Introduction to Java - Topic #8

"C++ without the tough stuff!"

NO Operator Overloading

NO User Defined Type Conversions

NO explicit pointers

NO "delete" } Garbage Collection!

NO destructors }

NO "unsigned"

NO "Pass by Reference" (although we pass references by value)

Overview of Similarities

C++ & Java

1) Built-in data types
   (int, long, float, double, char
   except NO unsigned)

2) Way objects are defined:
   int i; ← Same

3) Loops: do while, while, for
   (Same)

4) Operators: All arithmetic, relational,
   logical, subscript, increment, decrement
   except NO sizeof, explict pointer ops,
   scope resolution op.

5) Comments // and /* ..... */

6) Compound Blocks { }

Overview of Differences

1) EVERYTHING is in a class
2) NO Globals
3) NO Separate implementation versus prototype/declarations.
4) Methods are implemented INSIDE the class
5) NO friends

members are considered "friendly" if they are not preceded with private, protected, public keywords

these are NOT categories

6) NO operator Overloading - Think I/O!
7) Ø is NOT FALSE - while(head) — No more —

Data Types

Primitive

int, long, short, etc.

ALLOCATED ON The STACK

CANNOT be allocated dynamically with new

Functions:

Can ONLY pass and return by value

Reference

class types
arrays

ALLOCATED FROM The HEAP

MUST be allocated dynamically with new

(CAN'T be allocated on the stack)

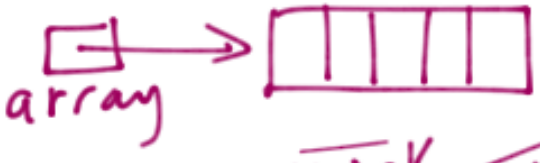
CAN ONLY pass and return References by Value

Arrays

C#

```
int array[5];
```

```
int * array;
array = new int[5];
```



think pointer!

Java

```
Can't do this!
```

NO size

```
int array[];
array = new int[5];
```

or

```
int[] array;
array = new int[5];
```

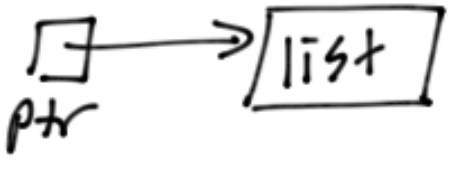
Class Types

c++

```
list object;
```

object

```
list *ptr;
ptr = new list;
```



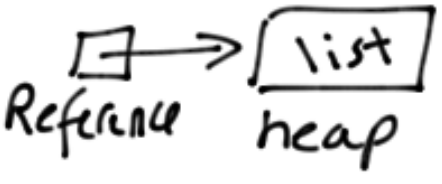
Java

can't do this

```
list object;
object = new list();
```

creates a reference

need the parens!

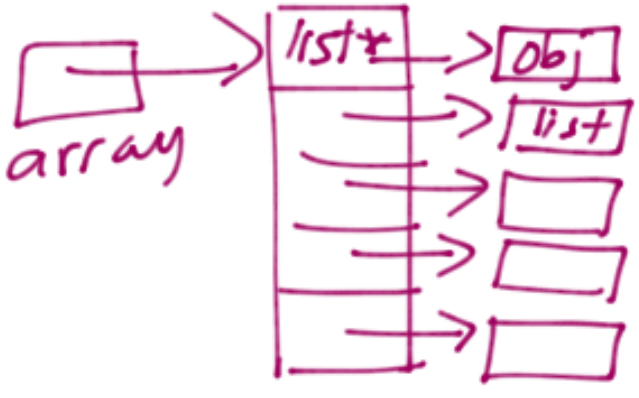


Array of Class Types

C++

```
list array[5];
```

```
list ** array;
array = new list*[5];
for(int i=0; i<5; ++i)
{   array[i] = new list;
}
```



Java

Can't do this!

OR

```
list array[];
array = new list[5];
```

an array of references NOT objects

```
for(int i=0; i<5; ++i)
{   array[i] = new list();
}
```

new we have list objects!