Pab: Ext. 2 days

In Java (i.e., in Processing) there are 2 kinds of data types.

- Primitive types - built-in
- Reference types - created by programmers using class construct.
Example String 1

\[ \begin{array}{c}
\text{0} \\ \text{1} \\ \text{2} \\ \text{3} \\
\end{array} \rightarrow \begin{array}{c}
\text{happy} \\ \text{happy} \\ \text{sad} \\
\end{array} \]

\[ \begin{array}{c}
\text{0} \\ \text{1} \\ \text{2} \\ \text{3} \\
\end{array} \rightarrow \begin{array}{c}
\text{hi} \\ \text{hi} \\ \text{world} \\
\end{array} \]

\[ \begin{array}{c}
\text{0} \\ \text{1} \\ \text{2} \\
\end{array} \rightarrow \begin{array}{c}
\text{sad} \\
\end{array} \]

Difference between Primitive types vs Reference types.

\begin{align*}
\text{int } x &= 6 \\
\text{String } a &= \text{"hello"}
\end{align*}

\[ x \rightarrow \text{6} \]

\[ a \rightarrow \text{hello} \]

Storee address of string object.
```java
int y;
y = x;

String b = "yes"

a → hello
b → yes
b = a;
```
Look at constructor for Car3.

Cannot do

```cpp
Car (float xpos, float ypos, float speed)
```

```cpp
xpos = xpos;
ypos = ypos;
speed = speed;
```

The 'this' reference:

When used in a class refers to "this" instance of the class.
This works:

```java
Car (float xpos, float ypos, float speed)
{
    this.xpos = xpos;
    this.ypos = ypos;
    this.speed = speed;
}
```

Function overloading:

Multiple functions with same name

It is very common to overload constructors.
Ex. Car 4

mousePressed() assign

A = B;

Before:

A

B

After:

A

B
Ex. Cars

in Car class

- decreaseSpeed()
- mouseOnMe()
- stop()
- display(): re-written to draw lane.

Ex. Car 6
General outline:

// Proj. pde

"global variables.

void setup() {... }
void draw() {... }

// other funs

// built-in

// user defined

// class1. pde

// class defn.

//

// class2. pde

// class defn.