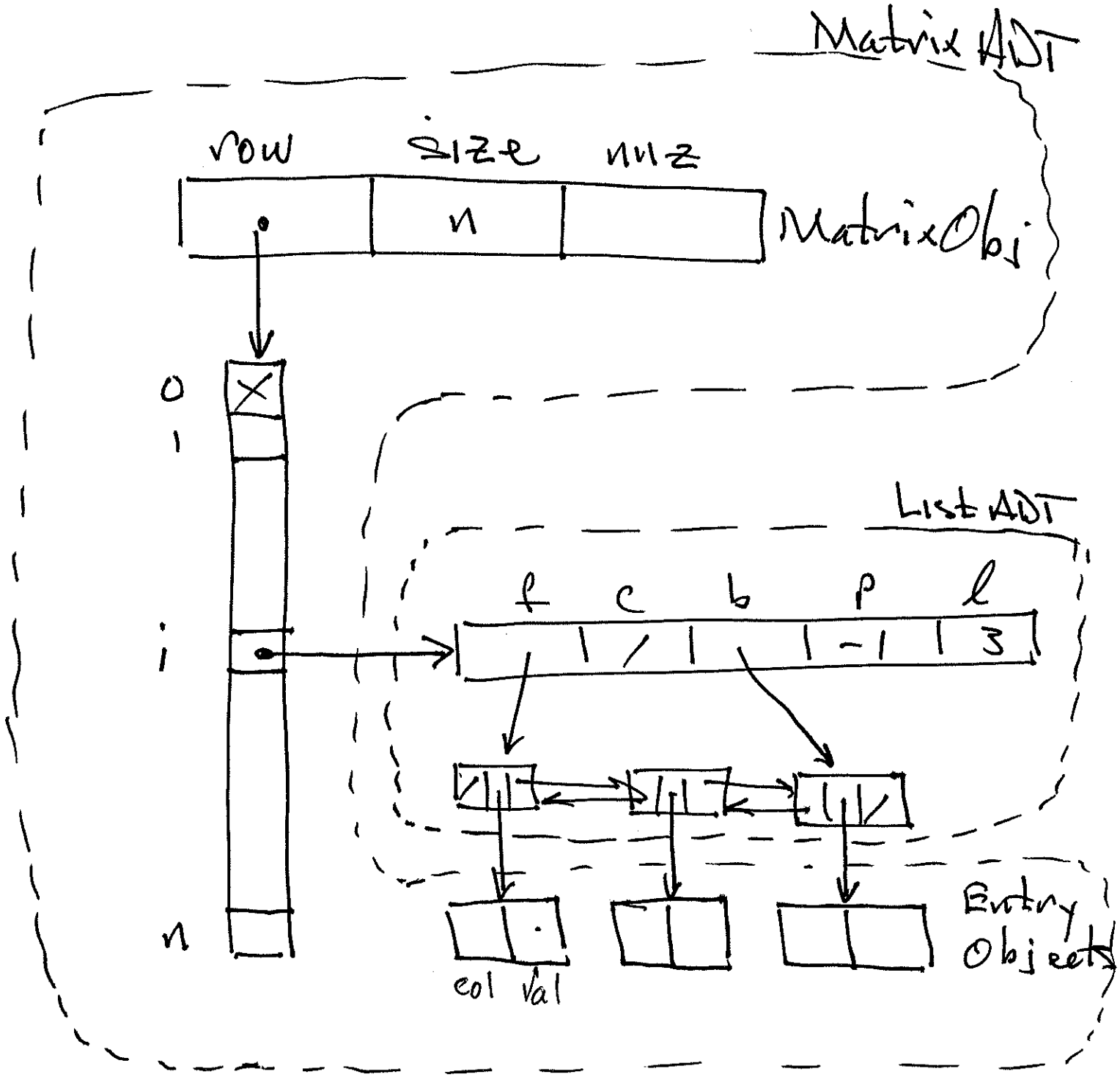
CSE 101 10-28-25

Part: Inside Picture



Build ops in this order

basic

- Constructor
- makeZero()
- destructor
- printMatrix()
- changeEntry() ← !!!

easy

- copy()
- transpose()
- scalarMult()

helper fcns

- dot prod. of 2 lists
- sum of 2 lists
- diff " " "

Matrix arithmetic

- Product()
- sum()
- diff()

How to build changeEntry()?

changeEntry(i, j, x)

set $M_{ij} = x$

4 cases

① $M_{ij} = 0$, $x = 0$: do nothing

② $M_{ij} \neq 0$, $x = 0$: delete

③ $M_{ij} = 0$, $x \neq 0$: insert

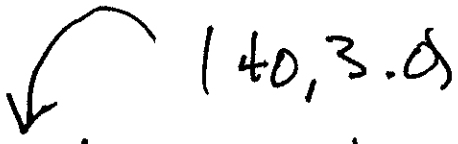
④ $M_{ij} \neq 0$, $x \neq 0$: overwrite

Ex.

1:

2: (10, 1.0) (50, 2.0)

3:



changeEntry(2, 4.0, 3.0)

Result:

1:

2: (10, 1.0) (40, 3.0) (50, 2.0)

3:

How to write dot()

dot(P, Q)

P : (10, 1.0) (30, 2.0) (50, 3.0) ----

Q : (20, 4.0) (50, 5.0), (60, 6.0)

sum = 0.0 + 15.0 → return 15.0

last exercise in handout on asymptotic growth

$$2^{\ln(n)} = n^{\ln(2)} : \text{Polynomial}$$

identity: $a^{\log_b(c)} = c^{\log_b(a)}$