

Assignment 3(a)

Question

Check whether the system of equation has unique solution, infinitely many solutions or no solution. If there exist a unique solution find out the solution.

$$-x+3y+7z=5$$

$$2x-5y+7z=7$$

$$x-y-z=-2$$

Code

```
1  Coeff_matrix = [-1 3 7; 2 -5 7; 1 -1 -1];
2  Const_matrix = [5; 7; -2];
3  disp('Coefficient Matrix = ');
4  disp(Coeff_matrix);
5  disp('Constant Matrix = ');
6  disp(Const_matrix);
7  [NumRows, NumCols]=size(Coeff_matrix);
8  if(rank(Coeff_matrix) == rank([Coeff_matrix Const_matrix]))
    && (NumCols == rank(Coeff_matrix))
9      disp('Solution = ');
10     disp(inv(Coeff_matrix)*Const_matrix);
11 elseif(rank(Coeff_matrix) == rank([Coeff_matrix
    Const_matrix])) && (NumCols > rank(Coeff_matrix))
12     disp('Infinitely Many Solution');
13 else
14     disp('No solution');
15 end
```

Output

```
>> Assignment_3a
Coefficient Matrix =
    -1     3     7
     2    -5     7
     1    -1    -1

Constant Matrix =
     5
     7
    -2
```

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```
Solution =  
  -2.2222  
  -1.0833  
   0.8611
```

```
>>
```