000
\$a4	20	0x00000000
\$a5	21	0x00000000
\$a6	22	0x00000000
\$a7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10080000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

Invalid test name only '*'HGB,BGT,LDL,BPTS,BPTD' (upper case) are available
enter test name: LDL
enter test date (YYYY-MM): 2021
invalid date format! right format: 'yyyy-mm'
enter test date (YYYY-MM): 2031-01
enter test result (nums only eg. 15.3 15 15.0 ...): 40.7
data loaded successfully

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 3
1300500 HGB 2020-01 12.1
1300511 BGT 2021-02 50.2
1300522 LDL 2022-03 120.3
1300533 BPTS 2023-04 180.4
1300523 HGB 2020-01 18.1
1300544 BPTD 2024-05 90.5
1300555 HGB 2025-06 14.6
1300566 BGT 2026-07 79.9
1300577 LDL 2027-09 60.8
1300588 BPTS 2028-09 100.9
1300599 BPTD 2029-10 40.0
1300600 LDL 2031-01 40.7

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00400000
\$pc		0x00000000
\$hi		0x00000000
\$lo		0x00000000

10. Delete a Test:

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 9
0 1300500 HGB 2020-01 12.1
1 1300511 BGT 2021-02 50.2
2 1300522 LDL 2022-03 120.3
3 1300533 BPTS 2023-04 180.4
4 1300523 HGB 2020-01 18.1
5 1300544 BPTD 2024-05 90.5
6 1300555 HGB 2025-06 14.6
7 1300566 BGT 2026-07 79.9
8 1300577 LDL 2027-09 60.8
9 1300588 BPTS 2028-09 100.9
11 1300599 BPTD 2029-10 40.0
enter the index of the test to delete: 5
data loaded successfully

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00400000
\$pc		0x00400000
\$hi		0x00000000
\$lo		0x00000000

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File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
6 1300577 LDL 2027-09 60.8
9 1300588 BPTS 2028-09 100.9
10 1300599 BPTD 2029-10 40.0
11 1300600 LDL 2031-01 40.7
enter the index of the test to delete: 5
data loaded successfully

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 3
1300500 HGB 2020-01 12.1
1300511 BGT 2021-02 50.2
1300522 LDL 2022-03 120.3
1300533 BPTS 2023-04 180.4
1300523 HGB 2020-01 18.1
1300555 HGB 2025-06 14.6
1300566 BGT 2026-07 79.9
1300577 LDL 2027-09 60.8
1300588 BPTS 2028-09 100.9
1300599 BPTD 2029-10 40.0
1300600 LDL 2031-01 40.7

0- load data
```

Clear

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00400000
pc		0x00000000
hi		0x00000000
lo		0x00000000

11. Save To File:

C:\Users\ASUS\Desktop\ENCS4370_ARCHITECTURE\Project\MedicalTest.asm - MARS 4.5

File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```
0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 10
data saved Successfully

0- load data
1- Add a new medical test
2- Search for a test by patient ID
3- Retrieve all patient tests
4- Retrieve all normal tests
5- Retrieve all patient tests in a given specific period
6- Searching for unnormal tests
7- Average test value
8- Update an existing test result
9- Delete a test
10- Save to file
11- Exit

Your choice: enter a choice (0-11): 11
-- program is finished running --
```

Clear

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0xffffffff
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x100117c0
\$a1	5	0x00000014
\$a2	6	0x00000001
\$a3	7	0x10010cac
\$t0	8	0x0000000b
\$t1	9	0x0000000b
\$t2	10	0x00000000
\$t3	11	0x00000001
\$t4	12	0x00000000
\$t5	13	0x0000000a
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x0000000b
\$s1	17	0x10010028
\$s2	18	0x10010f93
\$s3	19	0x100102d0
\$s4	20	0x100109b0
\$s5	21	0x10010ca8
\$s6	22	0x00000003
\$s7	23	0x0000000a
\$t8	24	0x1001032f
\$t9	25	0x100109c7
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x004000e0
pc		0x00400180
hi		0x00000000
lo		0x0000000b

1300500: HGB, 2020-01, 12.1
1300511: BGT, 2021-02, 50.2
1300522: LDL, 2022-03, 120.3
1300533: BPTS, 2023-04, 180.4
1300523: HGB, 2020-01, 18.1
1300555: HGB, 2025-06, 14.6
1300566: BGT, 2026-07, 79.9
1300577: LDL, 2027-09, 60.8
1300588: BPTS, 2028-09, 100.9
1300599: BPTD, 2029-10, 40.0
1300600: LDL, 2031-01, 40.7