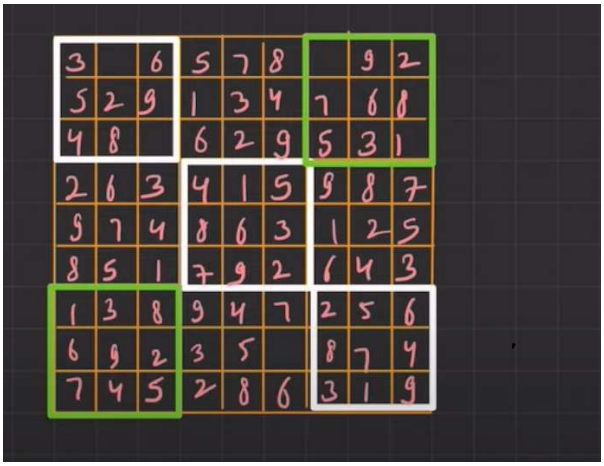
Sudoku solver

06 June 2022 23:04

Sudoku solver



3X3 total matrix = 9

i/p → 9x9 puzzle

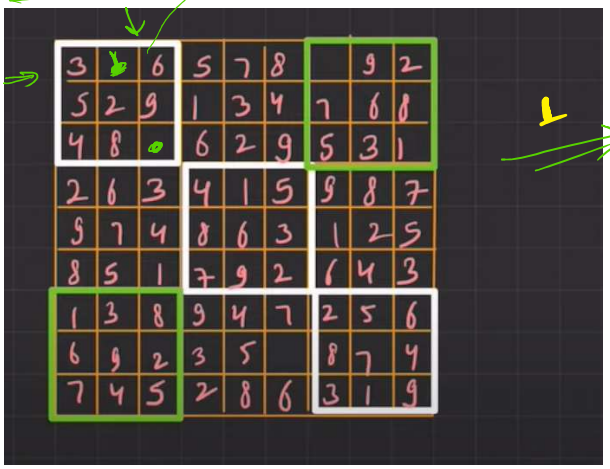
valid soln :-

① 1 row → 1-9 → exactly one

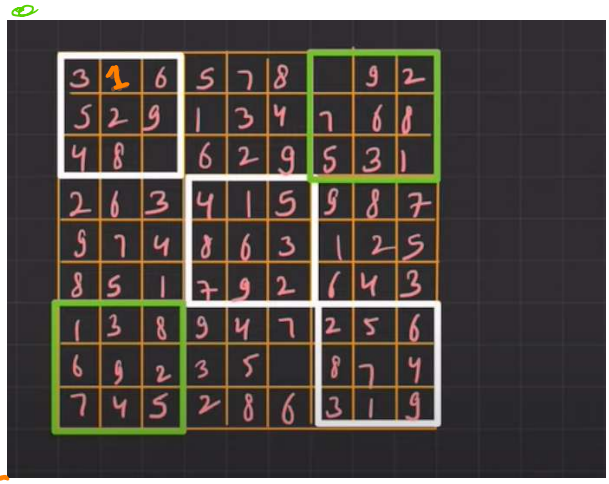
② 1 col → 1-9 → exactly one

③ 3X3 → 1-9 → exactly one

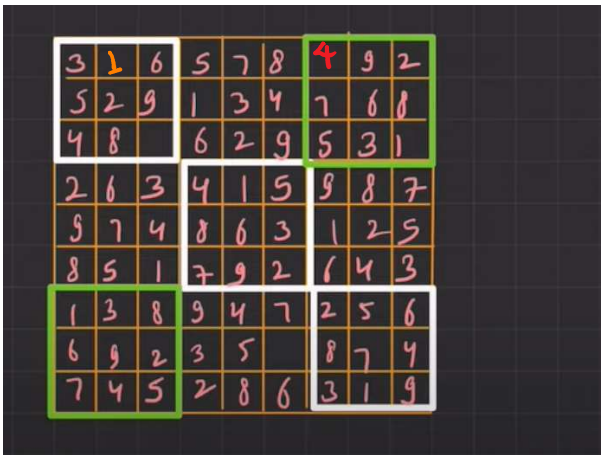
Approach :- → kahi 1 kahi dikh raha

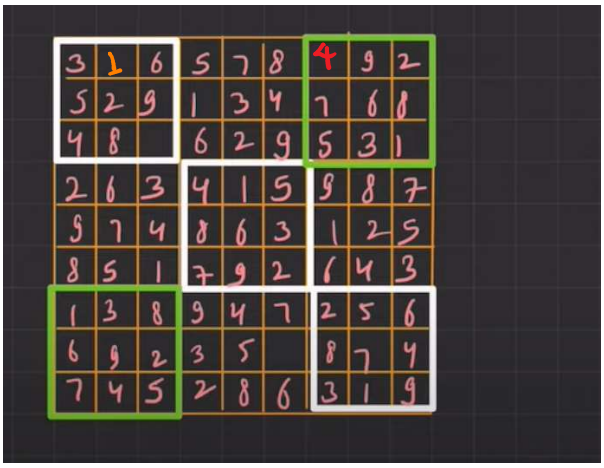


1



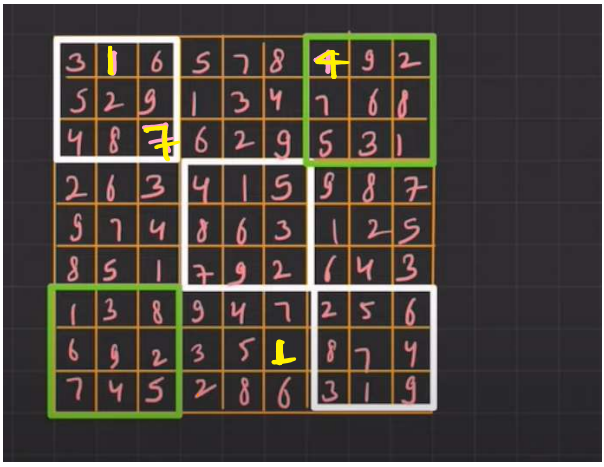
4





7

1



```
for(i = 0 -> 9)
  for(j=0 -> 9)
  { if cell -> empty
      for (int val 1 -> 9)
      {
        if(issafe)
          board[i][j] = val;
        recursion;
```

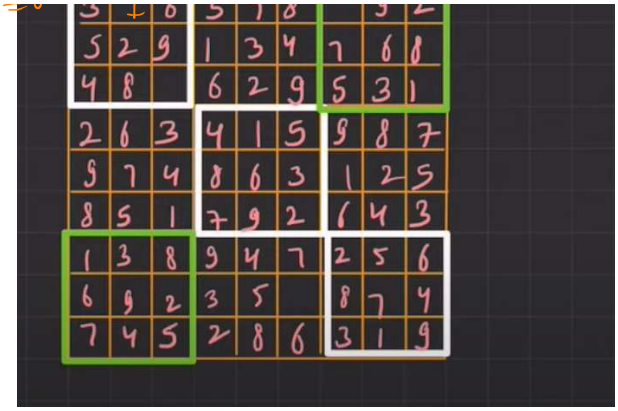
backtracking

```
for(i=0 -> 9)
  3*(row/3) + i/3
```

Val=1 Col=1

```
3*(col/3) + i%3
```

i = 0



$i = 0$

$0 \rightarrow \quad 3 \times \frac{0}{3} + \frac{0}{3} = 0$

$3 \times \frac{1}{3} + 0 \% 3 = 0$

$i = 1$

$3 * \frac{0}{3} + \frac{1}{3} = 0$

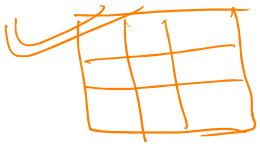
$3 * \left(\frac{1}{3}\right) + 1 \% 3 = 1$

$i = 2 \rightarrow \quad 3 * \left(\frac{0}{3}\right) + \frac{2}{3} = 0$

$3 * \left(\frac{1}{3}\right) + 2 \% 3 = 0 + 2 = 2.$

$i = 3 \Rightarrow 3 * \left(\frac{0}{3}\right) + \frac{3}{3} = 1$

$3 * \left(\frac{1}{3}\right) + 3 \% 3 = 1$



TC :- (9^m) where m is no of empty cell

SC :- $O(1)$