

Lecture 4

Wednesday

Sep. 20

office hours

Mon Tue Thu

13:30 - 15:30

CLASS ARRANGED_CONTAINER

feature ~~{NONE}~~ -- information hiding

imp: ARRAY[STRING]

-feature -- queries

get_at(i: INT): STRING
require

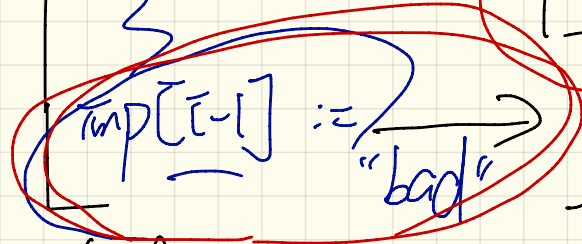
$i \leq \text{imp.Count}$

you're
not
allowed
to refer to
private
features

get_at(i: INT) : STRING query

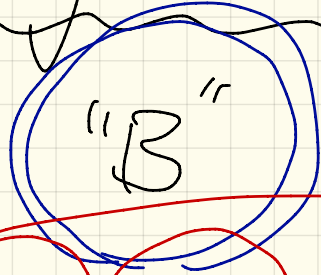
do

ac

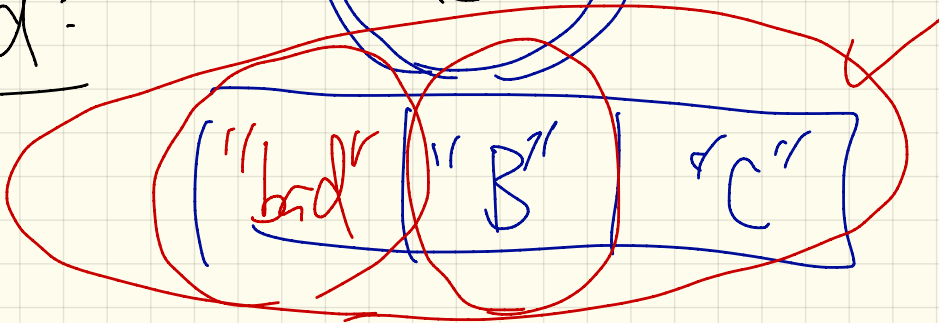


ac.get_at(2)

ensure



unchanged:



Kinds of tests

3. Test to fail (postcondition)
insert_at(2, "E")

test
query
ac → 1. Compare expected value vs. actual value
→ ["A" | "B" | "C" | "D"] insert_at(2, "E")

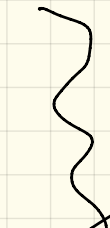
test
command
ac → 2. Test to fail (precondition)
ac.get_at(5)

["A" | "E" | "B" | "C" | "D"]

local

$\bar{t} = INT$

do



check

$\bar{t} > 0$

end.

ES_TEST

add test cases

each test case should correspond to a scenario

test to succeed/fail

each ES_TEST should focus on single testing a class

ES_SUITE

collection of ES_TEST

Java

Account acc = new Account();

b. add Account (acc)

b. add Account (new Account. . .)

Eiffel

create {Account} acc. make

create {Account}. make

Feature to test:

$\text{add2}(\bar{i}: \text{INT}) : \text{INT}$

-- given \bar{i} , returns $2 + \bar{i}$

Test query

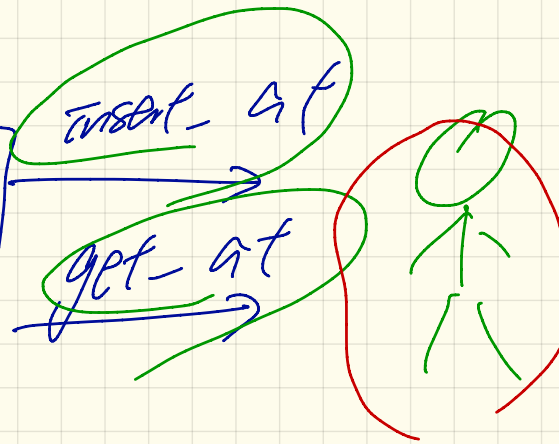
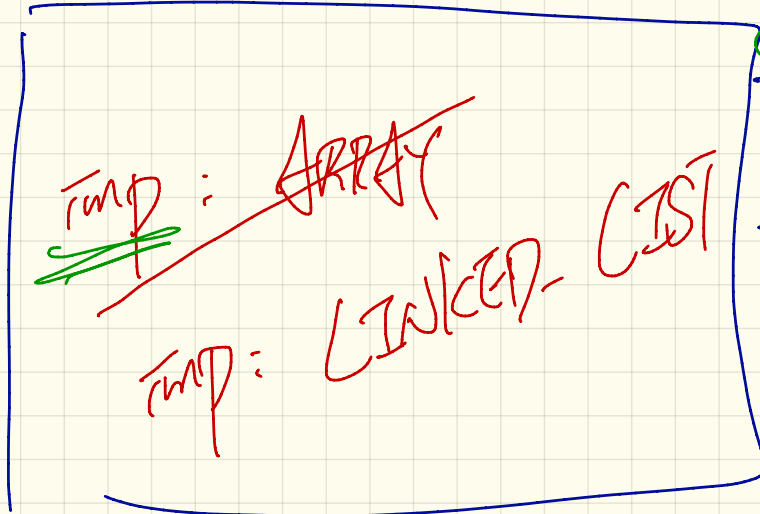
test Add 2 For 100 Inputs : BOOLEAN
local $\bar{i}: \text{INT}$ do comment ("...")

from $\bar{i} := 1$
until $\bar{i} > 100$
do Result
end

check Result end -
 $\text{add2}(\bar{i}) = 2 + \bar{i}$

end

Linear Container



information hiding.

ADT STACK [G]

= generic parameter

operations

ARRAY [G] generic class

ARRAY [STRING]

ARRAY [PERSON]

ARRAY [INTEGER]

Operations

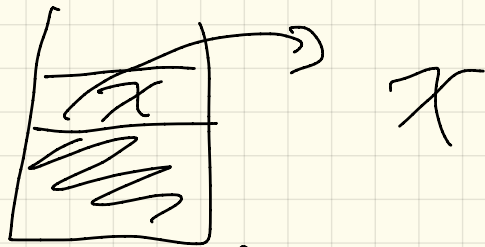
remove: ^{top} STACK [G] → STACK [G]

put: STACK [INT] → INT → STACK [INT]

empty: STACK [INT]

peek ITEM: STACK [INT] → INT

Property s. push(x)



After pushing an item x into the stack, an immediate pop will give to you x .

pop $(\text{push}(s, x)) = x$

A new stack with x on top