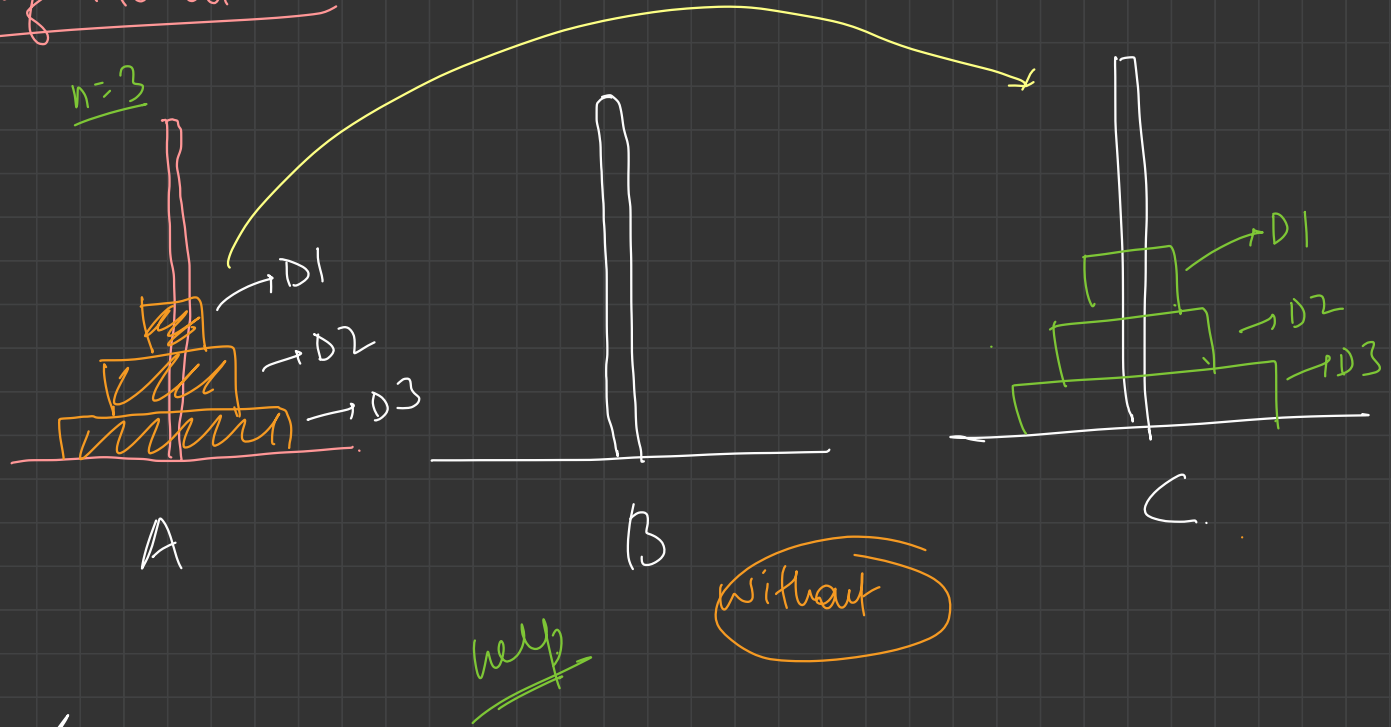
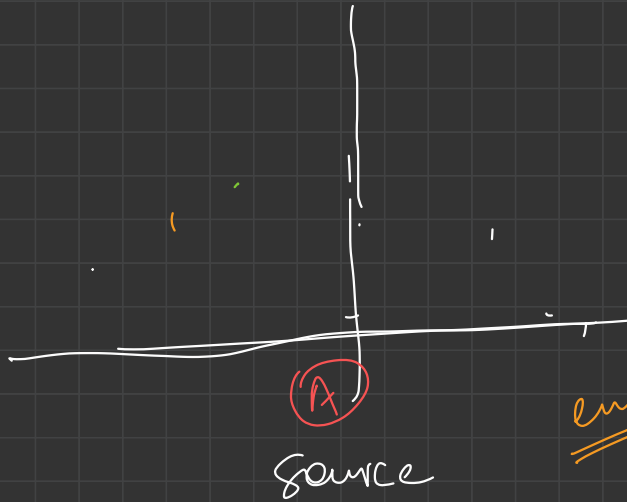


Tower of Hanoi

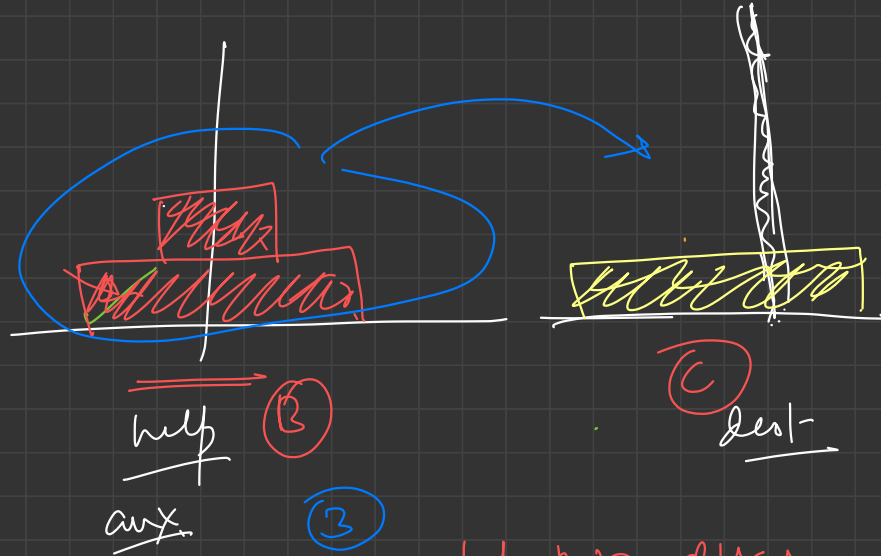


- ✓ ① no larger disc should be at the top of a smaller disc at any time

② can move only one (top most) disc at a time



empty



① moved top 2 discs

A → C (D1) C → B (D1)
A → B (D2)

③
[A → C]
②

③
— move top two discs
from B to C

④
A

✓ moving all
except last disc

moving
last
disc

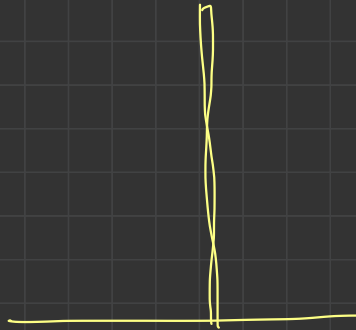
$B \rightarrow A$
 $B \rightarrow C$
 $A \rightarrow C$

moving
all rem
disc

$n=1$



S



AUX

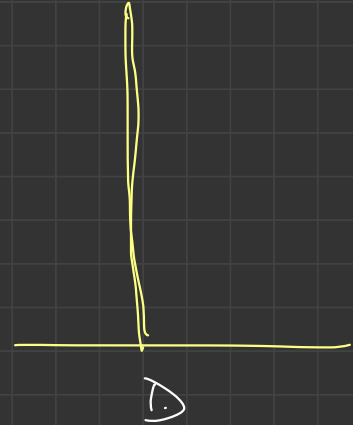
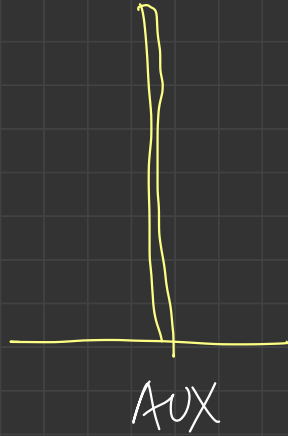
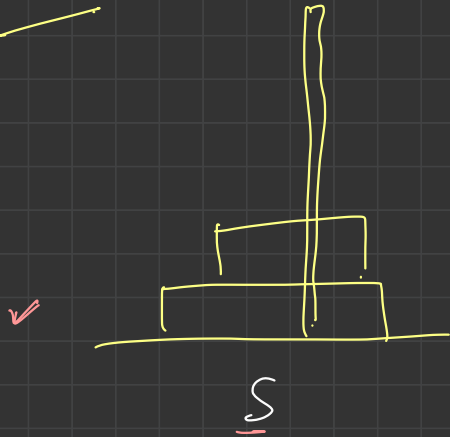


D

$S \rightarrow D$

$n=1$

$n=2$



① move all disc
except last from S to AUX

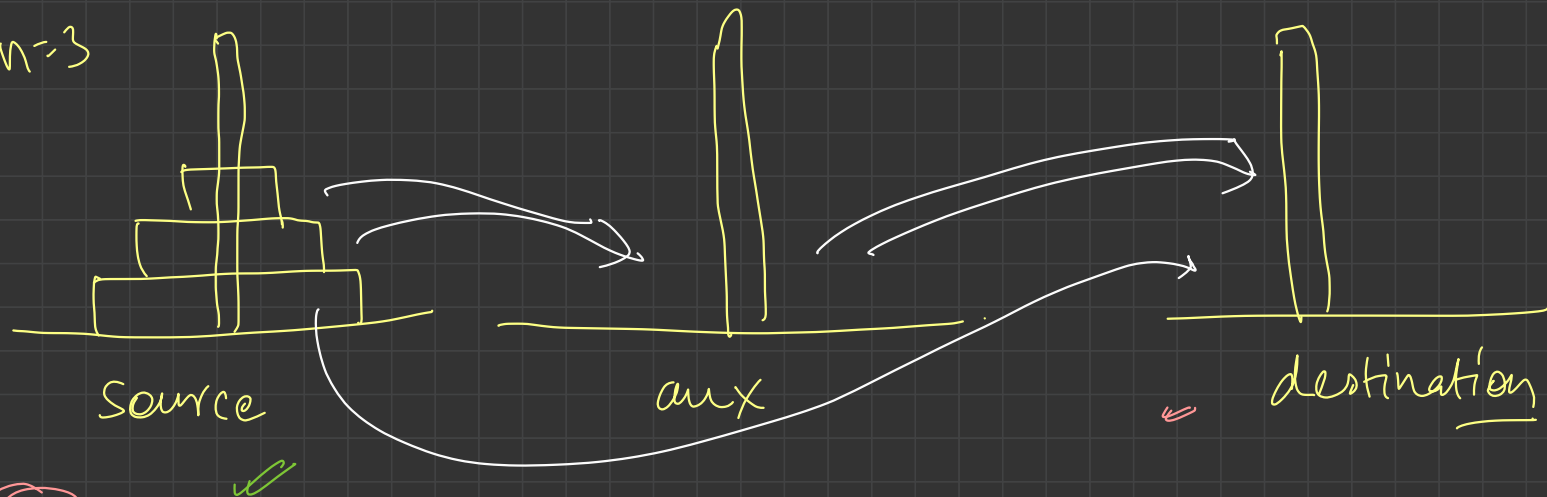
$M2(S, \underline{AUX}, D)$
∴ $S \rightarrow AUX$ (M1)

② move last disc from S to D ∴ $S \rightarrow D$ (M1)

③ move all remaining from AUX to D ∴ $AUX \rightarrow D$ (M1)

M2

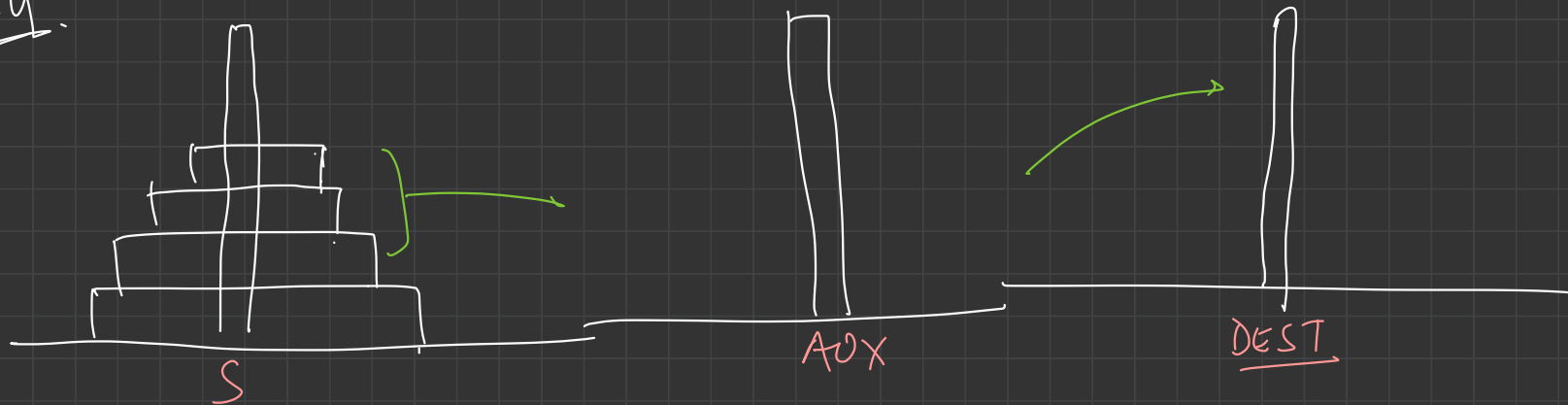
$n=3$



$n=3$

- ① move all except last from source to aux: $S \rightarrow \text{AUX}$ (2 discs)
- ② move last-disc from S \rightarrow D: $M2(S, \text{D}, \text{AUX})$
 $M1(S, \text{AUX}, \text{D})$
- ③ move remaining disc from AUX to S: $M2(\text{AUX}, \text{S}, \text{D})$

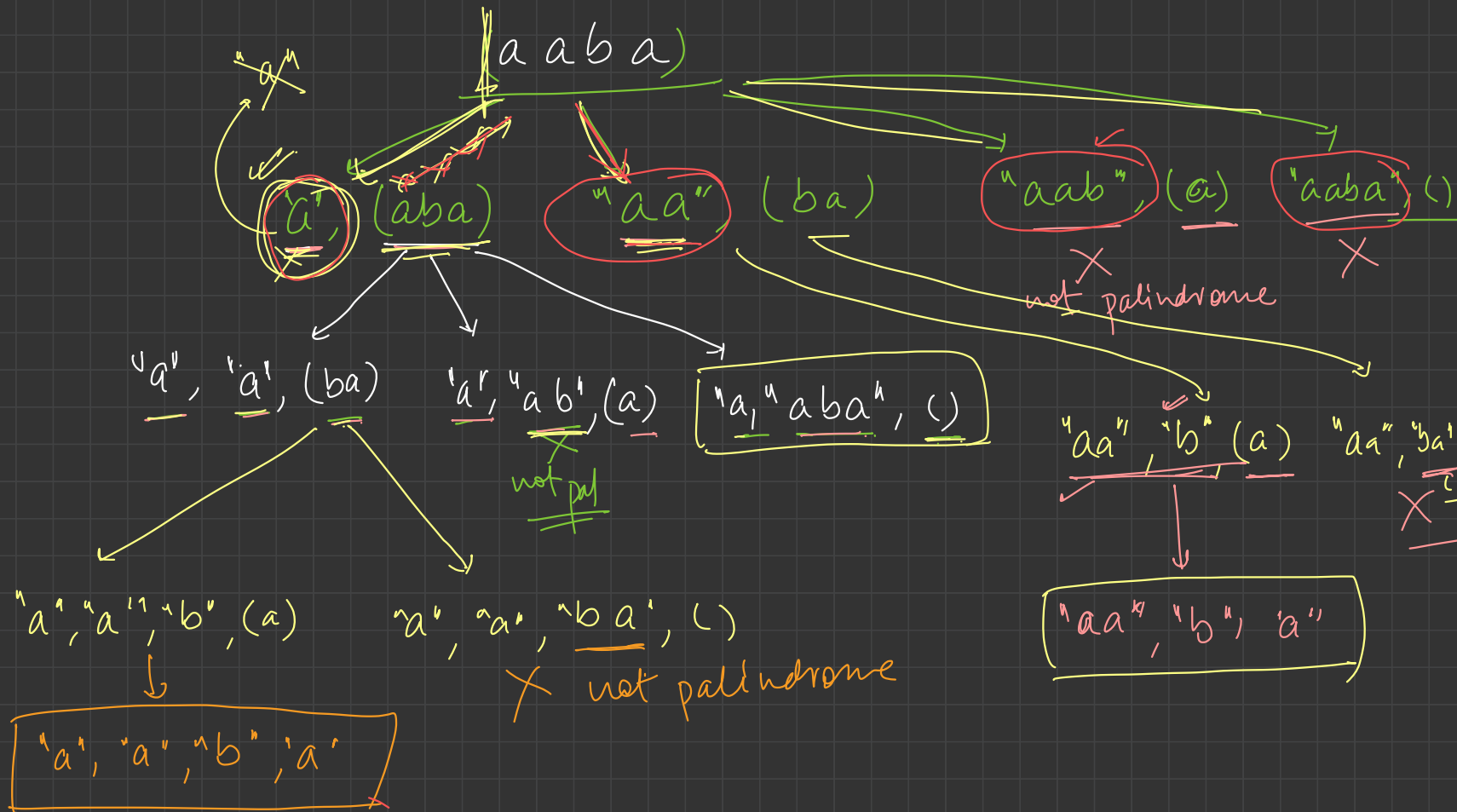
$n=4$



① $M3(S, D, \underline{AUX})$: moving top 3 discs from S to AUX

② $M1(S, AUX, D)$: last disc $(S \rightarrow D)$

③ $M3(AUX, S, D)$: moving remaining from AUX to D



```
void solve(string &s, int i, vector<string> &curr, vector<vector<string>> &ans){
```

```
    if(i == s.length()){
```

```
        ans.push_back(curr);
```

```
        return;
```

```
    }
```

```
    for(int j = i; j < s.length(); j++){
```

```
        if(isPalindrome(s, i, j)){
```

```
            curr.push_back(s.substr(i, j-i+1));
```

```
            solve(s, j+1, curr, ans);
```

```
            curr.pop_back();//backtrack
```

```
        }
```

```
    }
```

$curr = \{$

$\{ \{ 'a', 'a', 'b', 'a' \}, \{ 'a', 'abaa' \}, \{ 'aa', 'b', 'a' \} \}$

$s = \text{"aaba"}$

$i = 0$

$j = 0$

$s(0,0)$

$j = 1 \rightarrow s(0,1) \rightarrow \text{"aa"}$

$j = 2 \rightarrow s(0,2) \rightarrow \text{"aab"}$

$j = 3 \rightarrow s(0,3) \rightarrow \text{"aaba"}$
 \times not pal

main