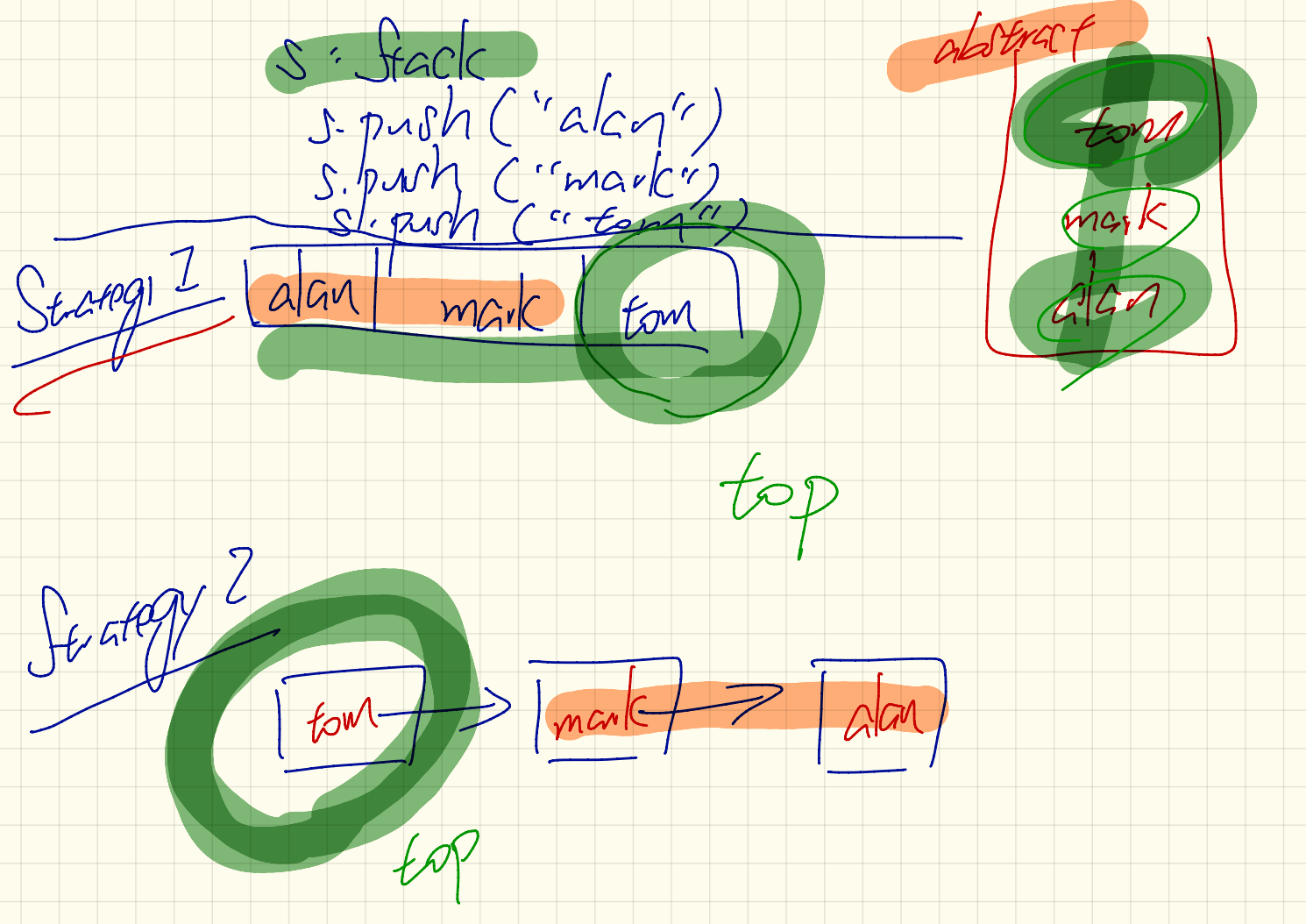
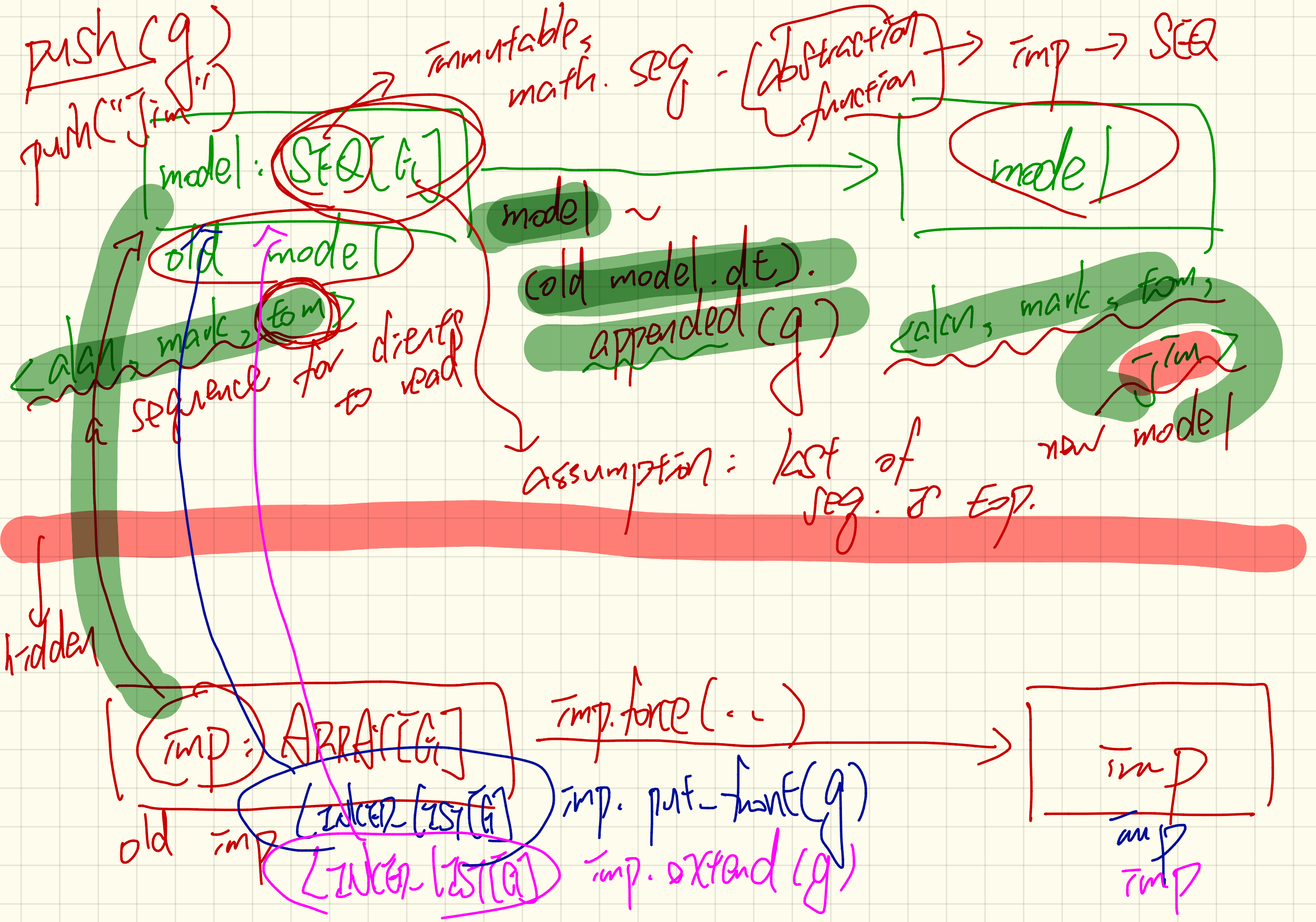
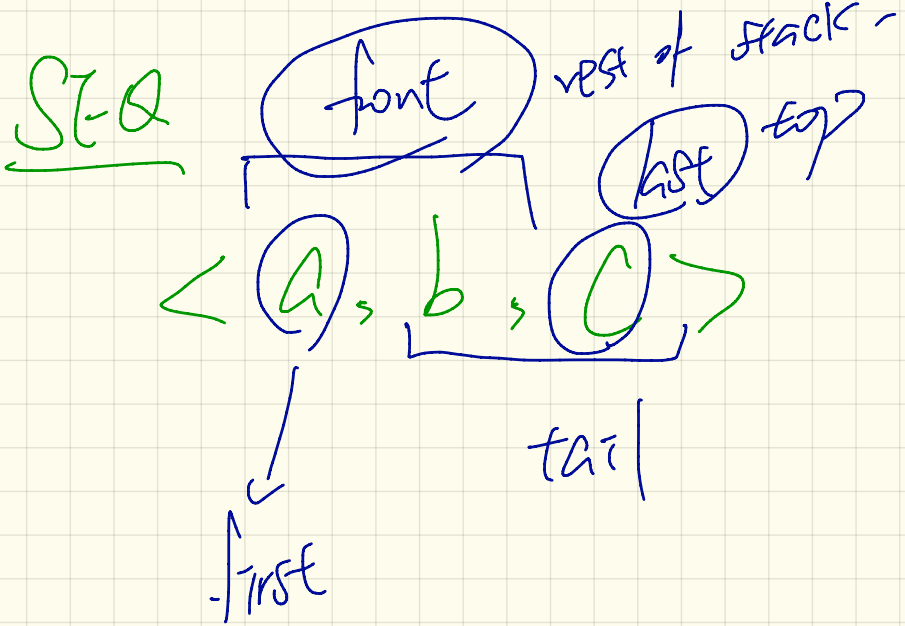
Lecture 20

Monday Nov. 20


S : Stack
S.push("alan")
S.push("mark")
S.push("tom")
Strategy 1
alan
mark
tom
top
abstract
tom
mark
alan
Strategy 2
tom
mark
alan
top


push(g)
push("Jim")
Immutable, math. seq - abstraction function
imp → SEQ
model: SEQ[G]
old model
<alan, mark, tom>
a sequence for clients to read
model ~ (old model.dt).appended(g)
model
<alan, mark, tom, Jim>
new model
assumption: last of seq. is top.
hidden
imp: ARRAY[G]
imp.force(..)
imp
old imp
LINKED_LIST[G]
imp.put_front(g)
LINKED_LIST[G]
imp.extend(g)
imp
imp


Stack
front
rest of stack
top
last
a
b
c
tail
first

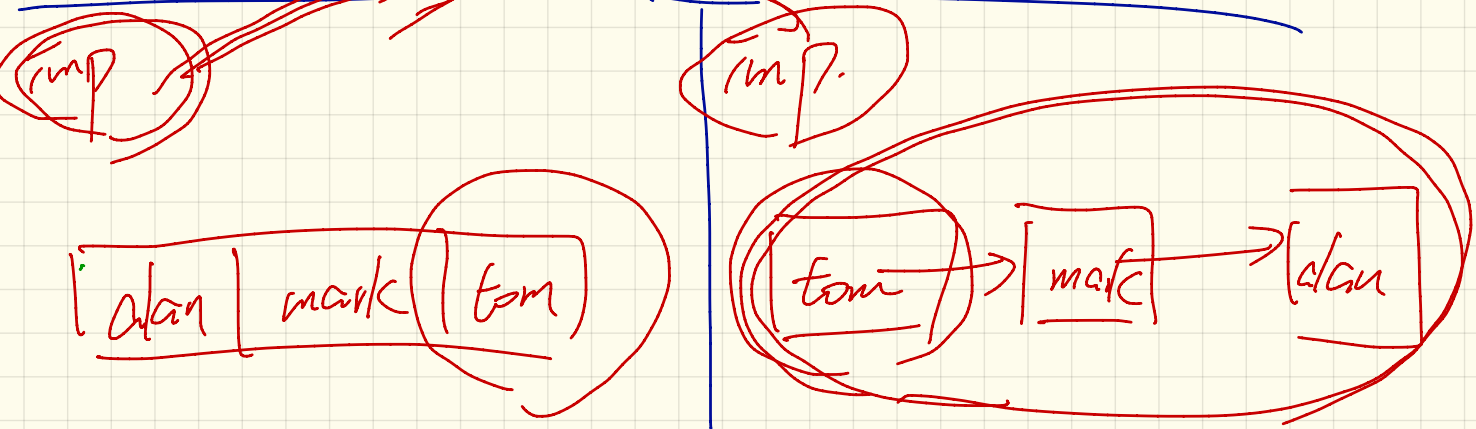
Strategy 1

tom
mark
alan

Strategy 2

create an abstraction of STACK ADT as a sequence, where last item is top.

model: <alan, mak, tom>



prepend $\approx$ addFirst

append $\approx$ addLast

$$\mathcal{P}(\{a, b\}) = \{\emptyset, \{a\}, \{b\}, \{a, b\}\}$$

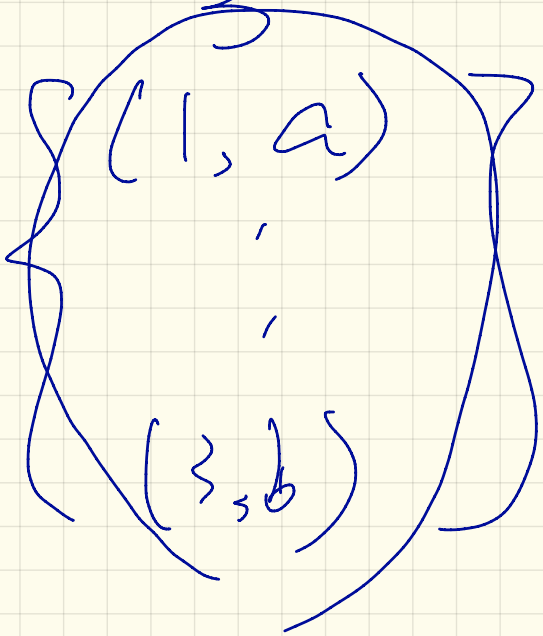
$$2^{|\{a,b\}|}$$

$$\{a,b\} \times \{x,y\} \times \{\varepsilon,\sigma\}$$

$$= \{(a,x),(a,y),(b,x),(b,y)\}$$

$\underbrace{\{1, 2, 3\}}_{S} \times \underbrace{\{a, b\}}_{T}$

$3 \qquad 2$



6 pairs.

$S \times T$ → largest relation for S and T

$\emptyset$ → Smallest relation.