

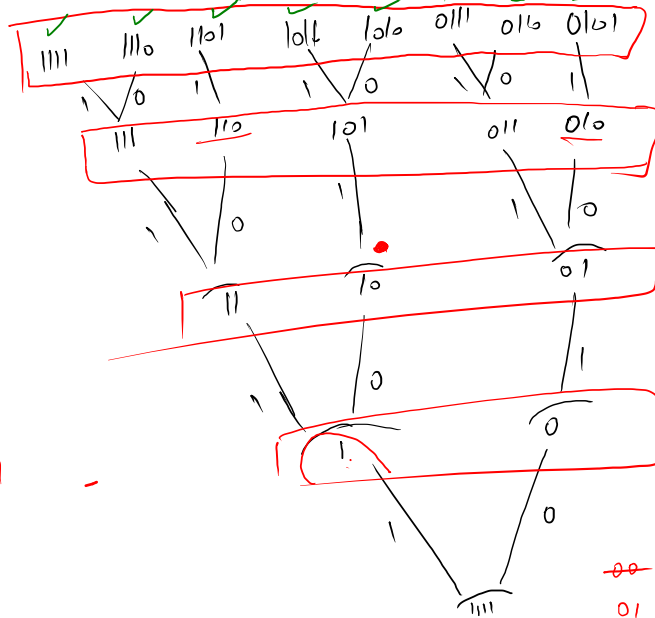
1. You are given a number n.
2. You are required to print the number of binary strings of length n with no consecutive 0's.

3 → 000
~~001~~
 010
 011
~~100~~
 101
 110
 111

4

3

2



1 → 0

1

2 → 10

01

11

3 →

010

110

101

011

111

4 →

1010

0110

1110

0101

1101

1011

0111

1111

2e 0 → 1
 2e 1 → 4
 3e 0 → 2
 3e 1 →

n = 6

Inc/Dec

	0	1	2	3	4	5	6
0	0	1	1	2	3	5	8
1	0	1	2	3	5	8	13

21



Ending with

Ending with

$n=6$ ✓

1	2	3	4	5	6
0Zero = 1	0Zero 1Zero = 1	0Zero 2			—
0One = 1	0One 1One = 2	0One 3			—

```
Scanner scn = new Scanner(System.in);
```

```
int n = scn.nextInt();
```

```
int oStrEndWithZero = 1;
```

```
int oStrEndWithOne = 1;
```

```
for(int i = 2; i <= n ; i++){
```

```
    int nStrEndWithZero = oStrEndWithOne;
```

```
    int nStrEndWithOne = oStrEndWithZero + oStrEndWithOne;
```

```
    oStrEndWithZero = nStrEndWithZero;
```

```
    oStrEndWithOne = nStrEndWithOne;
```

```
}
```

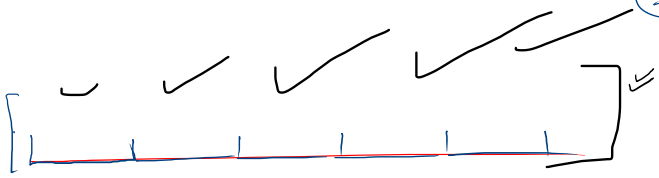
```
int res = oStrEndWithZero + oStrEndWithOne;
```

```
System.out.println(res);
```

$n=5$

Arrange Buildings

Plot
S
B



RWA

No. of ways to arrange building such that there is no adjacent buildings

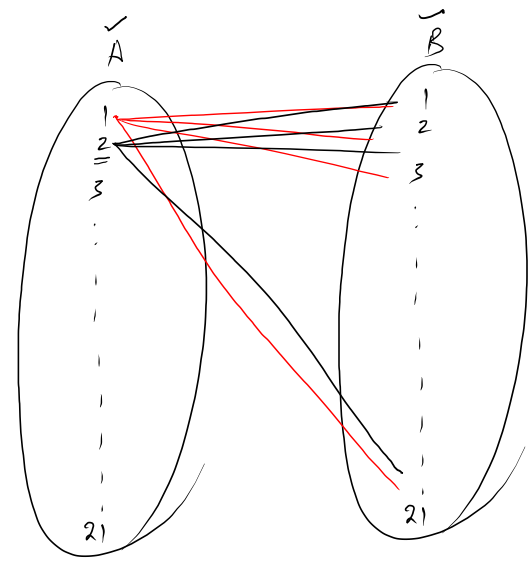


- ~~BB~~
- BS
- SB
- SS

yes x yes

B 0
S 1

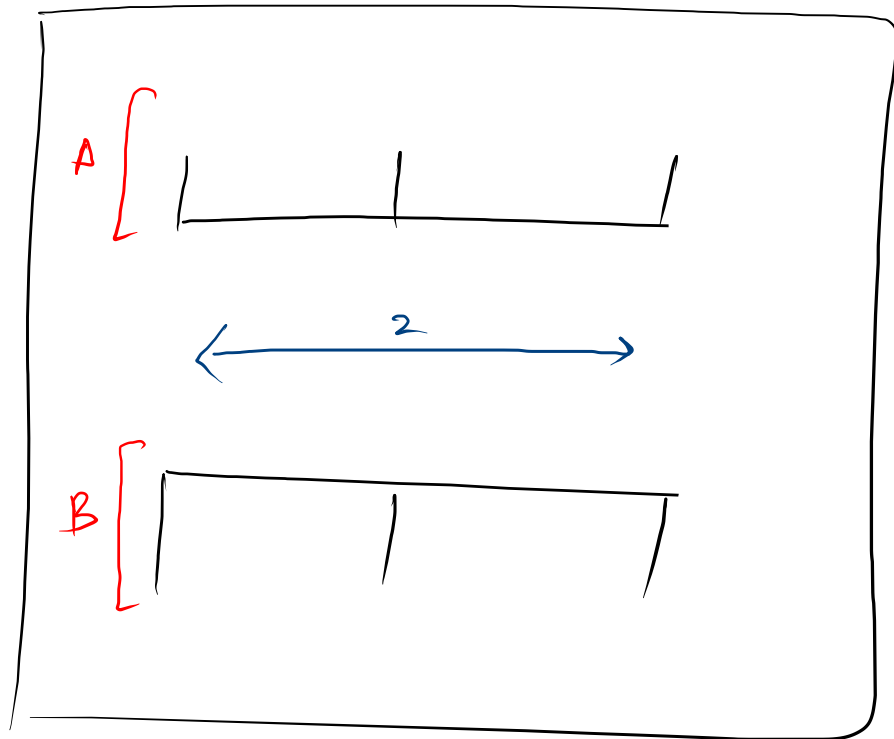
	1	2	3	4	5
B	1	SB	1		
S	1	BS	2		



A₁

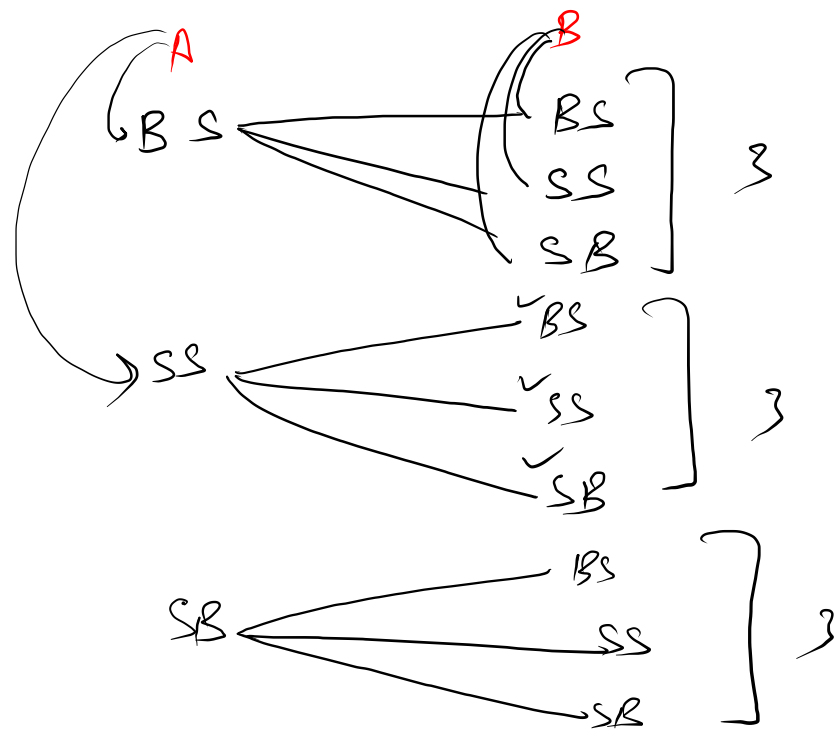
21x21

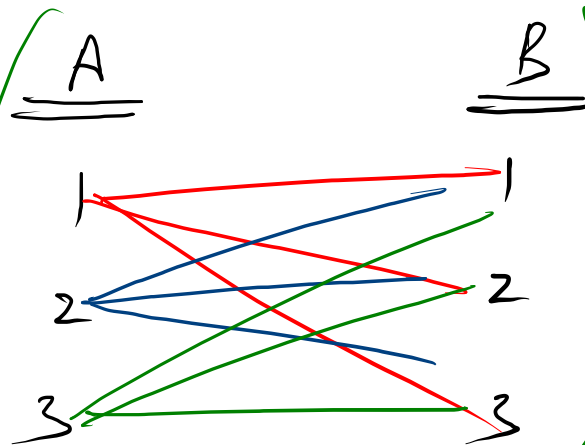
441 ways



$$\left. \begin{array}{l} BS \\ SS \\ SB \end{array} \right\} \textcircled{3}$$

$$\textcircled{9}$$





3

<u>A-1</u>	<u>B-1</u>
<u>A-1</u>	<u>B-2</u>
<u>A-1</u>	<u>B-3</u>
<u>A-2</u>	<u>B-1</u>
<u>A-2</u>	<u>B-2</u>
<u>A-3</u>	<u>B-3</u>
<u>A-3</u>	<u>B-1</u>
<u>A-3</u>	<u>B-2</u>
<u>A-3</u>	<u>B-3</u>

6
+
3 = 9

Count $a+b+c$ Sub Sequenu \rightarrow subset

abcabc \rightarrow abc

||

aabc

abc

abbc

abcc

abc

✓ $\overline{a+b+c}$ \Rightarrow ✓

abc

ab x

aabc ✓

aabbc ✓

abbbcc ✓

~~abbbbaacc~~ x

abc abc
↓ ↓ ↓

↓
a

↓
b

↓
c

↓
a'

↓
b'

↓
c'

what ✓
why ✓
How

✓
(a)

✓
(a+b)

✓
(a+b+c)

	a	a	a	a aa' a'	a aa' a'	a aa' a'
0	1	1	1	1+1+1 =3	3	3
0	0	ab 0+0+1 =1	ab	ab	ab abb' ab' aob' a'b' i+1+3 =5	ab abb' ab' aob' a'b' 5
0	0	0	abc 0+0+1 =1	abc	abc	abc abcc' abc' abb'c' i+1+5 =7

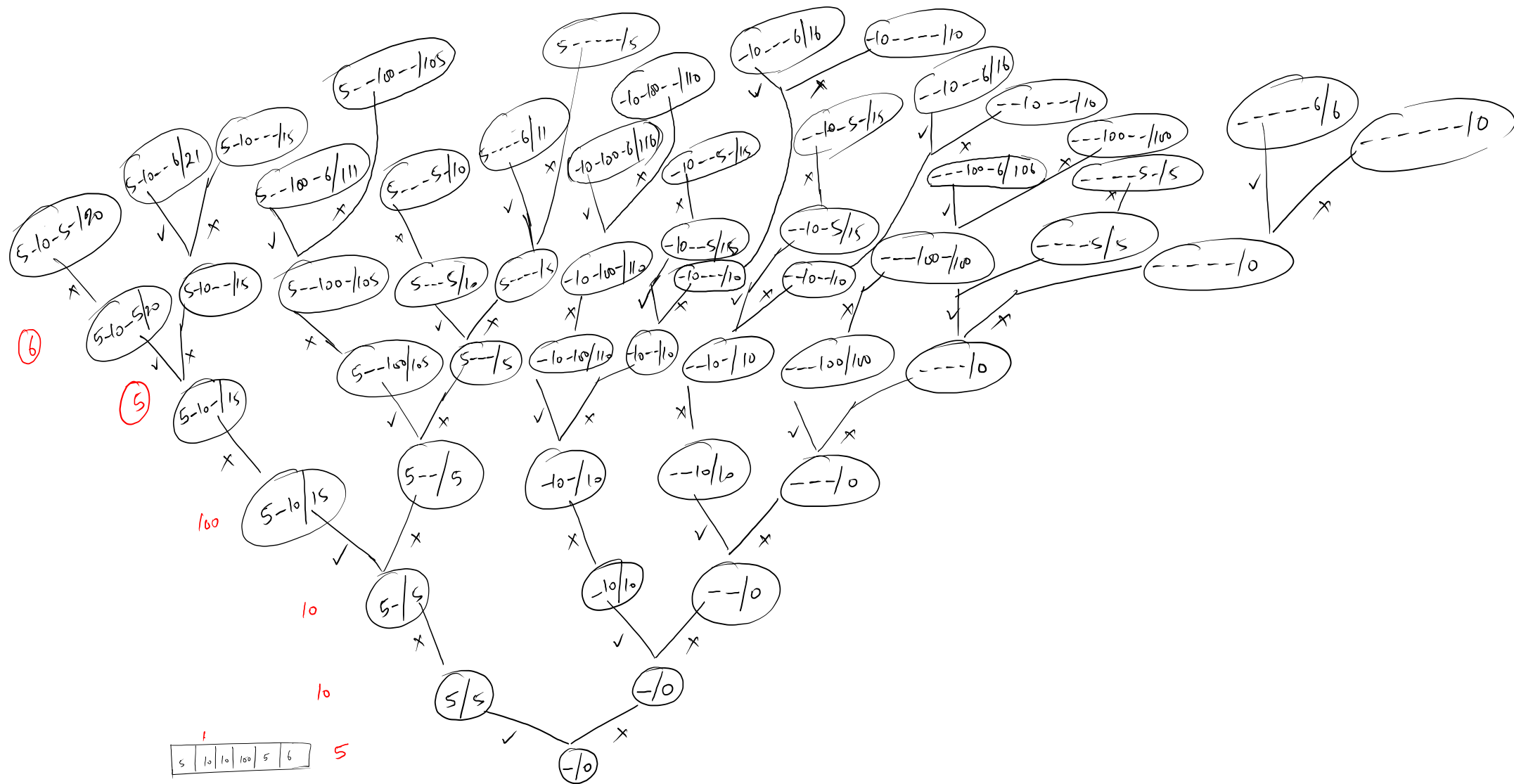
$$a = 2a + 1$$

$$(ab) = 2(ab) + a$$

$$(abc) = 2(abc) + (ab)$$

a b'c'
a a' b' c'
a' b' c'

7 → 7



- ✓</> Count Binary Strings
- ✓</> Arrange Buildings
- ✓</> Count A+b+c+ Subsequences
- ✓</> Maximum Sum Non Adjacent Elements

</> Paint House

</> Paint House - Many Colors

Try them

● Easy	10	✓ Auth	0	✓ Public	✓ Sol	12
● Easy	10	✓ Auth	0	✓ Public	✓ Sol	13
● Easy	10	✓ Auth	0	✓ Public	✓ Sol	14
● Easy	10	✓ Auth	0	✓ Public	✓ Sol	15
● Easy	10	✓ Auth	0	✓ Public	✓ Sol	16
● Easy	10	✓ Auth	0	✓ Public	✓ Sol	17