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2022300118

SE-Comps B/Batch C

4th April 2024

Scilab no.8 : Eigenvalues

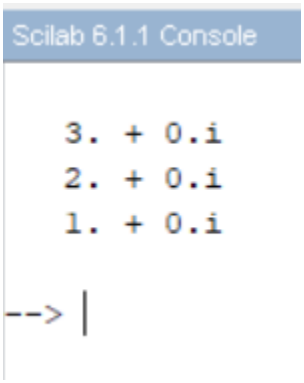
Program No.1 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix}2 & -1 & 1\\ 1 & 2 & -1\\ 1 & -1 & 2\end{bmatrix}$$

Code :-

```
clc
A = [2 -1 1; 1 2 -1; 1 -1 2];
a = A(1, 1) + A(2, 2) + A(3, 3);
b = ((A(2, 2)* A(3, 3)) - (A(3, 2)*A(2, 3)) + A(1, 1)*A(3, 3) - (A(3, 1)*A(1, 3))) + (A(1, 1)*A(2, 2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b -m];
m = roots(p);
disp(m);
```

Output :-



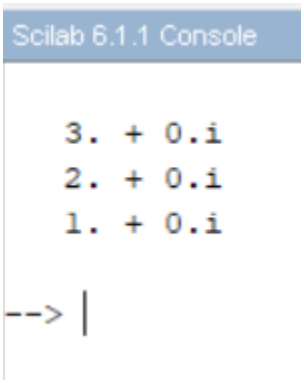
Program No.2 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix}8 & -8 & -2\\ 4 & -3 & -2\\ 3 & -4 & 1\end{bmatrix}$$

Code :-

```
clc
A = [8 -8 -2; 4 -3 -2; 3 -4 1];
a = A(1, 1) + A(2, 2) + A(3, 3);
b = ((A(2, 2)* A(3, 3)) - (A(3, 2)*A(2, 3)) + A(1, 1)*A(3, 3) - (A(3, 1)*A(1, 3))) + (A(1, 1)*A(2,
2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b -m];
m = roots(p);
disp(m);
```

Output :-



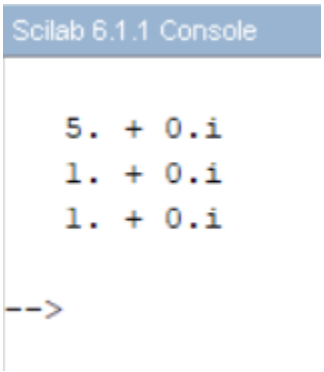
Program No.3 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix}2 & 2 & 1\\ 1 & 3 & 1\\ 1 & 2 & 2\end{bmatrix}$$

Code :-

```
clc
A = [2 2 1; 1 3 1; 1 2 2];
a = A(1, 1) + A(2, 2) + A(3, 3);
b = ((A(2, 2)* A(3, 3)) - (A(3, 2)*A(2, 3)) + A(1, 1)*A(3, 3) - (A(3, 1)*A(1, 3))) + (A(1, 1)*A(2,
2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b -m];
m = roots(p);
disp(m);
```

Output :-



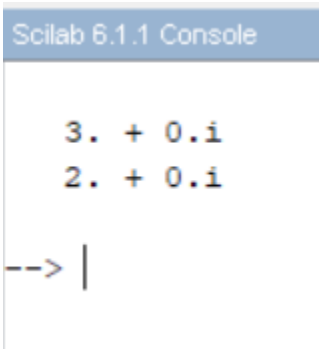
Program No.4 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix}4 & -2\\ 1 & 1\end{bmatrix}$$

Code :-

```
clc
A = [4 -2; 1 1];
a = A(1, 1) + A(2, 2);
b = (A(1, 1)*A(2, 2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b];
m = roots(p);
disp(m);
```

Output :-



Program No.5 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix}2 & 1 & 1\\ 2 & 3 & 2\\ 3 & 3 & 4\end{bmatrix}$$

Code :-

```
clc
A = [2 1 1; 2 3 2; 3 3 4];
a = A(1, 1) + A(2, 2) + A(3, 3);
b = ((A(2, 2)* A(3, 3)) - (A(3, 2)*A(2, 3)) + A(1, 1)*A(3, 3) - (A(3, 1)*A(1, 3))) + (A(1, 1)*A(2,
2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b -m];
m = roots(p);
disp(m);
```

Output :-

Scilab 6.1.1 Console

```
   7. + 0.i
   1. + 0.i
   1. + 0.i

-->
```

Program No.6 :- Write a scilab code to find Eigen value of matrix A

$$A=\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$$

Code :-

```
clc
A = [8 -6 2; -6 7 -4; 2 -4 3];
a = A(1, 1) + A(2, 2) + A(3, 3);
b = ((A(2, 2)* A(3, 3)) - (A(3, 2)*A(2, 3)) + A(1, 1)*A(3, 3) - (A(3, 1)*A(1, 3))) + (A(1, 1)*A(2,
2) - (A(2, 1)*A(1, 2)));
m = det(A);
p = [1 -a b -m];
m = roots(p);
disp(m);
```

Output :-