

# Assignment 3(c)

## 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.

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

$$2x-2y-2z=1$$

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

## Code

```
1 Coeff_matrix = [-1 3 7; 2 -2 -2; 1 -1 -1];
2 Const_matrix = [5; 1; -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_3c
Coefficient Matrix =
    -1     3     7
     2    -2    -2
     1    -1    -1

Constant Matrix =
     5
     1
    -2
```

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No solution  
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