HW #5

2020-2학기 자료구조의 기초

3 Equality Check Operators in Scheme

- =
  - Checks whether two **numbers** have equal values
  - Only can be used for comparing numbers

- eq?
  - Checks whether two inputs are located **at the same memory**

- equal?
  - Equality check for two lists, values, etc.

Examples of Equality Check Operators

```
(define x 2.5)
(define y 2.5)

(= x y)
(eq? x y)
(equal? x y)
```

```
true
true
true
```

Hash	Symbol	Value
-10	“x”	-30
-20	“y”	-30
-30	“2.5”	Null

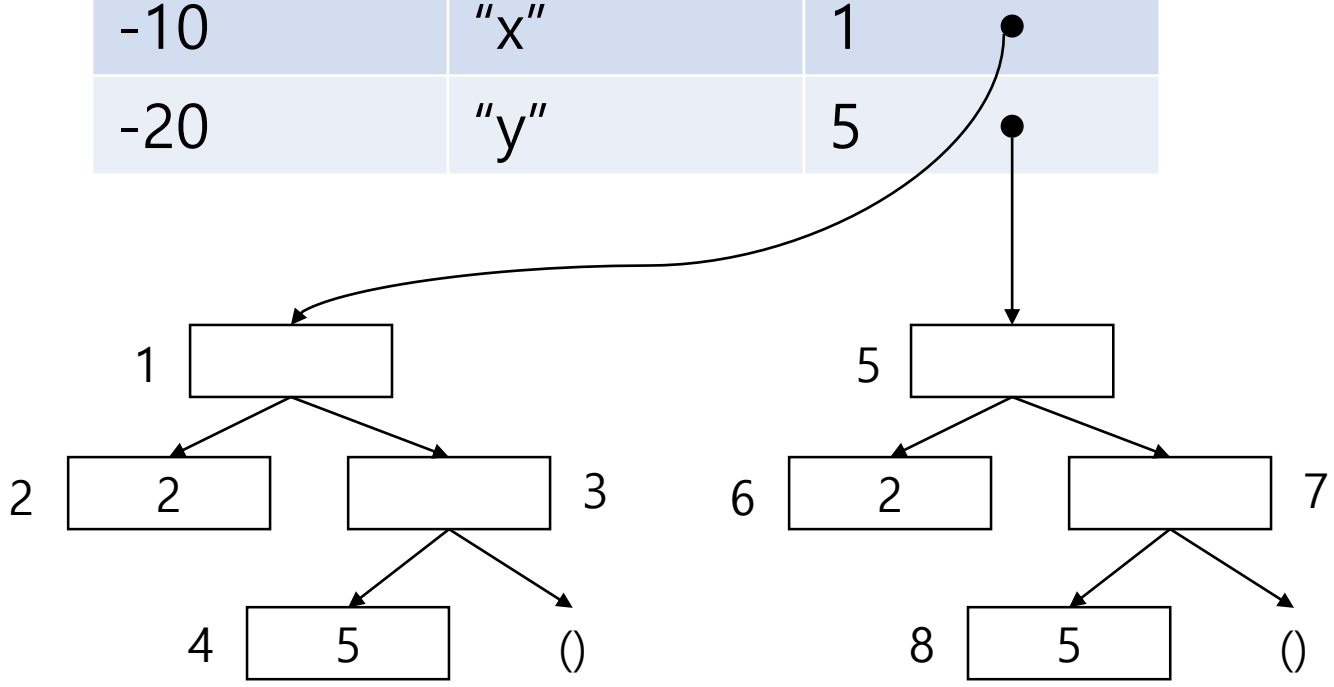
Examples of Equality Check Operators

```
(define x '(2 5))
(define y '(2 5))

(= x y)
(eq? x y)
(equal? x y)
```

```
SchemeError: operand '(2 5)' is not a number

Current Eval Stack:
----------------------
0: (= x y)
```

```
false
true
```

Hash	Symbol	Value
-10	"x"	1
-20	"y"	5



Examples of Equality Check Operators

- Note that “equal?” checks the structure of the whole list

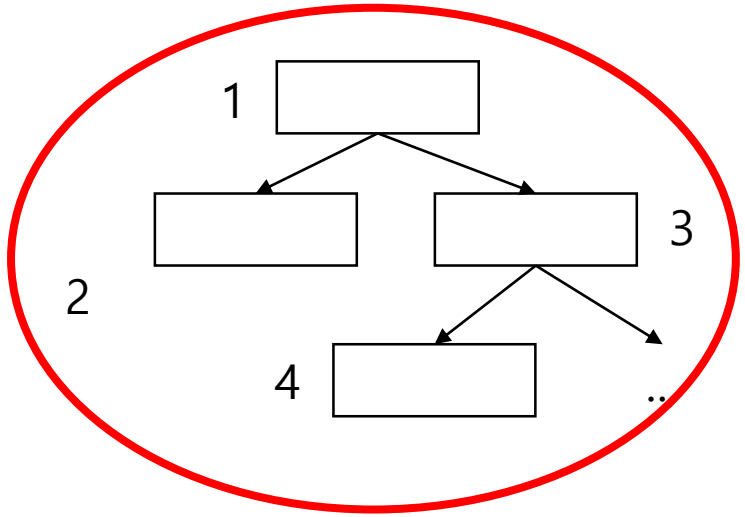
```
(define (square x) (x*x))
(define (foo x) (x*x))
(define (goo y) (y*y))

(equal? square foo)
(equal? square goo)
```

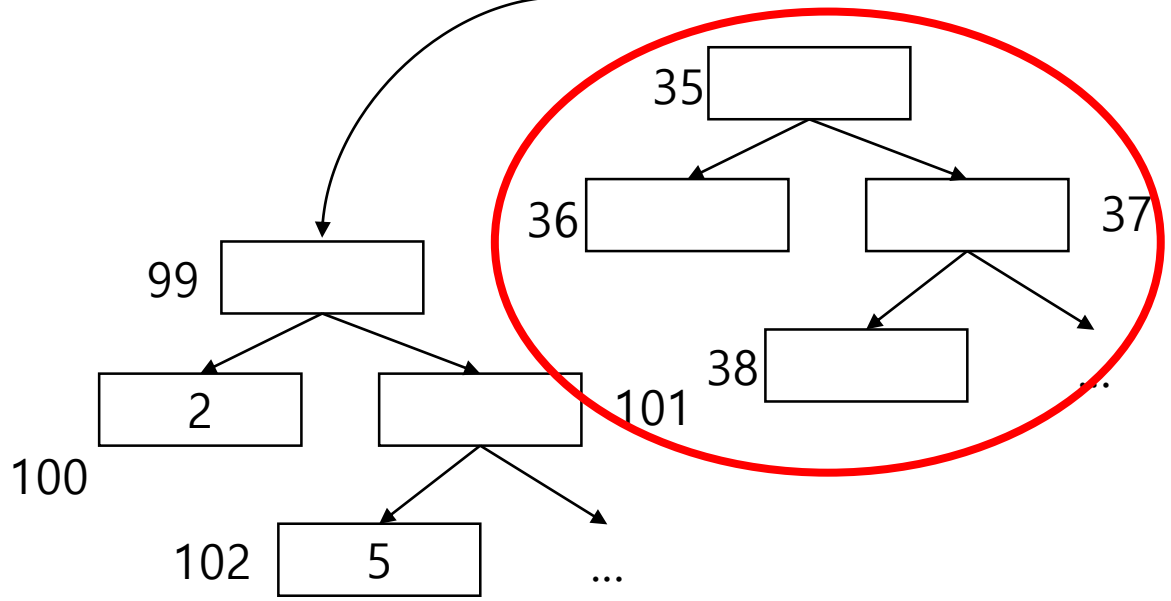
```
true
false
```

Garbage Collection

- When the memory is full, perform garbage collection
  - The circled memories are not pointed by any symbols in the hash table
  - Should be returned to free list

Hash	Symbol	Value
-10	"x"	99
-20	"y"	-15
-15	25	0





To Do

- Implement nested calls of the functions
  - Ex) recursive calls, function call in a function
- Implement three equality operations of the scheme
  - =
  - eq?
  - equal?
- Garbage Collection
  - Print the message which indicates that the garbage collection is done.
  - Set Maximum memory size = 100

To Do

- Due date: 11. 27(Fri) 23:59
- Submissions
  - C++ codes
  - README
    - Should contain compile environments
  - Zip File: 20xx-1xxxx_HW5.zip
- Delay
  - 30% per day, No submission after 11.30(Mon) 23:59