

## Stacks -4 Lecture-48

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# Today's checklist

Infix, Prefix, Postfix



we will need 2 stacks

Infix Expressions human readable & solve

chan

s/str = "2+6+4/8-3";

D,M >A,S

BODMAS

#### Rules:

- 1) At s[i] is a digit, then push into val
- 2)4 5[1] is +,-,\*
  - a) if op stack is empty tru push
  - b) if pr(st top) < pr(s[i]) Enen bush
  - c) w pr(st.top) >= pr(s[i])-xkaam (solve)

int

char ch = int val 2 = 3 int val = 5 int ans = S-3=2

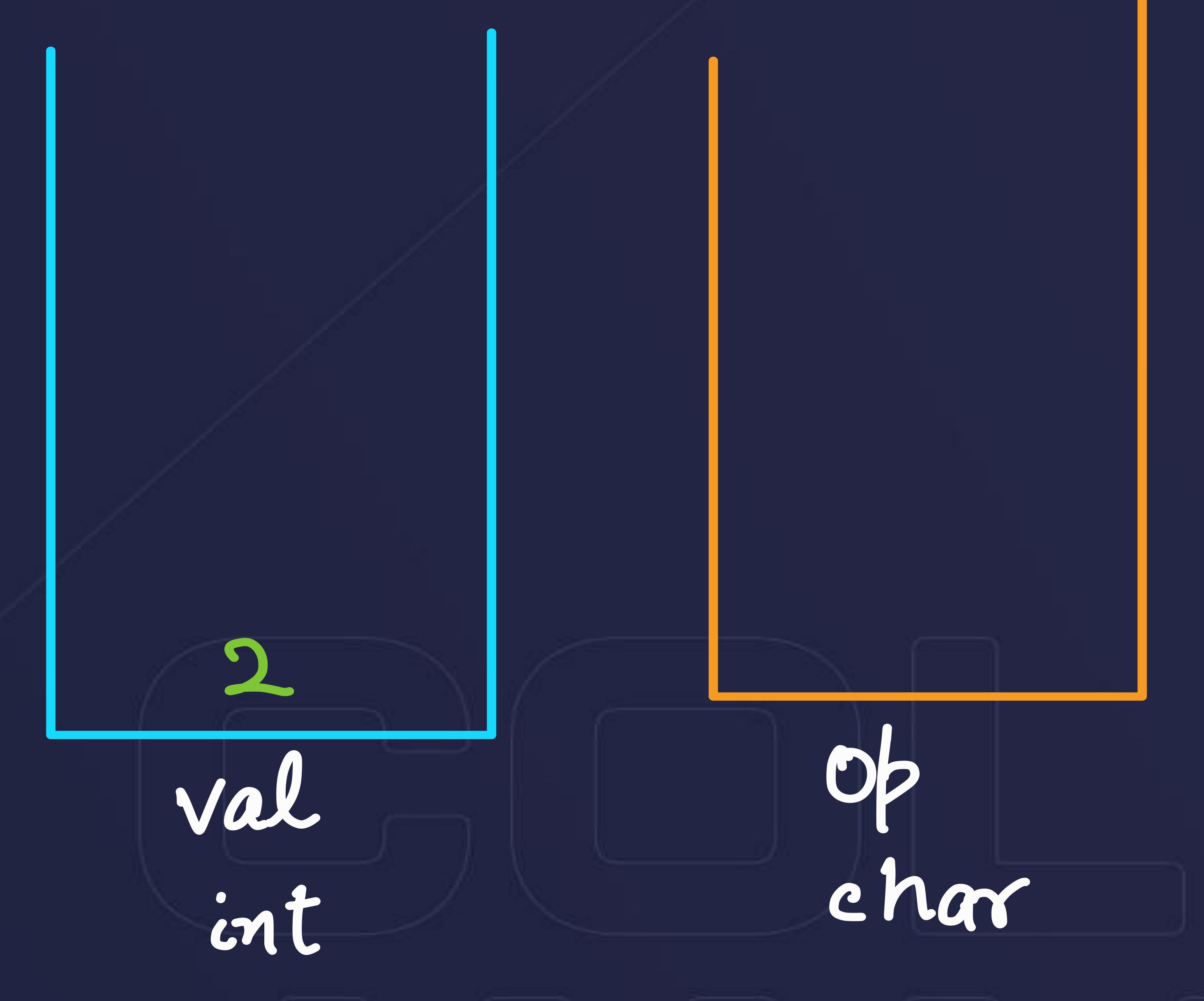
### Infix Evaluation ,'VIMP'

 $s/st_0 = "2 + 6 + 4/8 - 3"$ we will need 2 stacks

#### Rules

- 1) 94 s[i] is a digit, then push into val
- 2)4 S[i] is +,-,\*,/
  - a) if opstack is empty tren push
  - b) if pr(st top) < pr(s[i])

    then push
    - c) w pr(st.top) >= pr(s[i])-x Kaam Solve



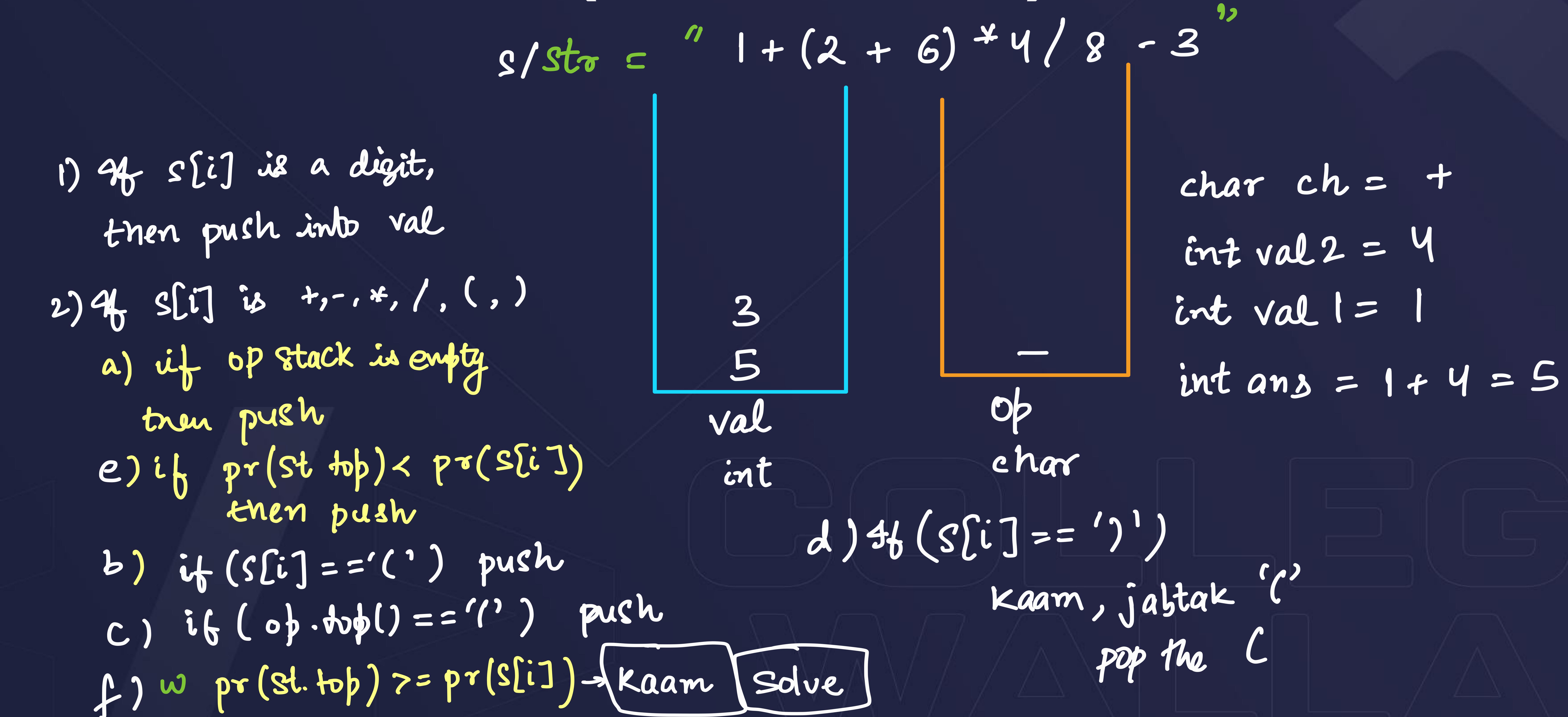
char ch = -int val 2 = 3int val 1 = 5int ans = 5 - 3 = 2

BODMAS

D,M >A,S



### Infix Evaluation (with brackets)



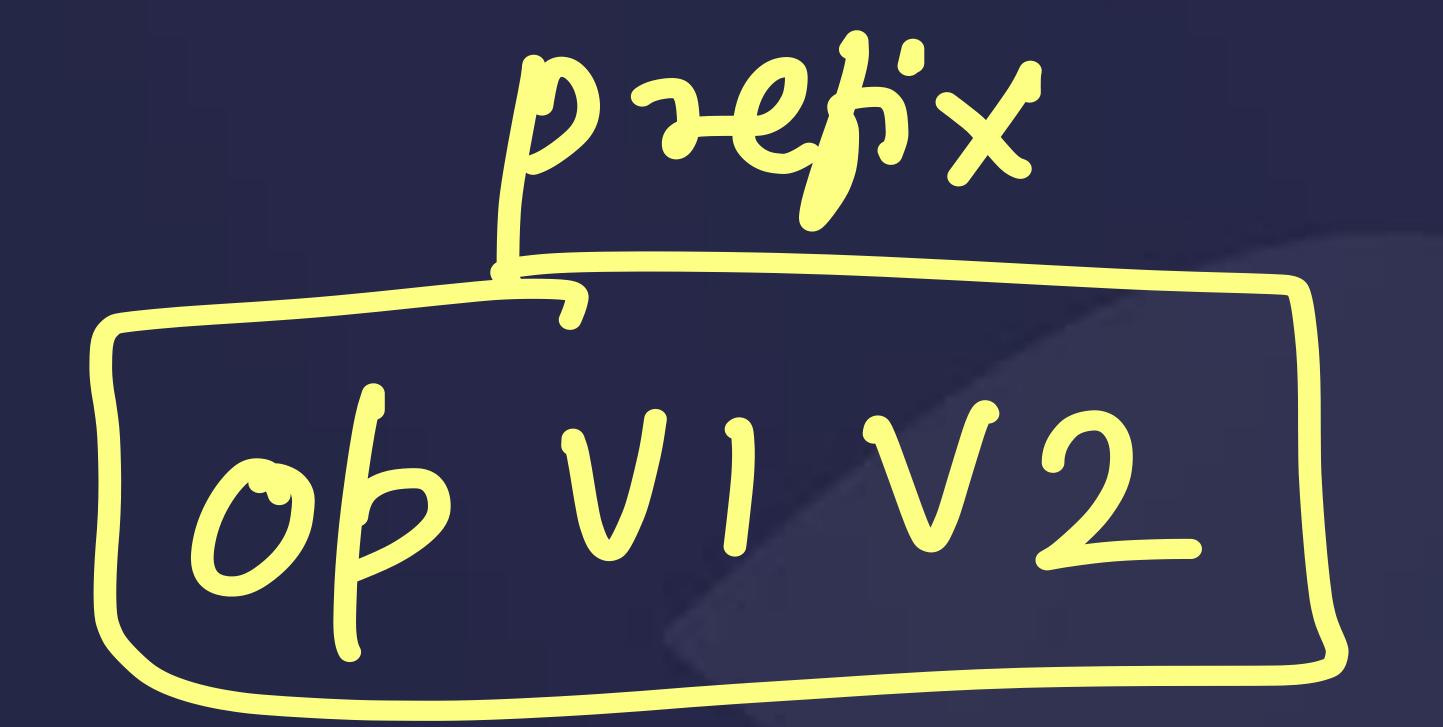


#### Prefix Expressions

9n 
$$2+6*4/8-3$$
  
 $-3$   $2+464/8-3$   
 $-3$   $2+1/*648-3$   
Pre  $-+2/*6483$ 



#### Infix to Prefix Conversion



char

char ch = -

string val 2 = 3

string val | = 
$$+2/*648$$

string and =  $-+2/*6483$ 



#### Infix to Prefix Conversion

$$-/*+79483$$



#### Postfix Expressions

9n "2+6"

Post "26+"

9n "(7+9) 
$$\frac{1}{4}$$
  $\frac{1}{8}$  - 3"

Post "26+"

9n "(7+9)  $\frac{1}{4}$   $\frac{1}{8}$  - 3"

Post "26+"

9n "(7+9)  $\frac{1}{4}$   $\frac{1}{8}$  - 3"

Post "26+"

9n "(7+9)  $\frac{1}{4}$   $\frac{1}{8}$  - 3"

Post "26+"

Post "26+"

Post "26+"

Post "27+"

Post "27+"

Post "79+4\*8/3-"



#### Infix to Postfix Conversion

ditto same as
infix to prefix

Co solve of



#### Postfix Evaluation (Simplest)

int 
$$val 2 = 3$$
  
int  $val 1 = 8$   
int ans =  $8-3=5$ 

val



#### Postfix to Infix Conversion

string val 
$$2 = 3$$
  
string val  $1 = 7+9*4/8$   
string ans  $= 7+9*4/8-3$ 



#### Postfix to Prefix Conversion

```
Copy poste of Post to An code
only diff is 3 solve
           9u: VI ob V2
           Pre ob VI V2
```



# Prefix Evaluation -> we traverce in severse order -> val 2, val 1

int val1 = 8

int val2 = 3

int ans = 
$$8-3=5$$

5



#### Prefix to Infix Conversion "Homework"

Solved in Class







Solved in Class



```
Summary:
```

```
Infix Eval
Similar - Infix to Pre ] ] same
In to Post ] ]
                               Similar Pre Sual
       Post Eval
Similar Post to 9n 17 same
Post to Pre 17
                                     Pre to In Same
```

reverse order vall, val2



# THANKYOU!

S(D)LLE(B)E W/A\LLAH