EXPERIMENT - 2

APPLIED MATHEMATICS LAB

Aim

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

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4C7

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Aim:

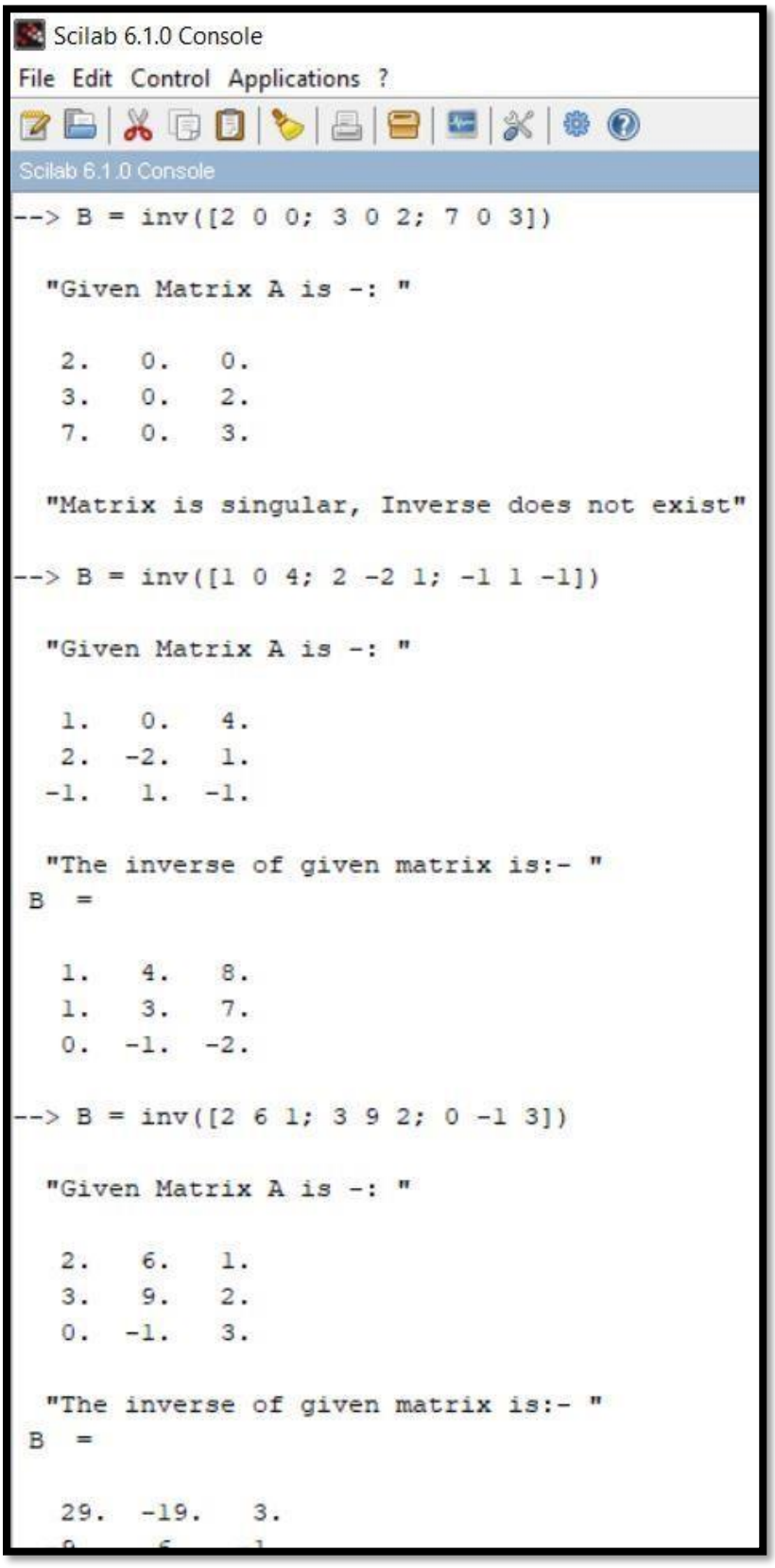
To find the inverse of a square matrix using Gauss-Jordan method.

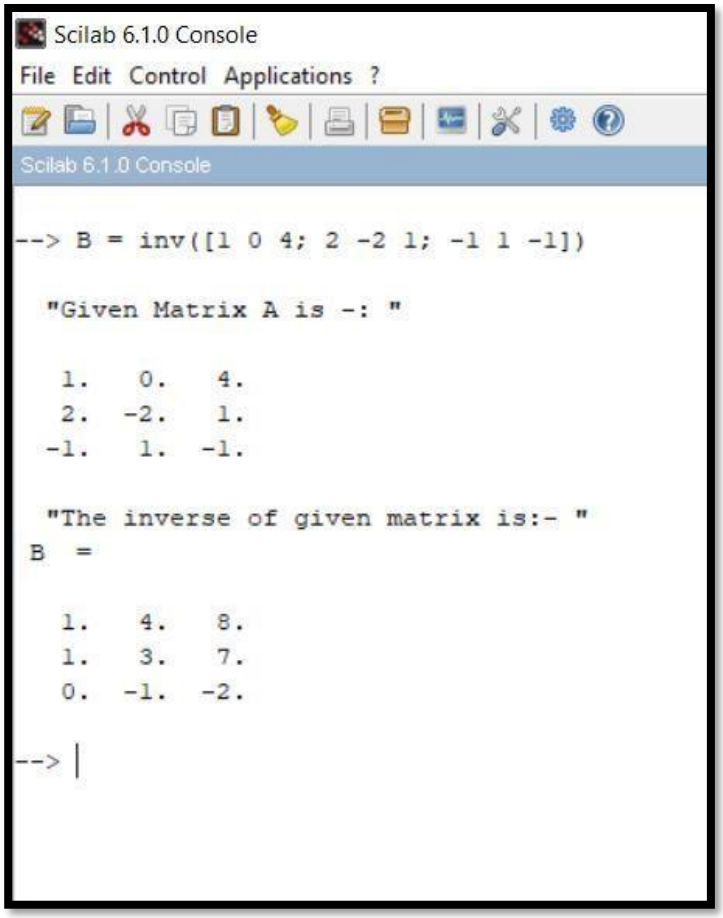
Source Code:

```
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.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File Edit Control Applications ?
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2. -2. 1.
-1. 1. -1.
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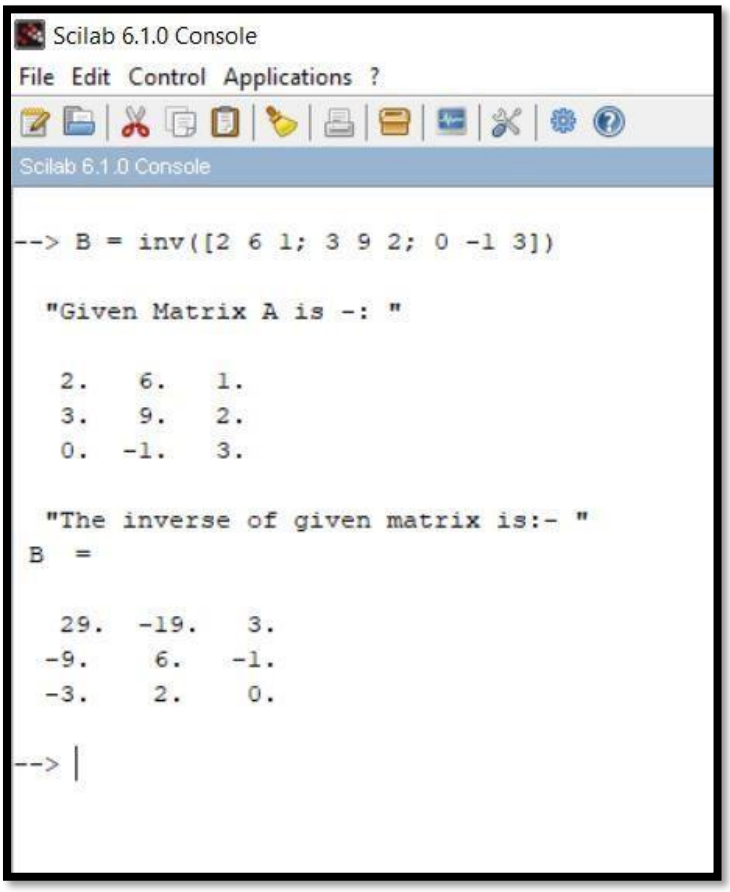
B =
1. 4. 8.
1. 3. 7.
0. -1. -2.
-->


Scilab 6.1.0 Console
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Scilab 6.1.0 Console
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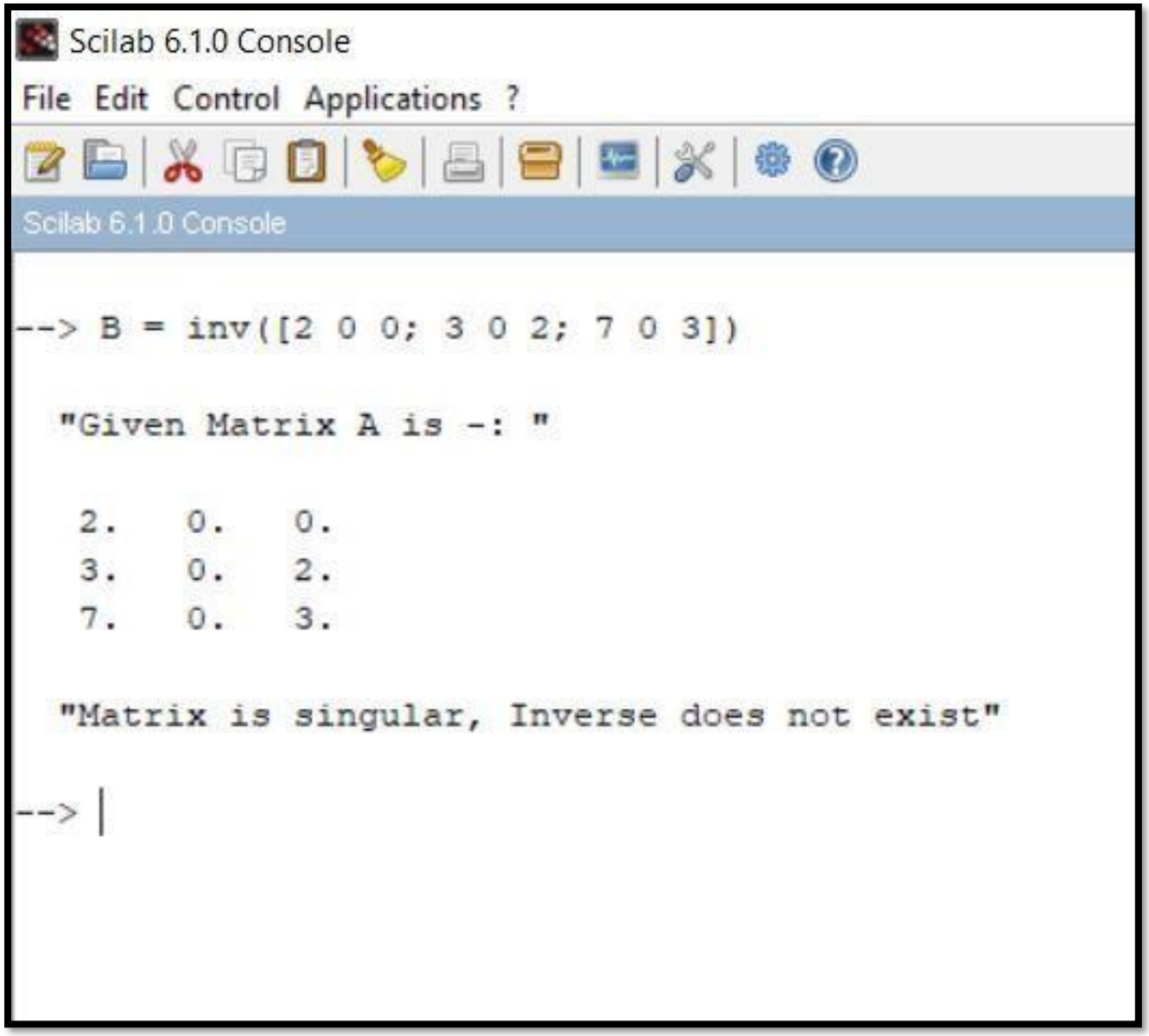
"Given Matrix A is -: "
2. 6. 1.
3. 9. 2.
0. -1. 3.
"The inverse of given matrix is:- "
B =
29. -19. 3.
-9. 6. -1.
-3. 2. 0.
-->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