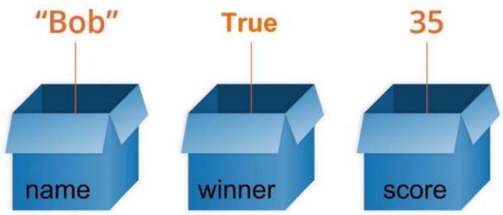
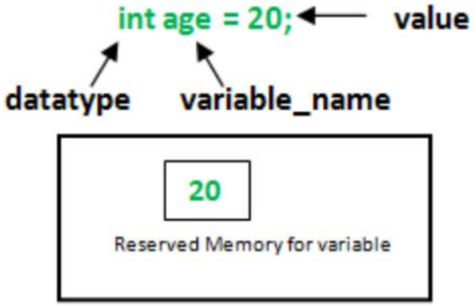
Programming and Variables

Without some way to store values, programming a computer would be very difficult. Holding onto input (like sensor values) for future reference, comparison, or manipulation is necessary to make a computer do what you want.



Variables are the computer’s way of storing values for later use. They function as temporary **containers or storage for values.**

Values such as the robot’s sensor reading can be placed in a variable and retrieved at a later time.



A variable is simply a place to store a value. There are, however**, different types of values.** For instance, there are different types of numbers (*integers* versus *decimals*, to name just two), and there are values that aren’t even numbers, like *words*.

Since there are different types of values we can store, we must “**declare” the type** of variable we want when we create it.

Helpful Variable syntax:

A) Declare variables ***above*** taskmain( )

```
int dist1;
int dist2;
```

*(creating a **int**eger variable called “**dist1**”)*

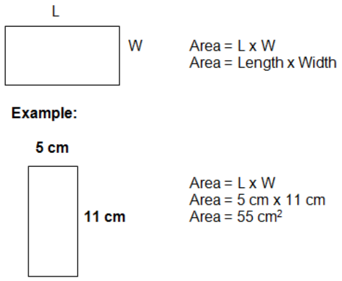
```
task main()
{

}
```

B) Storing Data in a Variable

```
dist1 = SensorValue(S1);
```

(stores the current sensor value of S1 in dist1)



Your Assignment!

Practice with Variables:

AREA FINDER

Create a program that collects two ***separate*** distances from the sonar sensor Multiplies them together, to get an AREA then displays the result on the NXT screen.

Essentially you are creating a scanner gun that can find the area of any rectangular box

Use the touch sensor as a button to initiate data collection

Here is simple **algorithm** that might help:

Create 3 variables:

dist1
dist2
Total

1. *Display "Waiting for distance 1" on the screen.*
2. ***Wait until** touch sensor is pressed (there is a **waitUntil** command in RobotC look it up!)*
3. **Store** Sonar sensor value **in *dist1***
4. *Display "Waiting for distance 2"*
5. ***Wait until** touch sensor is pressed*
6. **store** Sonar Sensor value in ***dist2***
7. *Total = dist1 * dist2*
8. Display **total** on screen