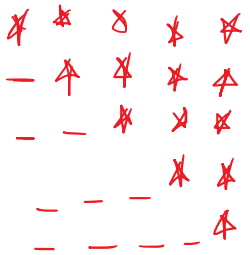
Patterns

n=5



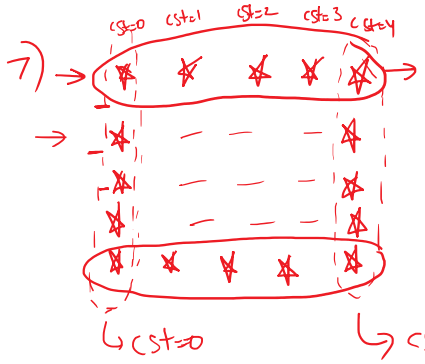
5) nst = n - row + 1

3rd = 5 - 3 + 1
= 3

row	nsp	nst
1	0	5
2	1	4
3	2	3 ✓
4	3	2
5	4	1

6) Same as 5 ~~but~~ nsp+=2

7)



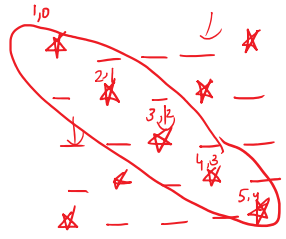
row == 1

cst =

row == n
=
↳ cst = n-1

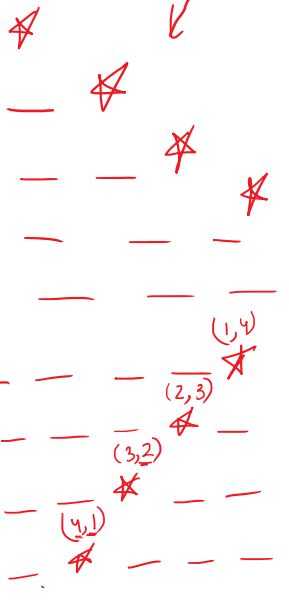
↳ cst=0

8)



(row, cst)

cst = row - 1



Primary Diagonal

n=5

row	cst
1	4 ✓
2	3 ✓

row, cst

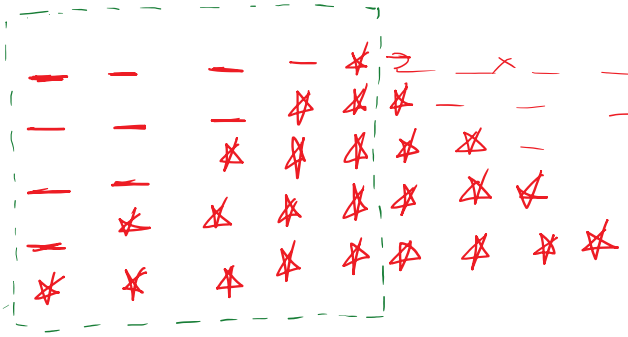
cst = n - row

↳ 2nd ary Diagonal

2	3 ✓
3	5-3=2 ✓
4	5-4=1 ✓
5	5-5=0 ✓

(4,1) (5,0)

↳ 2nd ary Diagonal



spaces → stars

row	nsp	nst
1	4	1
2	3	3
3	2	5
4	1	7
5	0	9

nsp = n - row

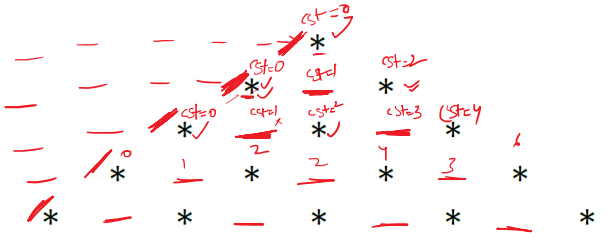
n-1 ↓ n-2 ↓ n-3 ... 2 ... 0

nst = 1

↳ +=2

11)

n = 5



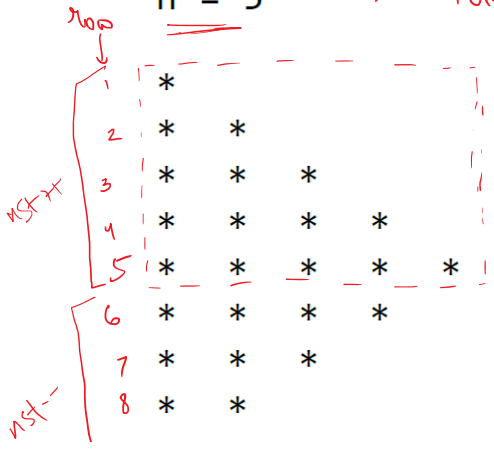
cst → nst

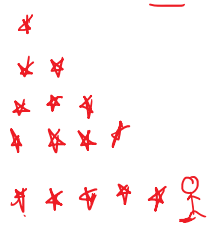
csp → nsp

cst: even → odd

13)

n = 5 → tot_row = 2*n - 1 = 2*5 - 1 = 9





row	nst
1	1
2	2
3	3
4	4
5	5
6	4
7	3
8	2

row < n-1 ?

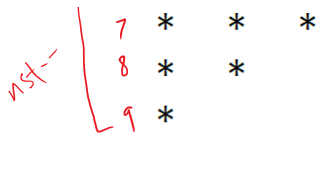
row <= n

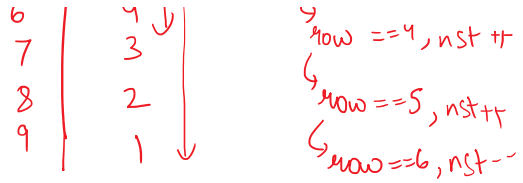
row == 2, nst++

row == 3, nst++

row == 4, nst++

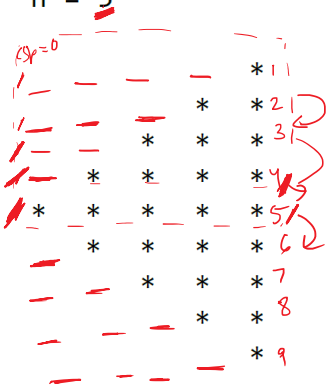
row == 5 ...





Ques 14:
n = 5

tot_row = 2×n-1

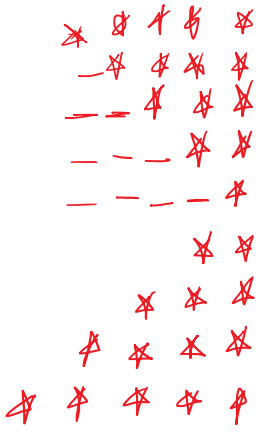


row	nsp	nst
1	4	1
2	3	2
3	2	3
4	1	4
5	0	5
6	1	4
7	2	3
8	3	2
9	4	1

spaces → stars

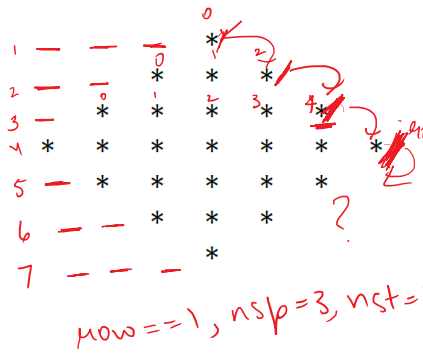
nsp=4 X 0
nsp=0, nst=5, row==5
nsp++, nst=4 row==6

// Har Row ka Kaam
row++
Stars
Prepare
if(row <= n)
nst++; nsp--;
else {
nst--;
}
spaces
syso();



Ques 18: → odd n
n = 7

total row = 7 ✓
int nsp = (n-1)/2;
int nst = 1



row==5 → nsp--
row==1, nsp=3, nst=1

row	nsp	nst
1	3	1
2	2	3
3	1	5
4	0	7
5	1	5
6	2	3
7	3	1

+=2
-=2

// preparation
row++;
if(row <= n/2+1)
nsp--;
nst+=2;
else

7 - - -

row==1, nsp=3, nst=1

row==2, nsp=2, nst=3

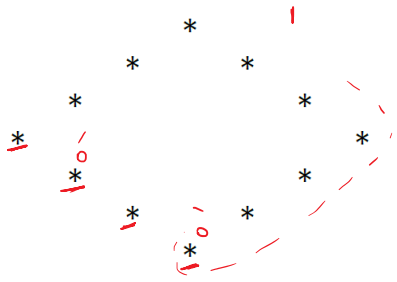
row==3, nsp=1, nst=5

row==4, nsp=0, nst=7

→ n/2

6 | 2 | 3 | nst+=2;
7 | 3 | 1 | else
nsp++;
nst-=2;

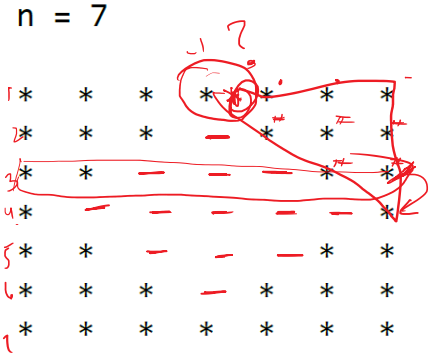
Ques 20:
n = 7



cst==0 → first # of row

cst==nst-1 last star of row

Ques 19:
n = 7



row	nst1	nsp	nst2
1	4	-1	3
2	3	1	3
3	2	3	2
4	1	5	1
5	2	3	2
6	3	1	3
7	4	-1	3

if(row<=n/2+1){
nsp+=2
nst1--;
nst2--;
}else{
nsp-=2
nst1++;
nst2++;
}

0, -1

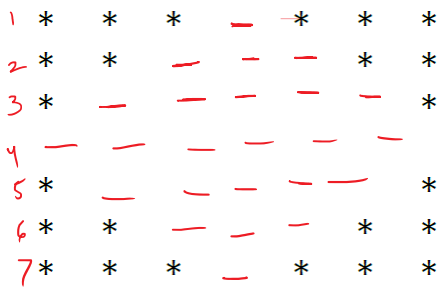
csp=0

0 <= -1 ✗

csp<nsp

nsp=-1
nst1=4
nst2=4

17)



row++;
if(row<=n/2+1){
nsp+=2

nsp=1
↳ +=2

nst1= n/2
↳ ++,--

nst2= n/2
↳ ++,--

row	nst1	nsp	nst2
1	3	1	3
2	2	3	2
3	1	5	1
4	0	7	0
5	1	5	1
6	2	3	2

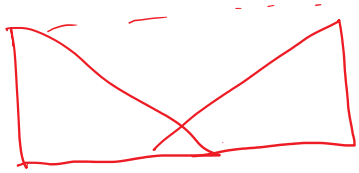
```
if ( row <= n/2+1) {
    nsp += 2
    nst1; nst2--;
} else {
    nsp -= 2;
    nst1 ++;
    nst2 ++;
}
```

5	1	5	1
6	2	3	2
7	3	1	3

Ques 21:

n = 5

```
*  _  _  _  _  _  _  _  *
*  *  _  _  _  _  _  *  *
*  *  *  _  _  _  *  *  *
*  *  *  *  _  *  *  *  *
*  *  *  *  *  *  *  *  *
```



total jagah = $\frac{2 \times n - 1}{\text{-1}} - 2$ → end stars

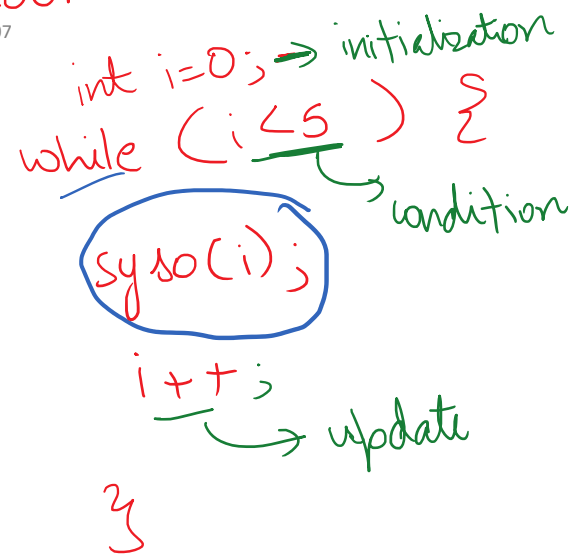
$nsp = 2n - 1 - 2$

$= 2n - 3$

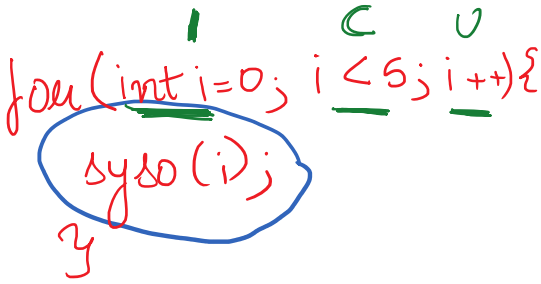
row	nst1	nsp	nst2
1	1	7	1
2	2	5	2
3	3	3	3
4	4	1	4
5	5	-1	5 (-1 jugad)

FOR LOOP

22 October 2022 12:07



0
1
2
3
4



for(; ;)

0
1
2
3
4

HW

22 October 2022 12:17

10, 15, 16, 17, 22

0 1 2 3 4

1 2 3 2 1

nst = 5

2