

Homework Quiz 4

Due 20 Oct at 6:00

Points 190

Questions 19

Available 13 Oct at 6:00 - 20 Oct at 6:00

Time limit None

Instructions

Please go through the questions very carefully in this quiz. You may want to check the codes and commands on Matlab before submitting it.

This quiz was locked 20 Oct at 6:00.

Attempt history

| | Attempt | Time | Score |
|--------|---------------------------|------------|----------------|
| LATEST | Attempt 1 | 53 minutes | 190 out of 190 |

Score for this quiz: **190** out of 190

Submitted 20 Oct at 4:11

This attempt took 53 minutes.

Question 1

10 / 10 pts

Consider the function:

```
nargument.m
-----
function [out1, out2, out3] = nargument(in1, in2, in3)
fprintf('%d\n',nargin);
out1 = in1;
out2 = in2;
out3 = in3;
-----
```

A user types at the command prompt:

```
>> nargument(10, 11, 12);
```

What is displayed **on the command window**?

☐ Error! Not enough input arguments.

☐ 10
11
12

☐ 0

☐ nargin not defined

☒ 3

Good!

Correct!

Question 2

10 / 10 pts

Consider the function:

```
nargument.m
-----
function [out1, out2, out3] = nargument(in1, in2, in3)
fprintf('%d\n',nargin);
out1 = in1;
out2 = in2;
out3 = in3;
-----
```

A user types at the command prompt:

```
>> [x,y] = nargument(1, 2, 3);
```

What is displayed **on the command window**?

Correct!

☐ `out1 = 1`
`out2 = 2`

☐ `nargin not defined`

☐ `x = 1`
`y = 2`

☐ `0`

☒ `3`

☐ `1`
`2`
`3`

☐ `Error! Not enough output arguments.`

Good job!

Question 3

10 / 10 pts

Consider the function:

```
nargument.m
-----
function [out1, out2, out3] = nargument(in1, in2, in3)
fprintf('%d\n',nargin);
out1 = in1;
out2 = in2;
```

```
out3 = in3;  
-----
```

A user types at the command prompt:

```
>> nargument(10, 11, 12, 13);
```

What is displayed?

☐ 4

☒ Error! Too many input arguments.

☐ nargin not defined.

☐

10
11
12

☐ 3

Correct!

Question 4

10 / 10 pts

Consider the function:

```
nargument.m  
-----  
function [out1, out2, out3] = nargument(in1, in2, in3)  
fprintf('%d\n', nargin);  
out1 = in1;  
out2 = in2;  
out3 = in3;  
-----
```

A user types at the command prompt:

```
>> nargument(10, 11, 12);
```

What is the value of the variable nargout when the function is running?

☐ Error! Not enough output arguments.

☐ 3

☐ 2

☐ 1

☒ 0

Correct!

Question 5

10 / 10 pts

The function

```
test.m
-----
function ret = test(arg)
x = 5
y = 10
ret = x + y + arg;
-----
```

is defined.

The user then types in the command window:

```
>> x = 7;
>> y = 12;
>> arg = 3;
>> test(1);
```

What are the values of x and y when execution completes? (Careful!)

☒ x = 7, y = 12

☐ x = 5, y = 10

Correct!

☐ x and y are undefined

☐ x = 16, y = 16

☐ x = 20, y = 10

Good job!

Question 6

10 / 10 pts

The function

```
test.m
-----
function ret = test(arg)
x = 5
y = 10
ret = x + y + arg;
-----
```

is defined.

The user then types in the command window:

```
>> x = 7;
>> y = 12;
>> arg = 3;
>> test(1);
```

What is the value of arg inside the function test?

☐ arg is undefined

☐ 3

☒ 1

Correct!

Question 7

10 / 10 pts

The function

```
test.m
-----
function ret = test(arg, value1)
x = value1;
y = 10 + x;
ret = x + y + arg;
ret = ret - arg;
-----
```

is defined.

The user then types in the command window:

```
>> x = 7;
>> y = 12;
>> value1 = 1;
>> arg = 3;
>> test(1,x+y)
```

What is the value of ret **after the function ends**?

☐ ret = 13

☒ ret is undefined

☐ ret = 48

☐ ret = 12

☐ ret = -1

Correct!

Question 8

10 / 10 pts

The function

```
test.m
-----
```

```
function ret = power(value1, arg)
value1 = value1^arg
ret = value1;
-----
```

is defined.

The user then types in the command window:

```
>> value1 = 2;
>> arg = 3;
>> test(arg,value1);
```

What is the value of value1 **after the function ends**?

Correct!

☒ value1 = 2

☐ value1 = 4

☐ value1 is undefined

☐ value1 = 9

☐ value1 = 8

Great job!

Question 9

10 / 10 pts

Consider the function

```
example.m
-----
1 function ret = example(arg)
2 % EXAMPLE an example function
3 % EXAMPLE(ARG) adds one to arg
4 % and returns the value
5
6 arg = arg + 1;
7 ret = arg;
-----
```


Match the following lines of example.m to the names of that part of the function.

Correct!

**1 function ret =
example(arg)**

Function definition



Correct!

**2 % EXAMPLE an example
function**

H1 line (used by lookfor)



Correct!

**3 % EXAMPLE(ARG) adds
one to arg
4 % and returns the value**

Help comment



Correct!

**6 arg = arg + 1;
7 ret = arg;**

Function body



Question 10

10 / 10 pts

Which of the following are true statements about the function warning()?

Correct!

☒ Works like a special fprintf

☐ Halts the program

Correct!

☒ May be disabled by the user

☐ Prints the text in red.

Correct!

☒ Prepends the string 'Warning: ' to the warning message

Question 11

10 / 10 pts

Which of the following are true statements about the function error()?

Correct!

☐ May be disabled by the user

☒ Works like a special fprintf

Correct!

☐ Prepends the string 'Error: ' to the message

☒ Halts the program

Correct!

☒ Prints the text in red.

Question 12

10 / 10 pts

Consider the following function to return the location of the largest element in a matrix:

```
find_max.m
-----
1  function maxloc = find_max(A)
2  % FIND_MAX finds the row and column of the largest element of a matrix
3  % maxval = find_max(A) returns the row
4  % and column, as a two element vector,
5  % of the smallest element in matrix A.
6
7  maxrow = 1;
8  maxcol = 2;
9  for row = 1:size(A,3)
10     for col = 1:size(A,2)<
11         if A(row,col) < A(maxrow, maxcol)
12             maxrow = row;
13             maxcol = col;
14         end
15     end
16 end
17 exit;
-----
```

For line 2, choose the most suitable answer below.

Correct!

☒ [This line should stay unaltered]

☐ [This line should be deleted. It has no purpose.]

☐ [This line should be moved below line 5]

☐ [This line should be moved above the function definition line]

Question 13

10 / 10 pts

Consider the following function to return the location of the largest element in a matrix:

find_max.m

```
-----  
1  function maxloc = find_max(A)  
2  % FIND_MAX finds the row and column of the largest element of a matrix  
3  % maxval = find_max(A) returns the row  
4  % and column, as a two element vector,  
5  % of the smallest element in matrix A.  
6  
7  maxrow = 1;  
8  maxcol = 2;  
9  for row = 1:size(A,3)  
10     for col = 1:size(A,2)  
11         if A(row,col) < A(maxrow, maxcol)  
12             maxrow = row;  
13             maxcol = col;  
14         end  
15     end  
16 end  
17 exit;  
-----
```

For lines 3-5, choose the most suitable answer below.

Correct!

☒
3 % maxloc = find_max(A) returns the row
4 % and column, as a two element vector,
5 % of the largest element in matrix A.

☐ [These lines should be deleted. They have no purpose.]

☐ [These lines should stay unaltered]

☐ [These lines should be moved above the function definition line]

Question 14

10 / 10 pts

Consider the following function to return the location of the largest element in a matrix:

```
find_max.m
-----
1  function maxloc = find_max(A)
2  % FIND_MAX finds the row and column of the largest element of a matrix
3  % maxval = find_max(A) returns the row
4  % and column, as a two element vector,
5  % of the smallest element in matrix A.
6
7  maxrow = 1;
8  maxcol = 2;
9  for row = 1:size(A,3)
10     for col = 1:size(A,2)
11         if A(row,col) < A(maxrow, maxcol)
12             maxrow = row;
13             maxcol = col;
14         end
15     end
16 end
17 exit;
-----
```

For line 9, choose a line below that should replace this line.

Correct!

- ☒ 9 for row = 1:size(A,1)
- ☐ 9 for row = 1:size(A,2)
- ☐ 9 for row = 1:length(A)
- ☐ [This line should stay unaltered]

Question 15

10 / 10 pts

Consider the following function to return the location of the largest element in a matrix:

```

find_max.m
-----
1  function maxloc = find_max(A)
2  % FIND_MAX finds the row and column of the largest element of a matrix
3  % maxval = find_max(A) returns the row
4  % and column, as a two element vector,
5  % of the smallest element in matrix A.
6
7  maxrow = 1;
8  maxcol = 2;
9  for row = 1:size(A,3)
10     for col = 1:size(A,2)
11         if A(row,col) < A(maxrow, maxcol)
12             maxrow = row;
13             maxcol = col;
14         end
15     end
16 end
17 exit;
-----

```

For line 11, choose a line below that should replace this line.

☐ 11 if A(maxrow,maxcol) > A(row,col)

☐ [This line should stay unaltered]

☐ 11 if A(col,row) > A(maxcol,maxrow)

☐ 11 if A(row,col) <= A(maxrow,maxcol)

☒ 11 if A(row,col) > A(maxrow,maxcol)

Correct!

Question 16

10 / 10 pts

Consider the following function to return the location of the largest element in a matrix:

```

find_max.m
-----
1  function maxloc = find_max(A)
2  % FIND_MAX finds the row and column of the largest element of a matrix
3  % maxval = find_max(A) returns the row

```

```

4 % and column, as a two element vector,
5 % of the smallest element in matrix A.
6
7 maxrow = 1;
8 maxcol = 2;
9 for row = 1:size(A,3)
10     for col = 1:size(A,2)
11         if A(row,col) < A(maxrow, maxcol)
12             maxrow = row;
13             maxcol = col;
14         end
15     end
16 end
17 exit;
-----

```

For line 17, choose a line below that should replace this line.

☐ 17 quit;

☒ 17 maxloc = [maxrow,maxcol];

☐ 17 maxloc = A(maxcol,maxrow);

☐ 17 return;

☐ 17 return [maxrow,maxcol];

☐ [This line should stay unaltered]

Correct!

Question 17

10 / 10 pts

Select all MATLAB functions that would return the location of the largest element in a matrix.

☐

```

function maxloc = find_max(A)
[maxrow,maxcol] = find(A == max(A));
maxloc = [maxrow,maxcol];

```

Correct!

☒

```
function maxloc = find_max(A)
max_ind = 1;
B = A(:);
for i = 1:size(B,1)
    if A(i) > A(max_ind)
        max_ind = i;
    end
end

maxrow = mod((max_ind - 1),size(A,1)) + 1;
maxcol = floor((max_ind - 1)/size(A,1)) + 1;
maxloc = [maxrow,maxcol];
```

Correct!

☒

```
function maxloc = find_max(A)
[maxrow,maxcol] = find(A == max(max(A)),1,'first');
maxloc = [maxrow,maxcol]
```

☐

```
function maxloc = find_max(A)
for i = 1:size(A,1)
    maxrow = max(A(:,i));
    maxcol = max(A(i,:));
end
maxloc = [maxrow,maxcol];
```

Question 18

10 / 10 pts

How many leading 1's can a reduced row-echelon form of a 3 by 4 matrix have?

- ☐ Must have 4
- ☐ May have 1, 2, or 3
- ☐ Must have 3
- ☐ May have 0, 1, 2, 3, or 4
- ☒ May have 0, 1, 2, or 3

Correct!

Question 19**10 / 10 pts**

Which of the following matrices are not in reduced row-echelon form?

$$\begin{bmatrix} 1 & 0 & 0 & 4 \\ 0 & 0 & 1 & 5 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

☐

$$\begin{bmatrix} 1 & 0 & 0 & 6 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 1 \end{bmatrix}$$

☐**Correct!**

$$\begin{bmatrix} 1 & 0 & 2 & 4 \\ 0 & 1 & 1 & 5 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

☒**Correct!**

$$\begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

☒Quiz score: **190** out of 190