

2/25/19 460

Test Delayed a week

Next Step

look at Symbol Table

- assign datatype to , r
  - make syntax closer to python
  - shifting to make simpler
  - goal to write a python program <sup>that</sup> will work in ours
- record datatype with symbol

Rules for names:

letter {letter + digit}\*

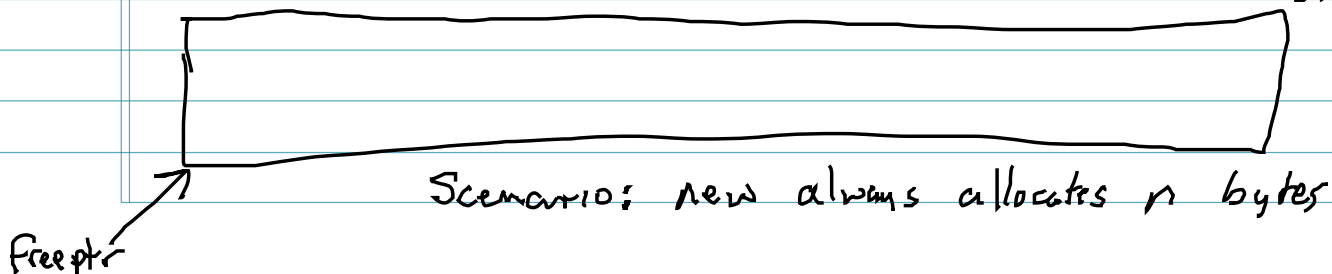
will add datatypes  
with datatypes need rules

Either a new class or ~~Structure~~ Structure to incorporate data type

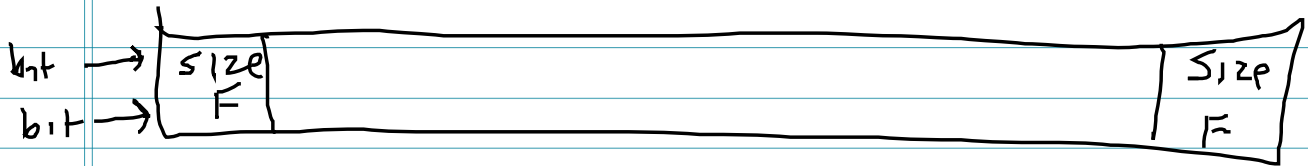
Memory Management

~~No~~ Boundary Tag  
~~Boundary-tag method~~ (for memory management)

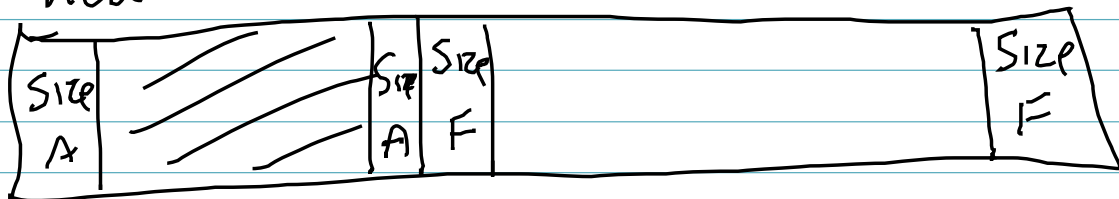
- Pre allocate large space and use for '  
C++ → new → malloc → free  
C → malloc → free  
release delete → free



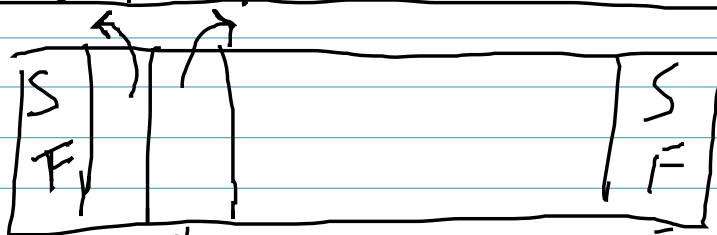
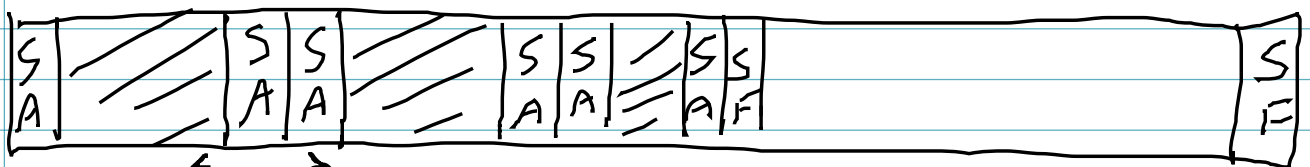
# Boundary Tag method



new called

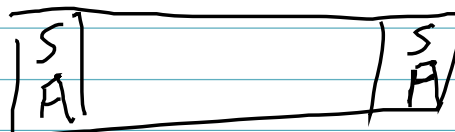


Size = 1 byte  
entry  
A/F  
tag = 1 byte  
= 10 bytes  
overhead



5 4 4 Free Block 5 → overhead = 18

Busy Block



Overallocation sometimes done when only a small amount left on free tag amount is left between Free and Requested

Memory compaction → mem. manag. compacts to one side

Garbage Collection identifies memory that user can no longer access and reclaims it

## DATA Types:

a: Double = 21.0;

Swift is strongly typed

C, C++, Python  
C++  
C  
loosely typed → Python

Our Interpreter — our type =  $[0-9]^+$

Already in

Arithmetic Operators:  $- + * \% /$

Relational Operators

Arith	Rel
Integer	Bool
Floating Point	

must have rules for each operator how to work on operands of different types

## Grammar Rules for (for)

for (<sup>Assign</sup>~~Expr1~~; condition; <sup>code assign</sup>~~Expr2~~) {

}

First Function we will introduce is  
range( )

Data Types to ~~be~~ implement

Int, Float  
Bool

String → different grammar rules  
b/c only operator = +  
and it is different

For Python will need to change  
grammars and tokenizers to  
indent, leading spaces, newline char

Space chars:

space  
tab

Change tokenizer to track newline  
leading spaces in line

Each token will need

- ① Line number
- ② Position number

③ Identify # of spaces/tabs mixed

Using Python 2.7 instead of 3.0

Space will become a token