



EXPERIMENT - 2

APPLIED MATHEMATICS LAB

Aim

To find the inverse of a square matrix using Gauss-Jordan method.

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Aim:

To find the inverse of a square matrix using Gauss-Jordan method.

Source Code:

```
function [B]=inv(A)
    B = eye(3, 3)

    disp('Given Matrix A is :- ', A)

    if (det(A) == 0) then
        disp('Matrix is singular, Inverse does not exist')
        abort
    end

    Aug = [A, B]

    if (Aug(1, 1) == 0 & Aug(2, 1) ~= 0) then
        C(1, :) = Aug(1, :)
        Aug(1, :) = Aug(2, :)
        Aug(2, :) = C(1, :)
    elseif (Aug(1, 1) == 0 & Aug(3, 1) ~= 0) then
        C(1, :) = Aug(1, :)
        Aug(1, :) = Aug(3, :)
        Aug(3, :) = C(1, :)
    end

    Aug(1, :) = Aug(1, :)/Aug(1, 1)
    Aug(2, :) = Aug(2, :) - Aug(2, 1) * Aug(1, :)
    Aug(3, :) = Aug(3, :) - Aug(3, 1) * Aug(1, :)

    if (Aug(2, 2) == 0) then
        C(2, :) = Aug(2, :)
        Aug(2, :) = Aug(3, :)
        Aug(3, :) = C(2, :)
```

end

```
Aug(2, :) = Aug(2, :)/Aug(2, 2)
Aug(1, :) = Aug(1, :) - Aug(1, 2) * Aug(2, :)
Aug(3, :) = Aug(3, :) - Aug(3, 2) * Aug(2, :)
```

```
Aug(3, :) = Aug(3, :)/Aug(3, 3)
Aug(1, :) = Aug(1, :) - Aug(1, 3) * Aug(3, :)
Aug(2, :) = Aug(2, :) - Aug(2, 3) * Aug(3, :)
```


```
Aug(:, 1:3) = []
B = Aug(:, 1: 3);
```

```
printf('\n\n Name - Syeda Reeha Quasar \n Enrolment No. - 14114802719
\n Group - C7 \n\n')
```

```
disp('The inverse of given matrix is:- ')
endfunction
```

Output:

```

Scilab 6.1.0 Console
File Edit Control Applications ?

Scilab 6.1.0 Console

--> B = inv([2 0 0; 3 0 2; 7 0 3])

"Given Matrix A is -: "

2.  0.  0.
3.  0.  2.
7.  0.  3.

"Matrix is singular, Inverse does not exist"

--> B = inv([1 0 4; 2 -2 1; -1 1 -1])

"Given Matrix A is -: "

1.  0.  4.
2. -2.  1.
-1.  1. -1.

"The inverse of given matrix is:- "
B =

1.  4.  8.
1.  3.  7.
0. -1. -2.

--> B = inv([2 6 1; 3 9 2; 0 -1 3])

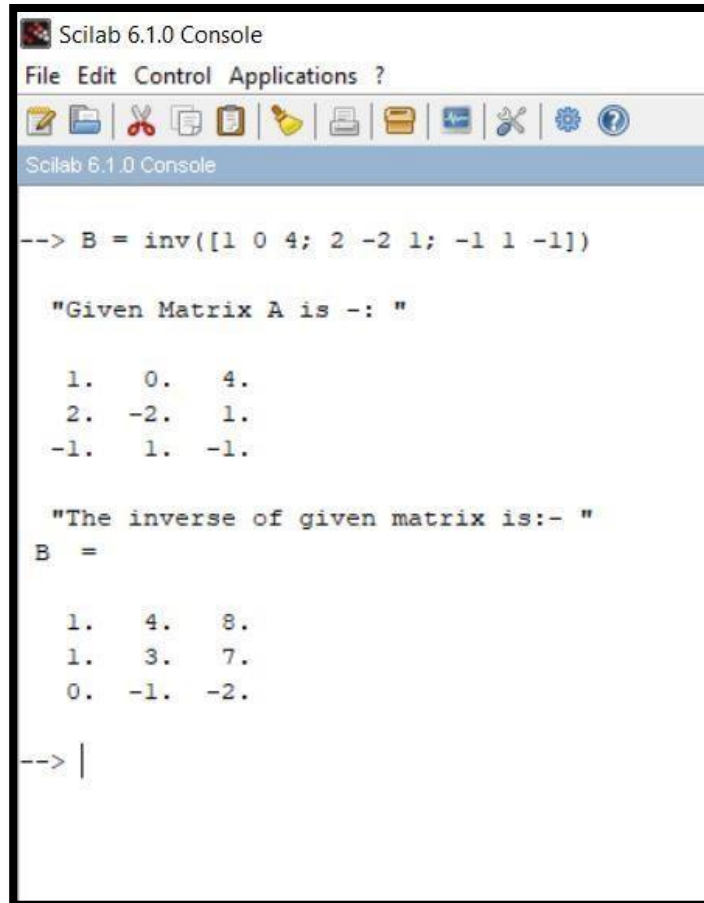
"Given Matrix A is -: "

2.  6.  1.
3.  9.  2.
0. -1.  3.

"The inverse of given matrix is:- "
B =

29. -19.  3.
0.  6.  1.

```



Scilab 6.1.0 Console

File Edit Control Applications ?

Scilab 6.1.0 Console

```
--> B = inv([1 0 4; 2 -2 1; -1 1 -1])
```

"Given Matrix A is -: "

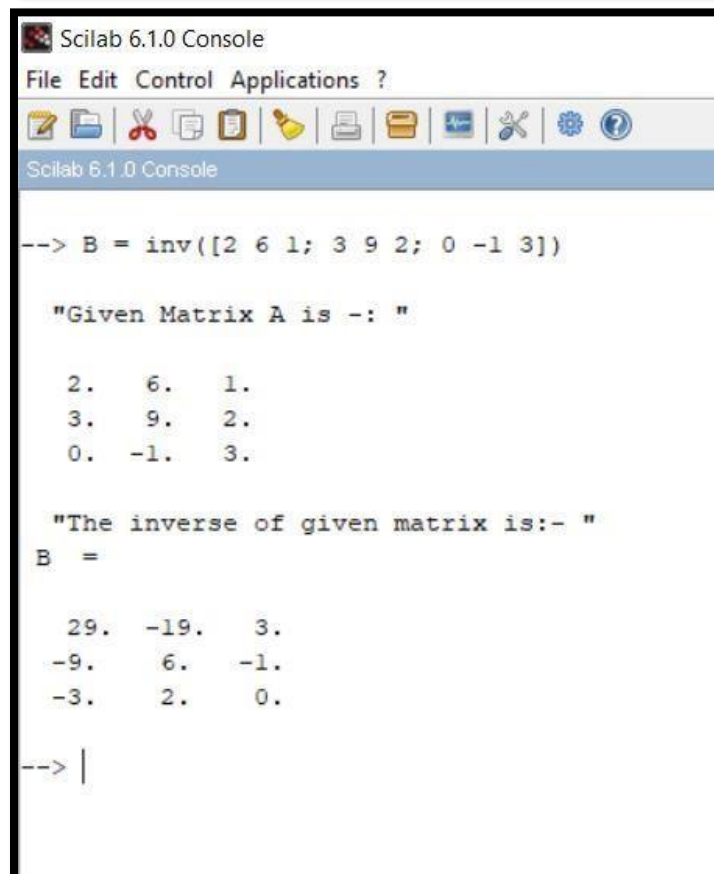
1.	0.	4.
2.	-2.	1.
-1.	1.	-1.

"The inverse of given matrix is:- "

B =

1.	4.	8.
1.	3.	7.
0.	-1.	-2.

```
--> |
```



Scilab 6.1.0 Console

File Edit Control Applications ?

Scilab 6.1.0 Console

```
--> B = inv([2 6 1; 3 9 2; 0 -1 3])
```

"Given Matrix A is -: "

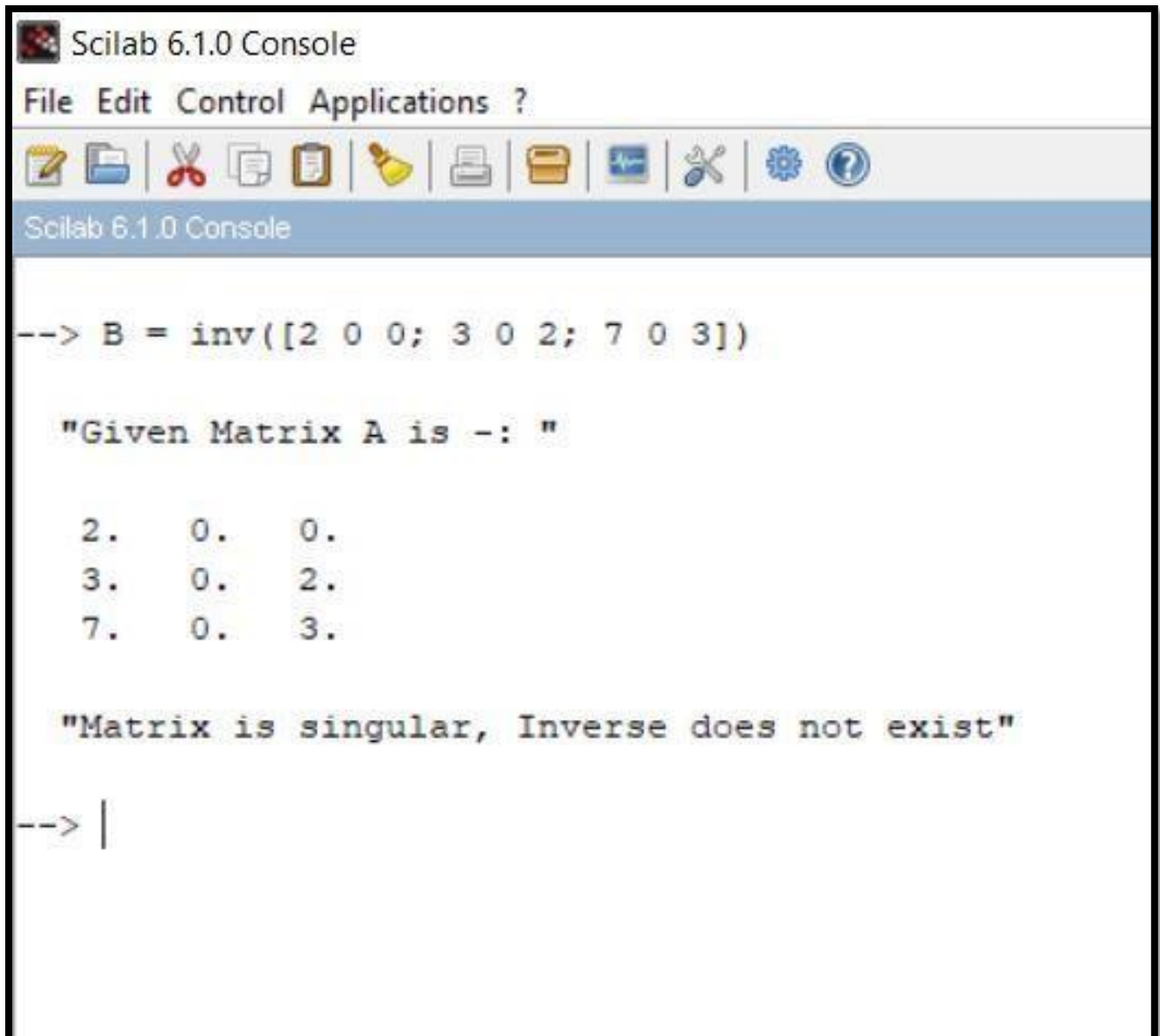
2.	6.	1.
3.	9.	2.
0.	-1.	3.

"The inverse of given matrix is:- "

B =

29.	-19.	3.
-9.	6.	-1.
-3.	2.	0.

```
--> |
```



The image shows a screenshot of the Scilab 6.1.0 Console window. The window has a title bar with the Scilab logo and the text "Scilab 6.1.0 Console". Below the title bar is a menu bar with "File", "Edit", "Control", "Applications", and "?". Under the menu bar is a toolbar with various icons for file operations (new, open, save, print, etc.) and editing (copy, paste, undo, redo, etc.). The main area of the window is a text editor with a light blue background. It contains the following text:

```
--> B = inv([2 0 0; 3 0 2; 7 0 3])

"Given Matrix A is -: "

2.    0.    0.
3.    0.    2.
7.    0.    3.

"Matrix is singular, Inverse does not exist"

--> |
```