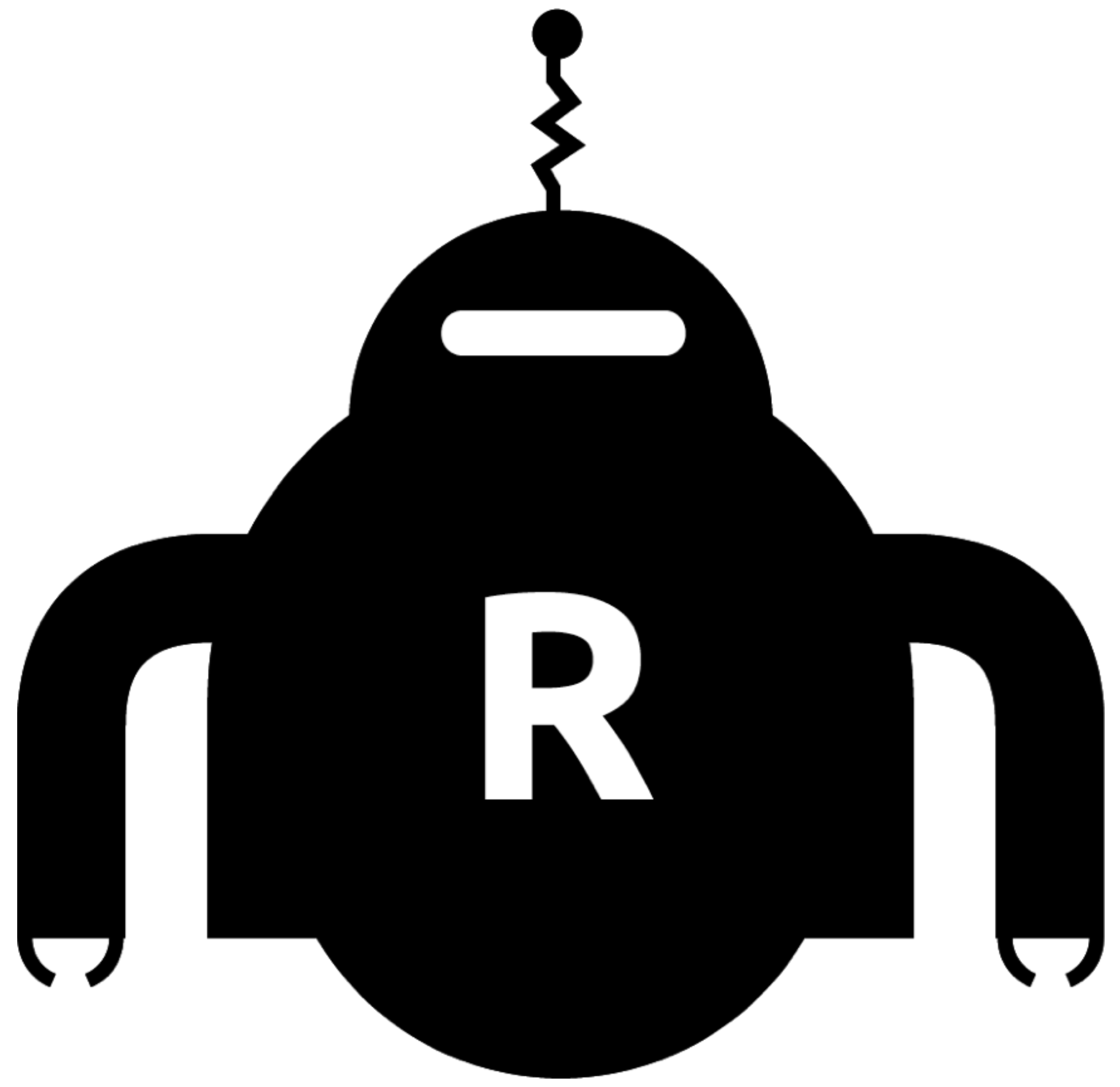
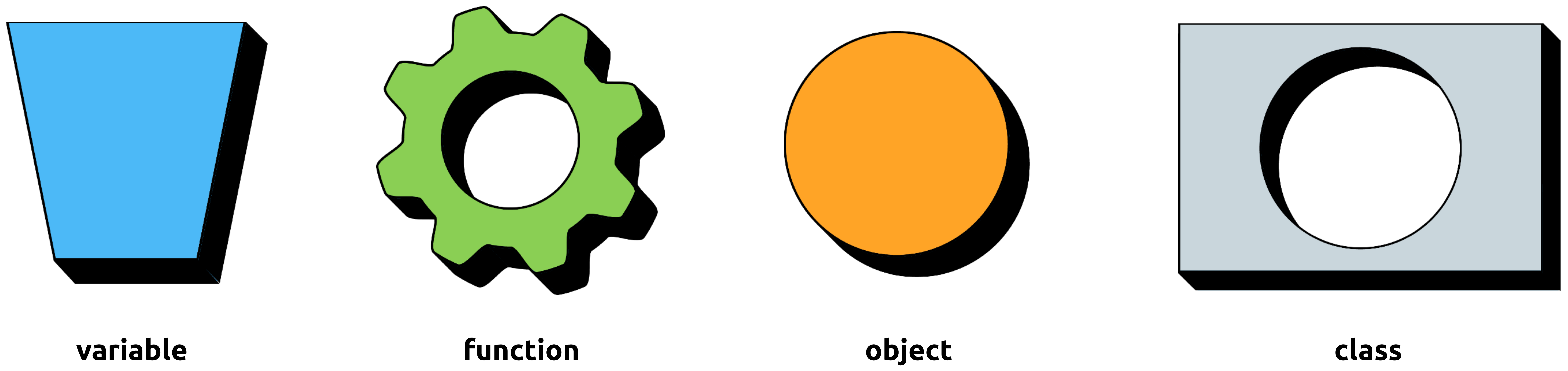
programming for the visually oriented

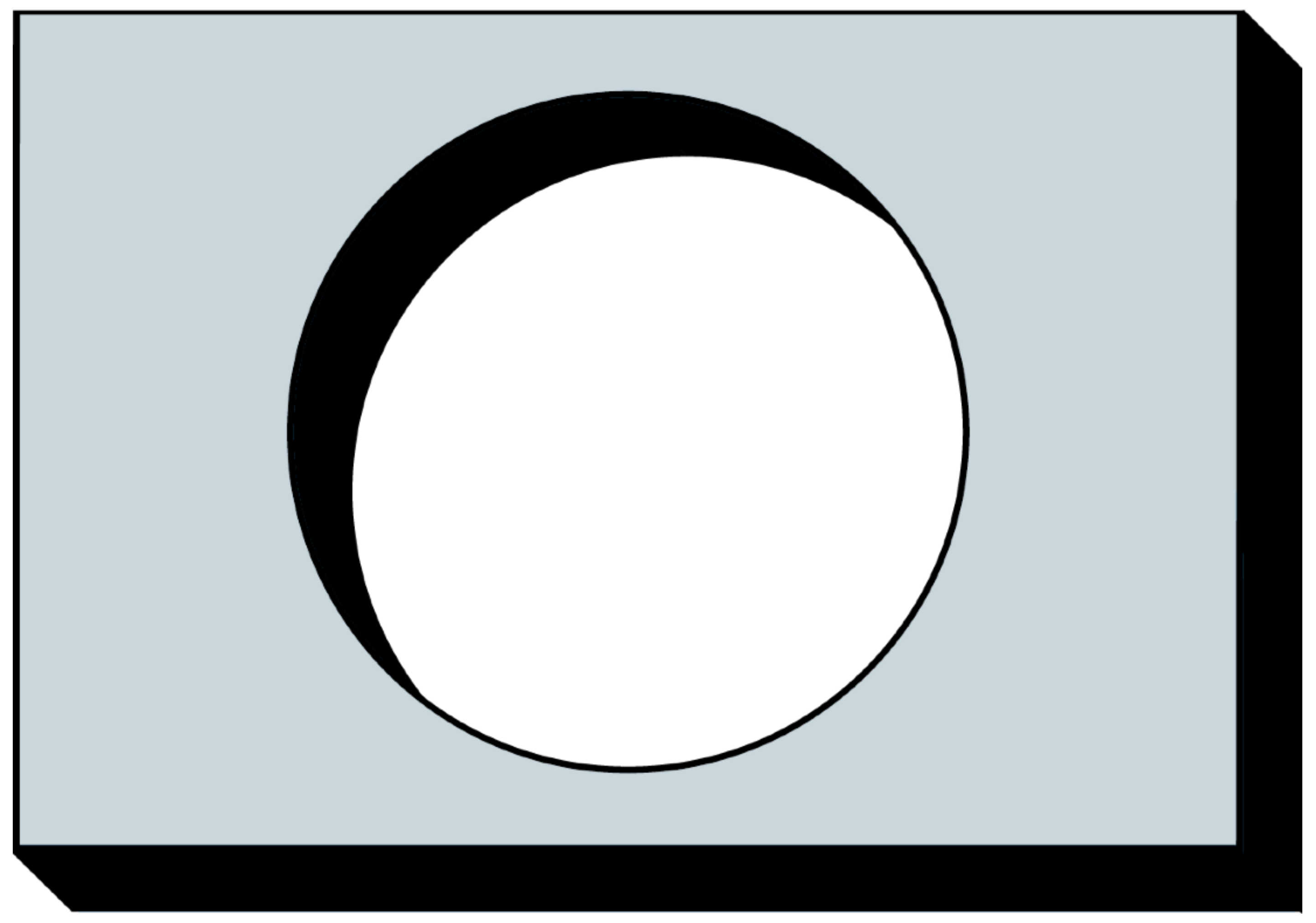
C# in Unity3D
version 1, 2013
carl emil carlsen
http://sixthsensor.dk



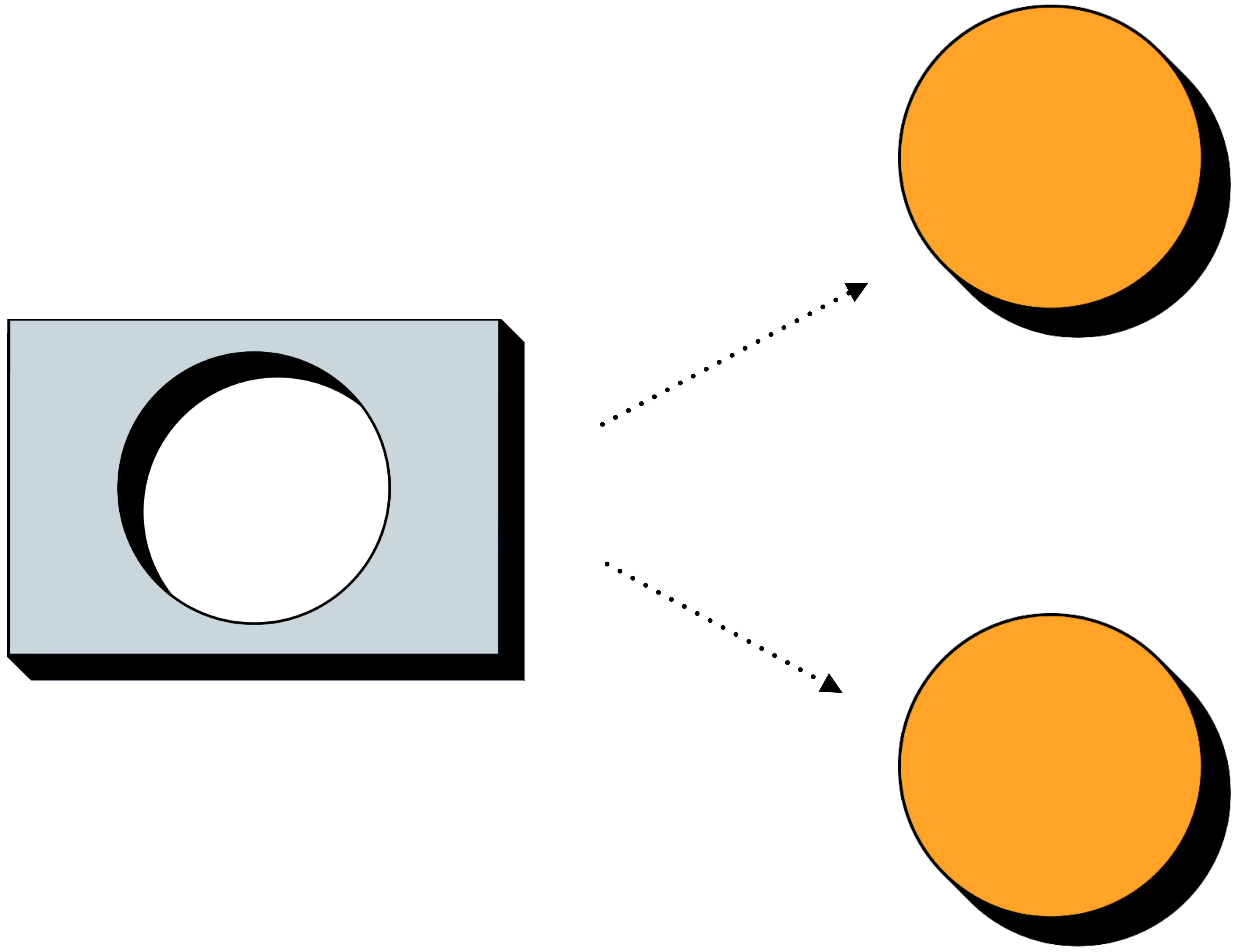
rob the robot will be reading your code



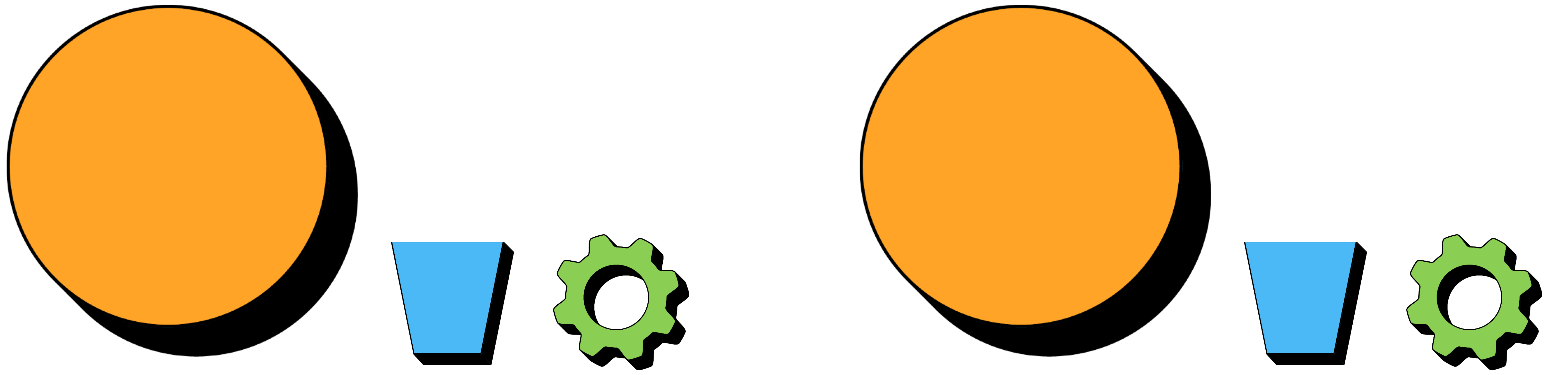
basic concepts



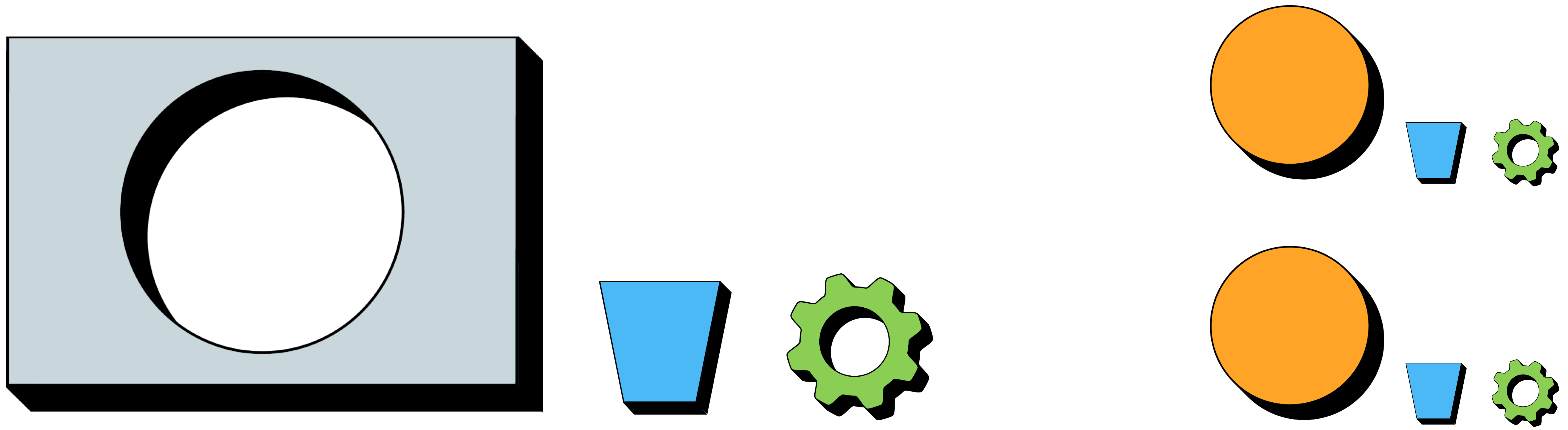
a class defines a type of object



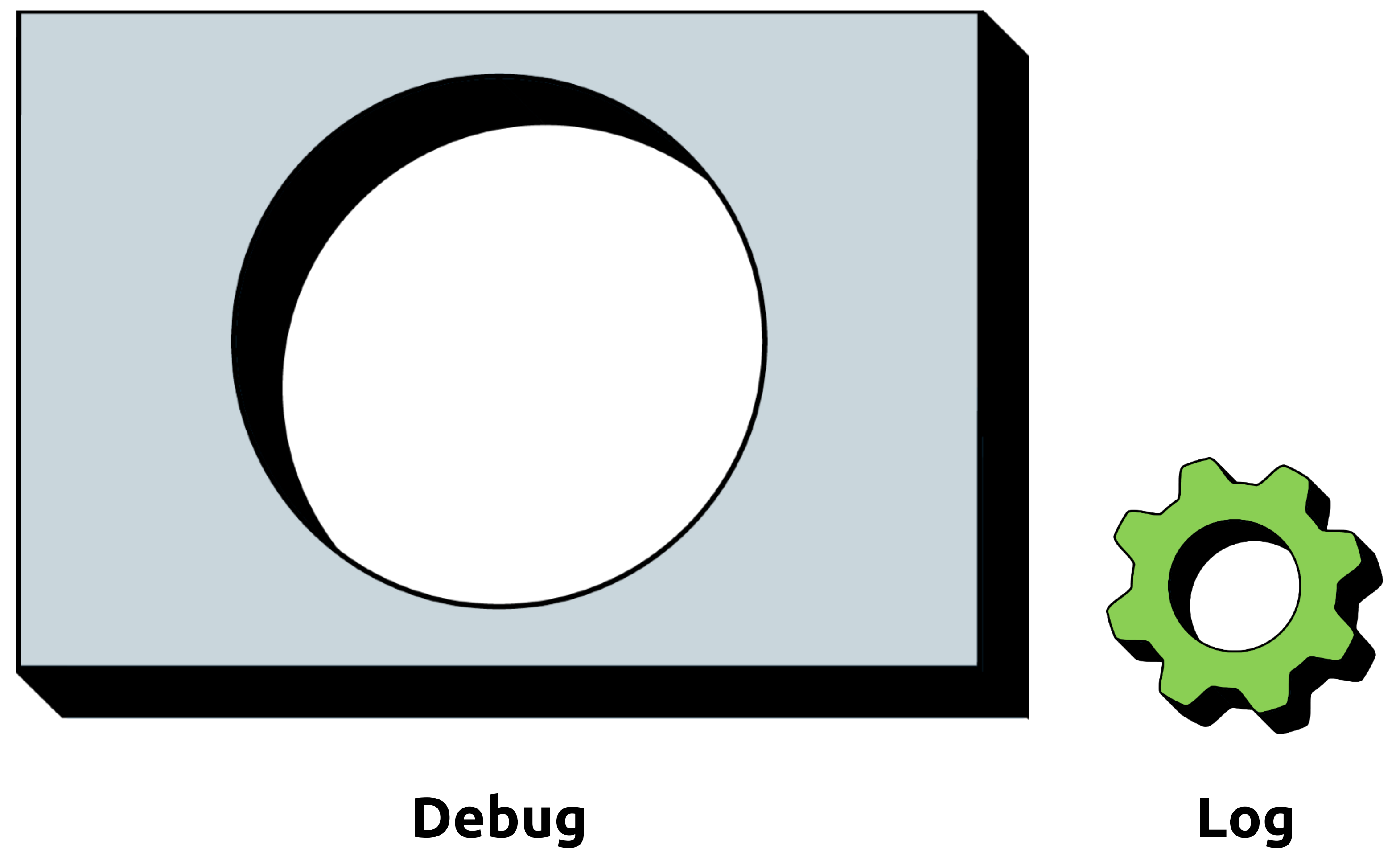
objects are "instantiated" from a class



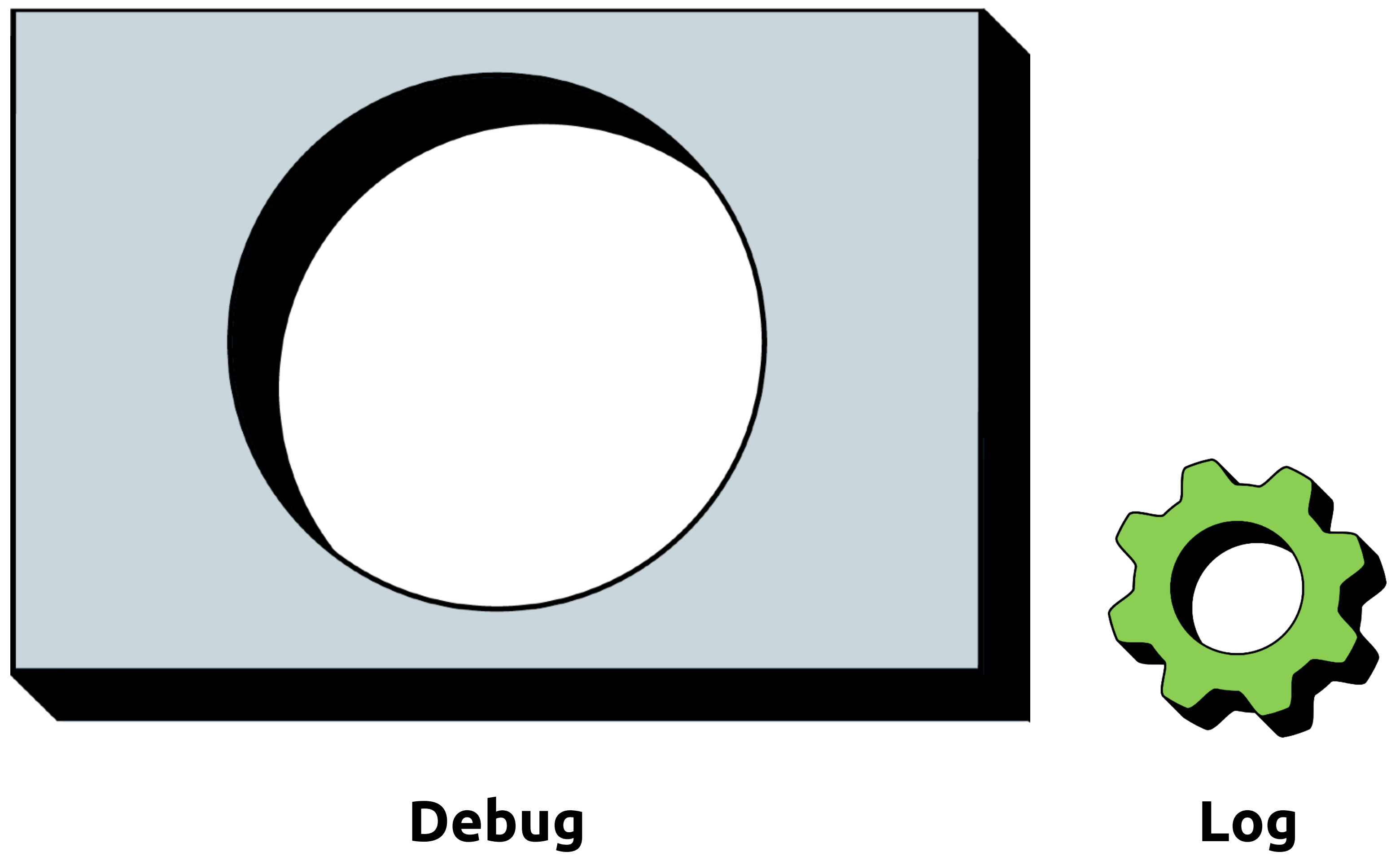
each object has it's own variables and functions



a class can have it's own variables and functions too

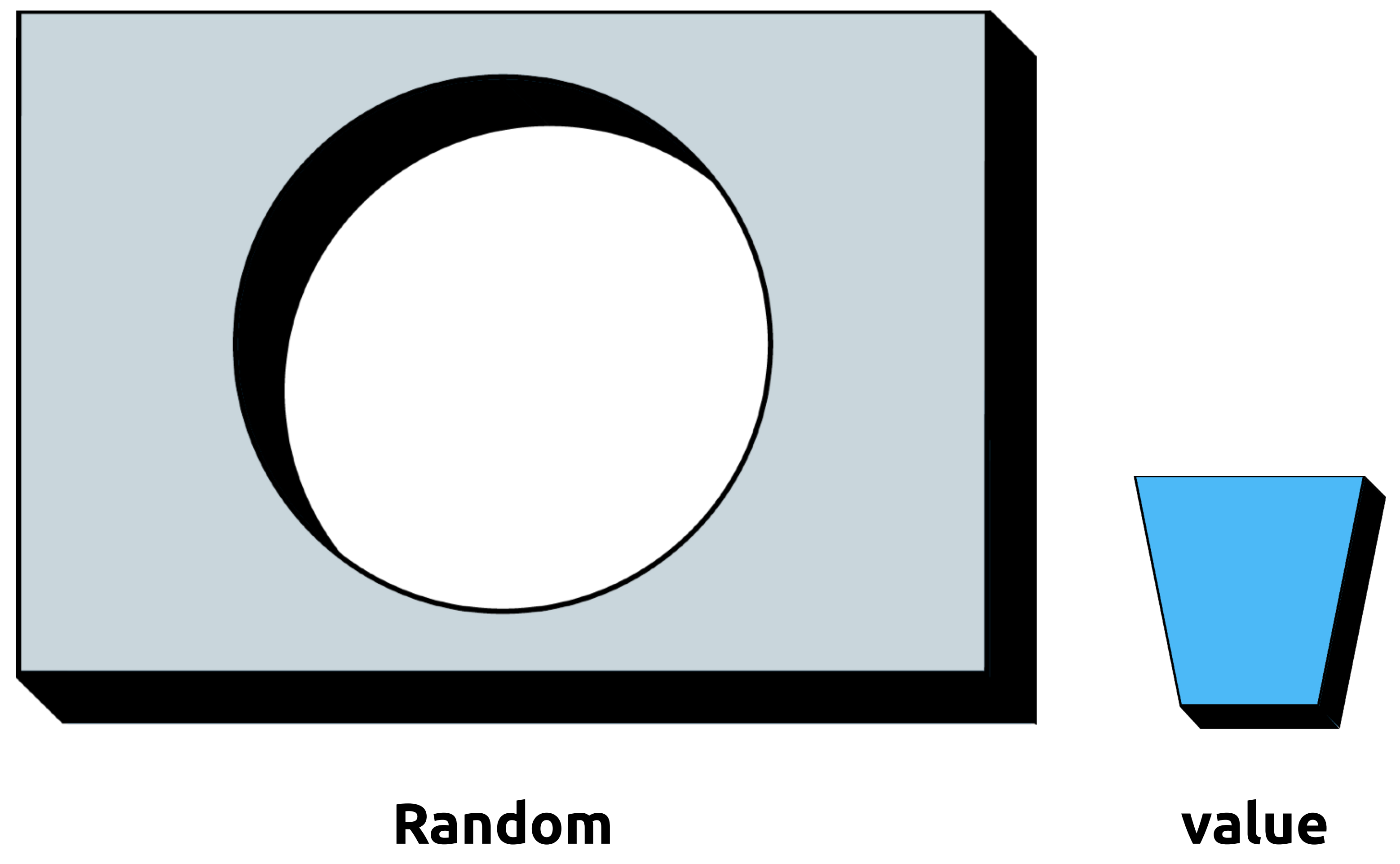


class function example

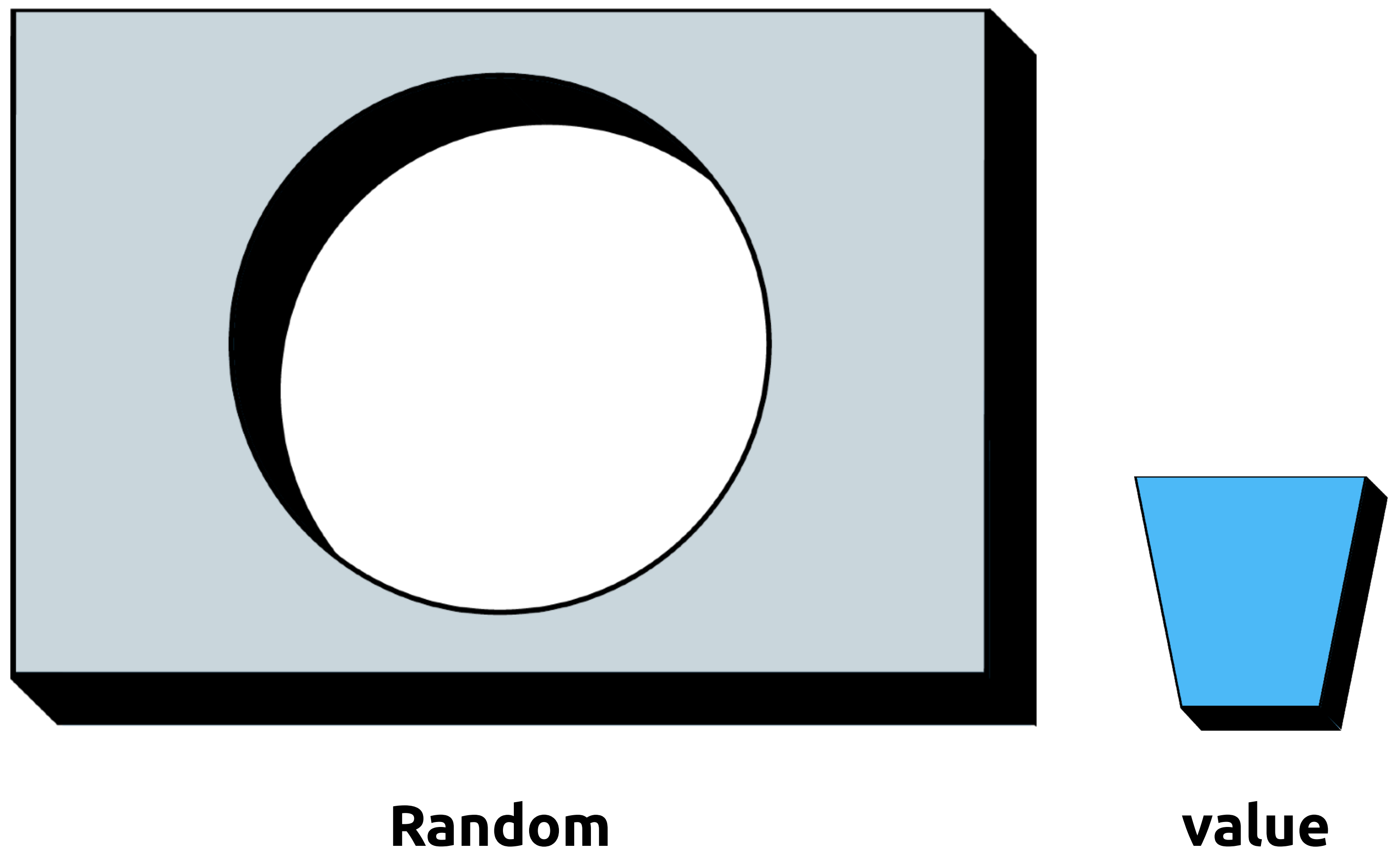


```
Debug.Log("hallo world");
```

class function example

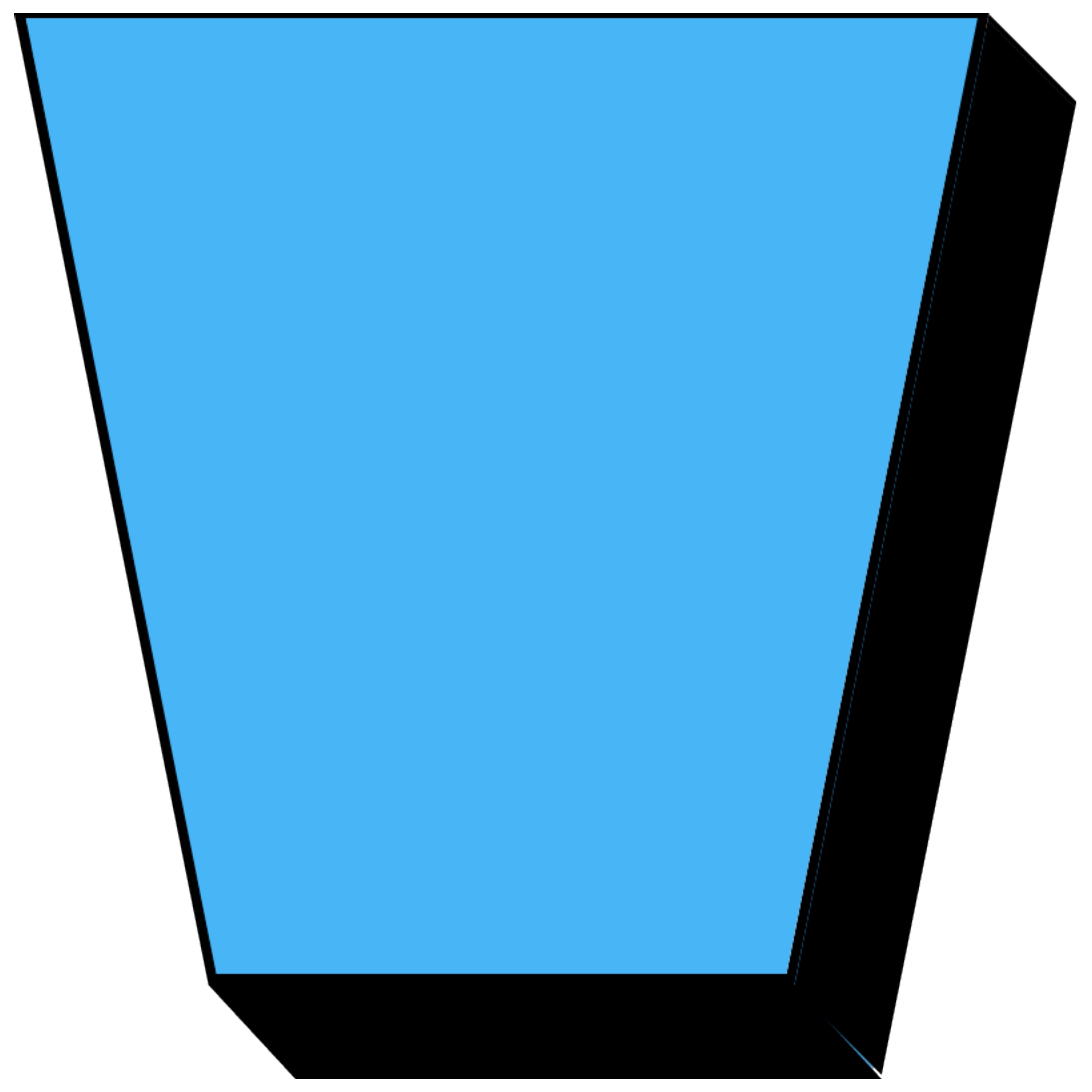


class variable example



```
Random.value;
```

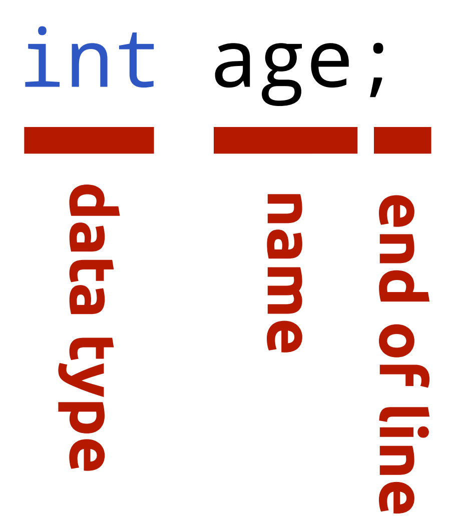
class variable example



a variable is like a bin where
you can store information

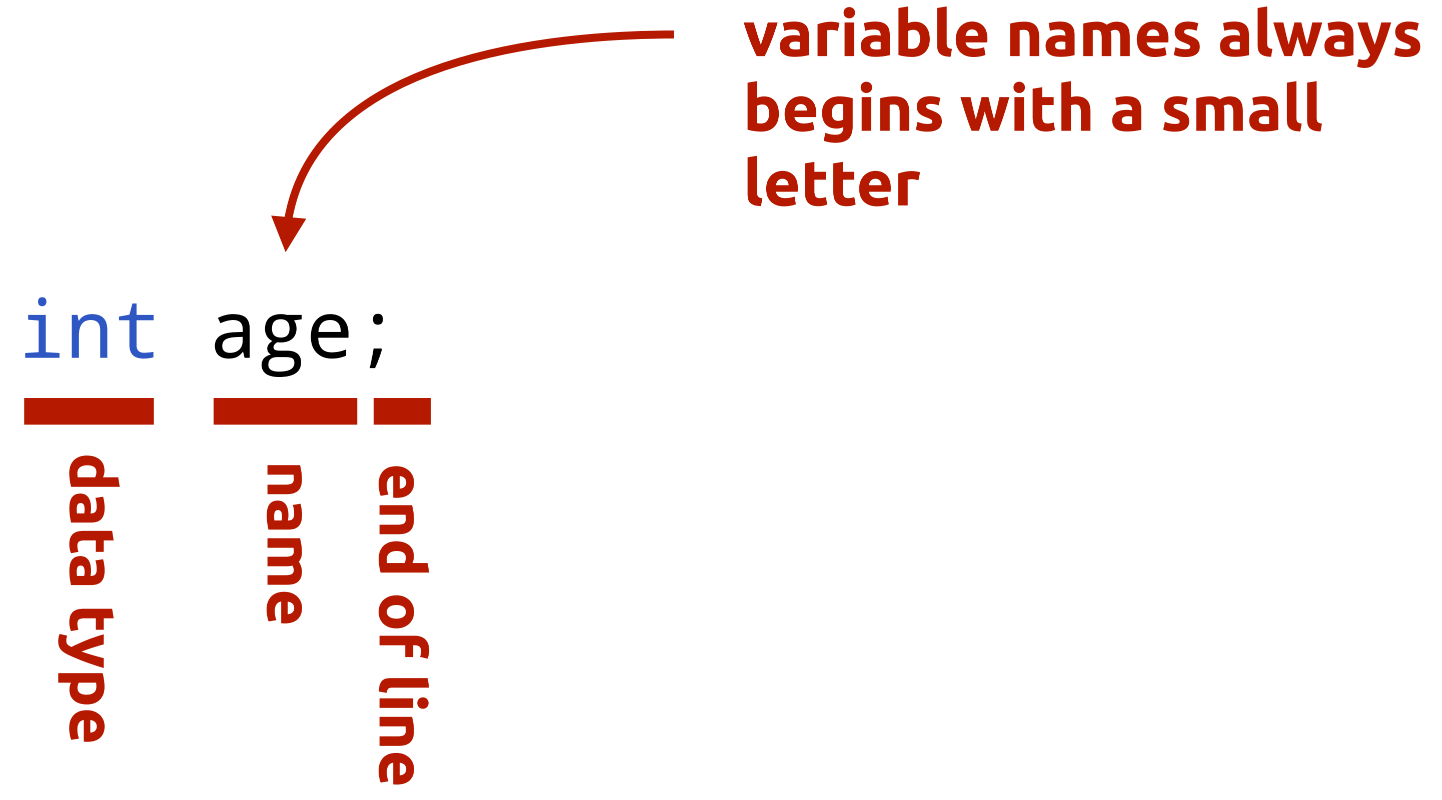
```
int age;
```

defining a variable



```
int age;
```

defining a variable



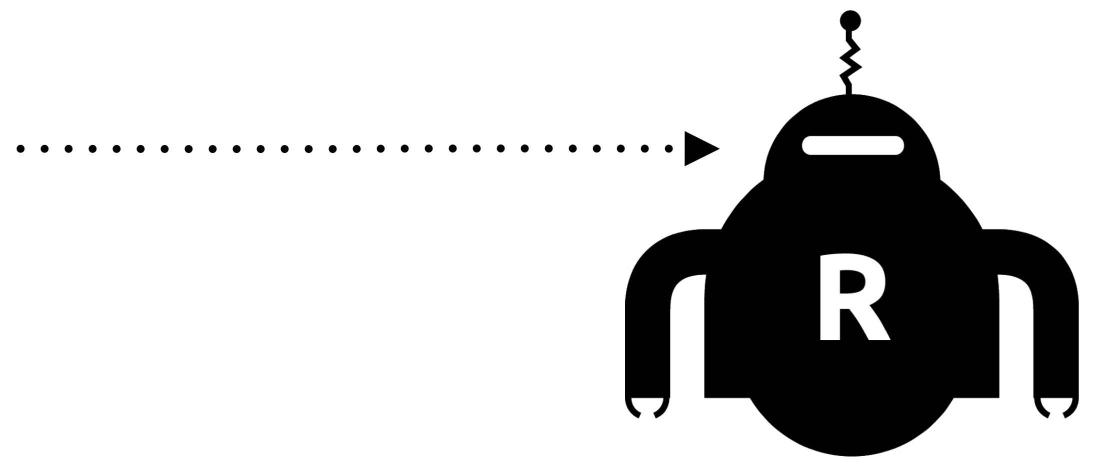
```
int age;
```

defining a variable

```
int age;
```

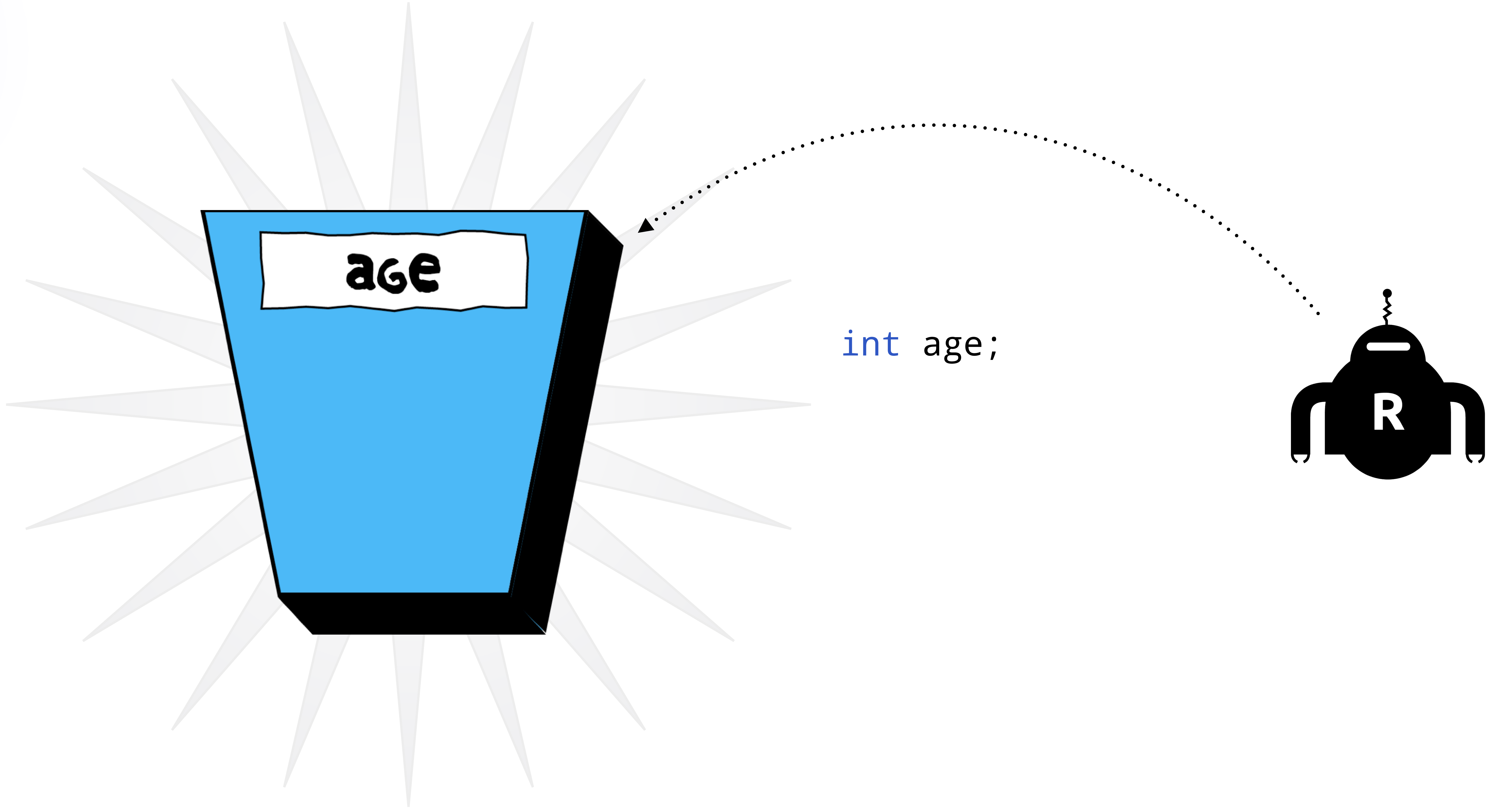
defining a variable

```
int age;
```



```
ok; i'll dedicate
space in the
computers memory
for a variable
named 'age'
```

defining a variable

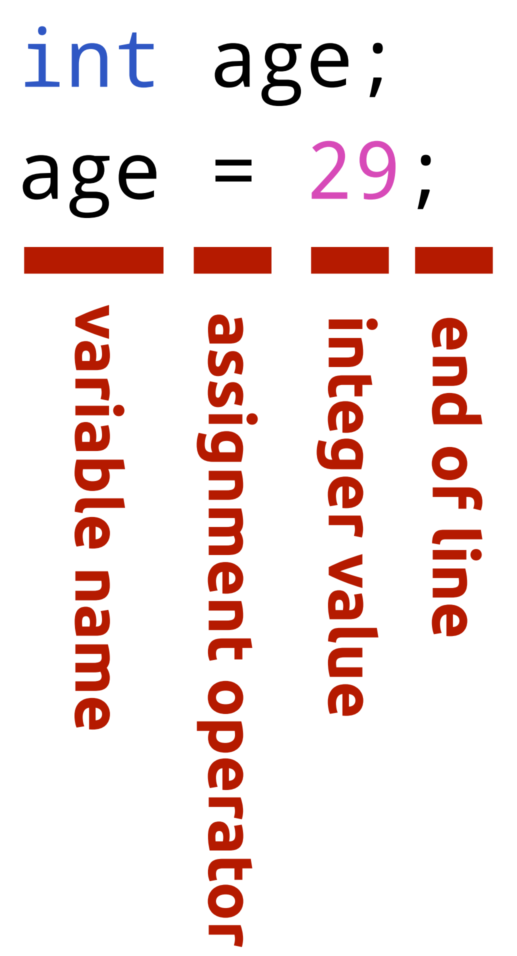


```
int age;
```

defining a variable

```
int age;
age = 29;
```

setting a variable

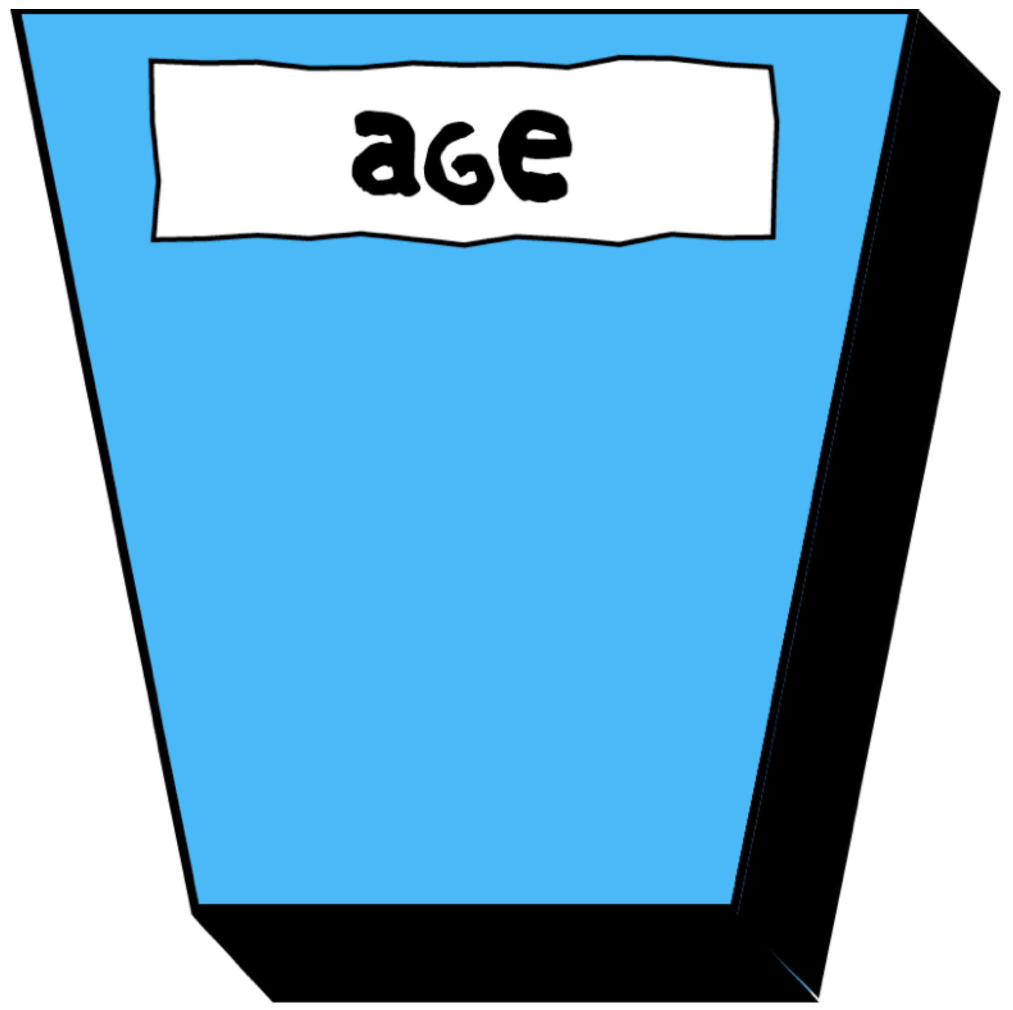


```
int age;
age = 29;
```

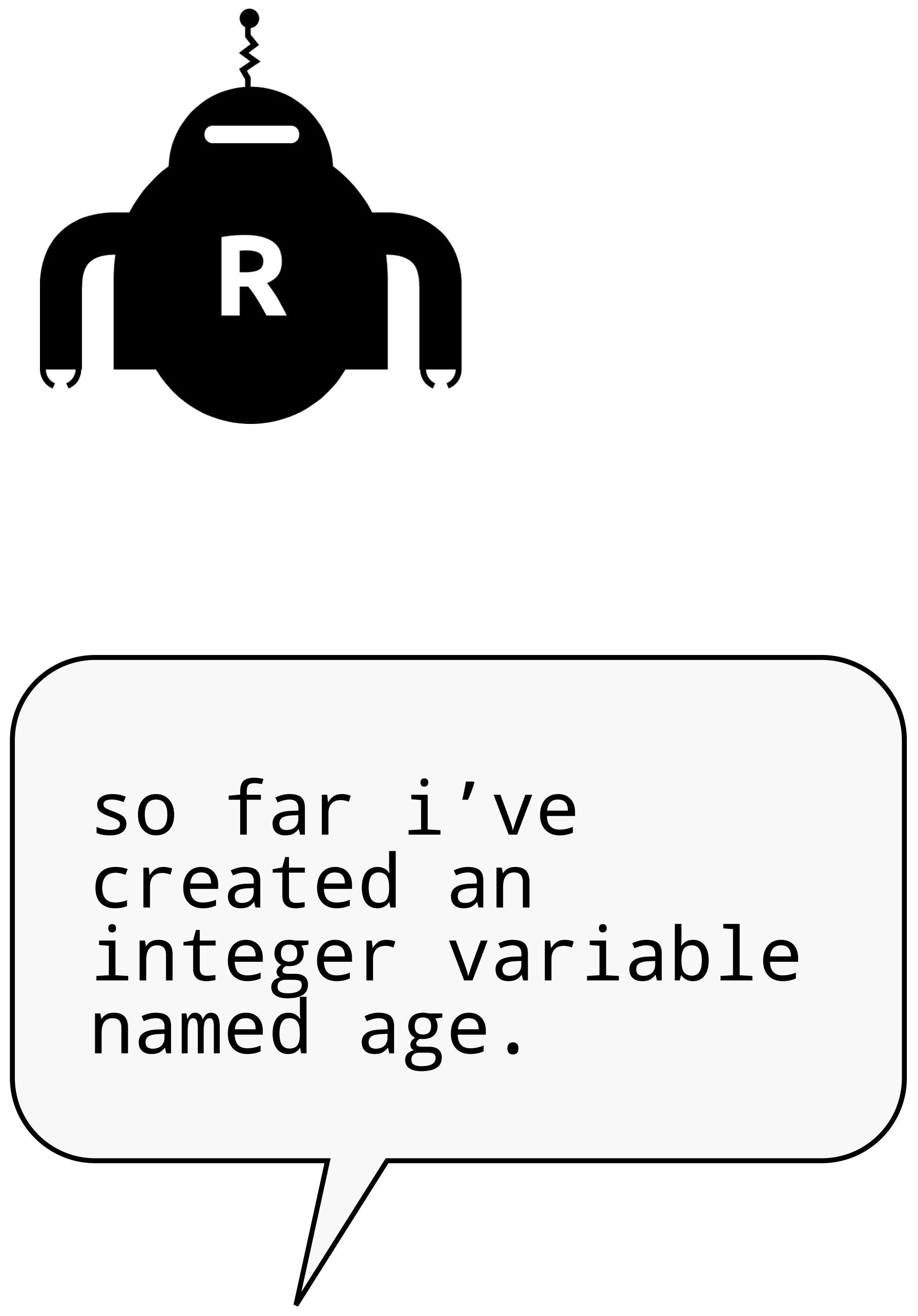
setting a variable

```
int age;
age = 29;
```

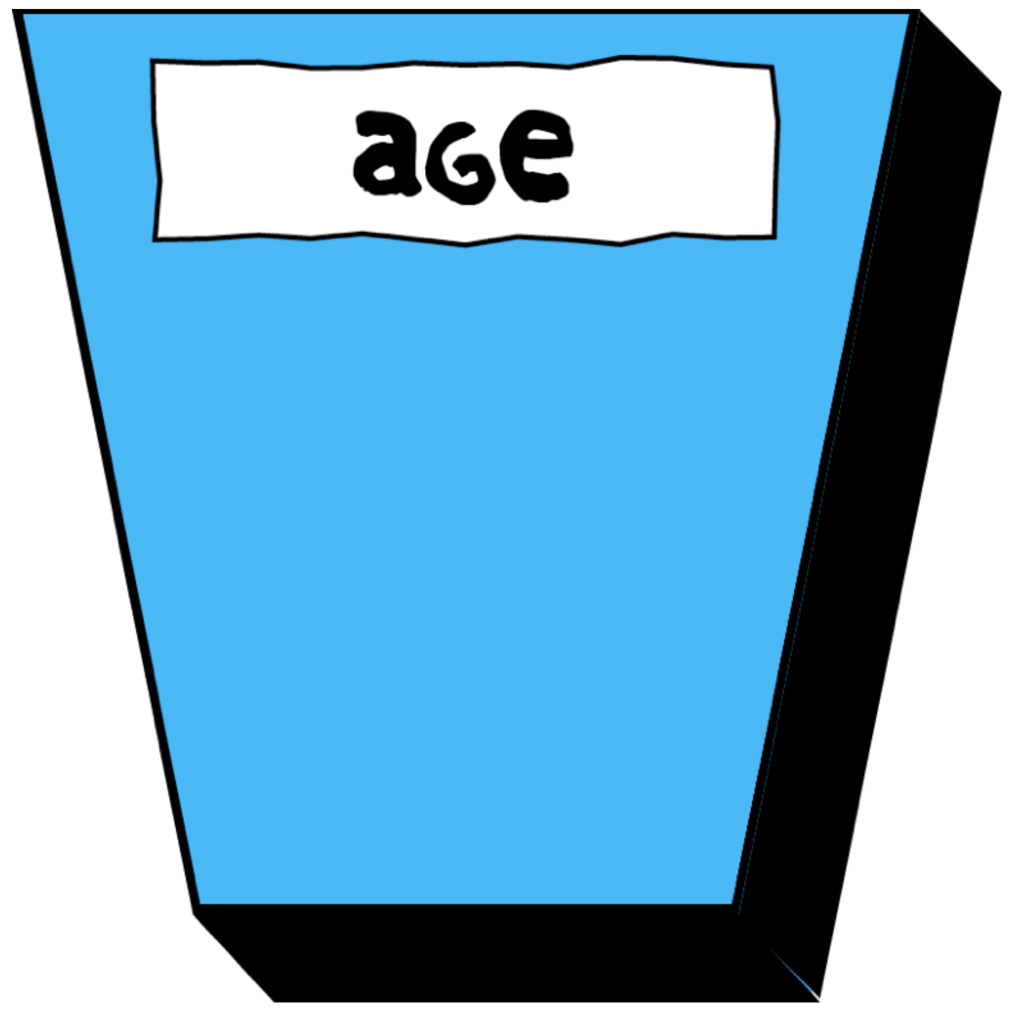
setting a variable



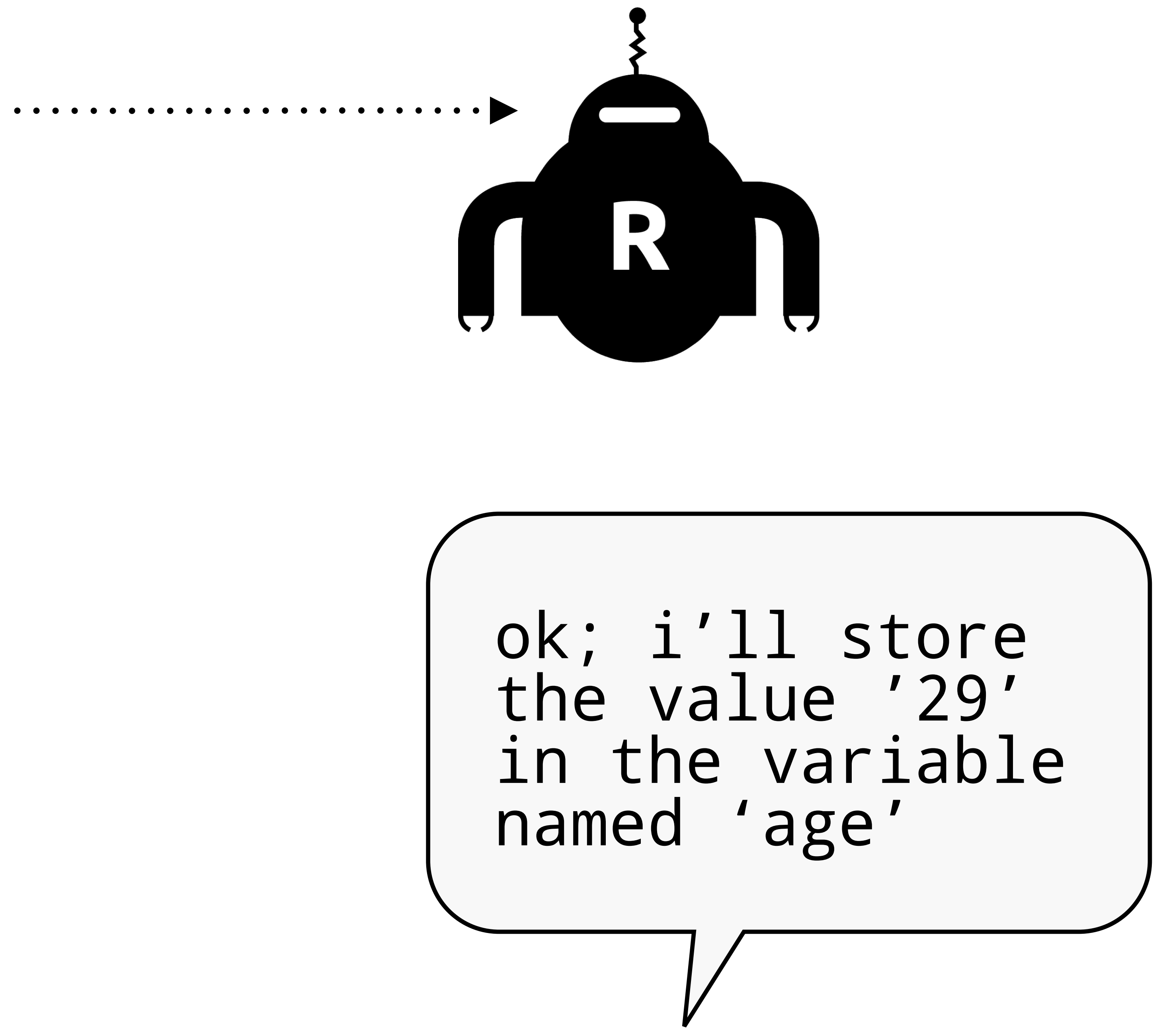
```
int age;
age = 29;
```



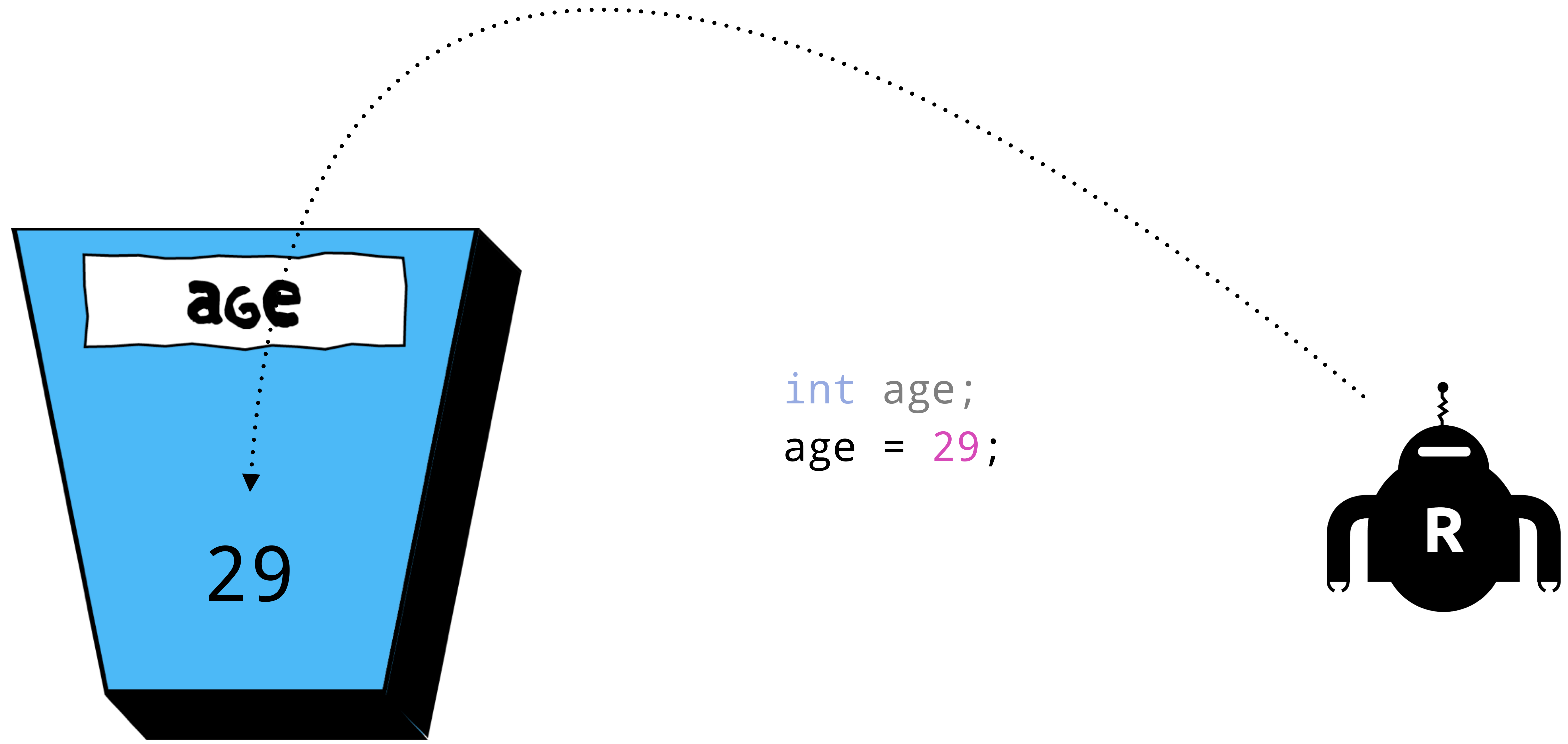
setting a variable



```
int age;
age = 29;
```



setting a variable

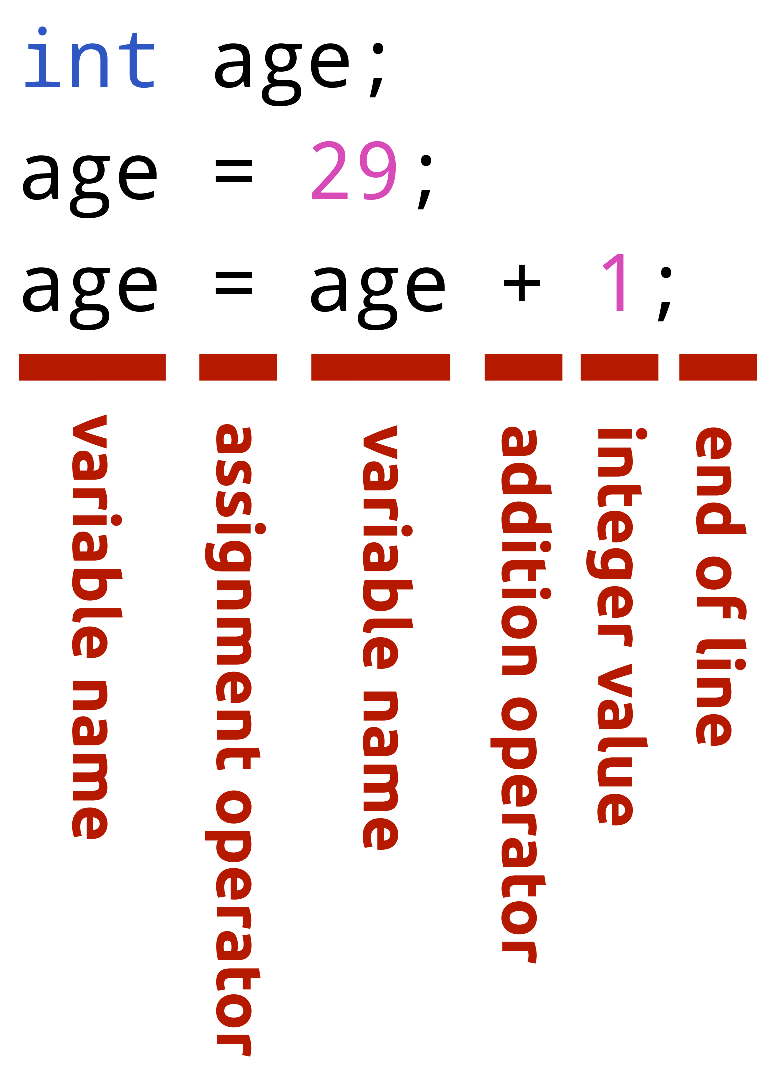


```
int age;
age = 29;
```

setting a variable

```
int age;
age = 29;
age = age + 1;
```

getting a variable

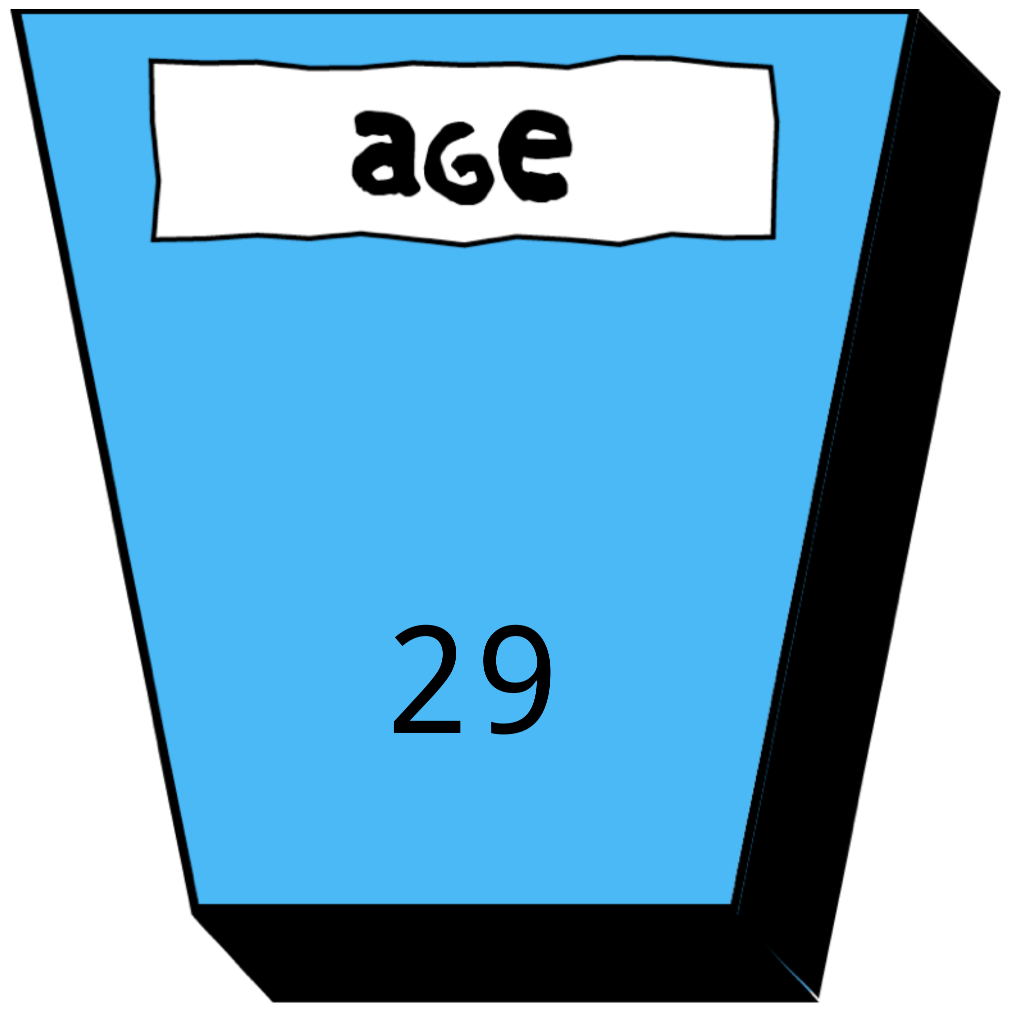


```
int age;
age = 29;
age = age + 1;
```

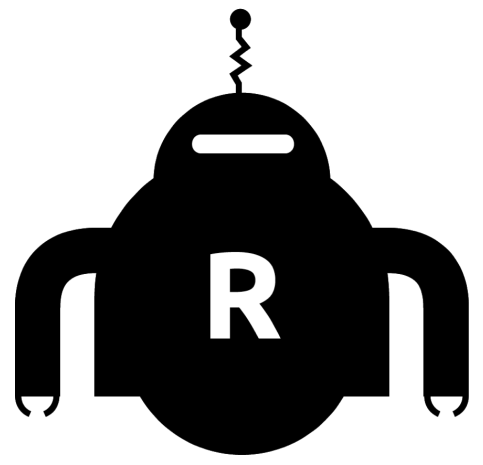
getting a variable

```
int age;
age = 29;
age = age + 1;
```

getting a variable

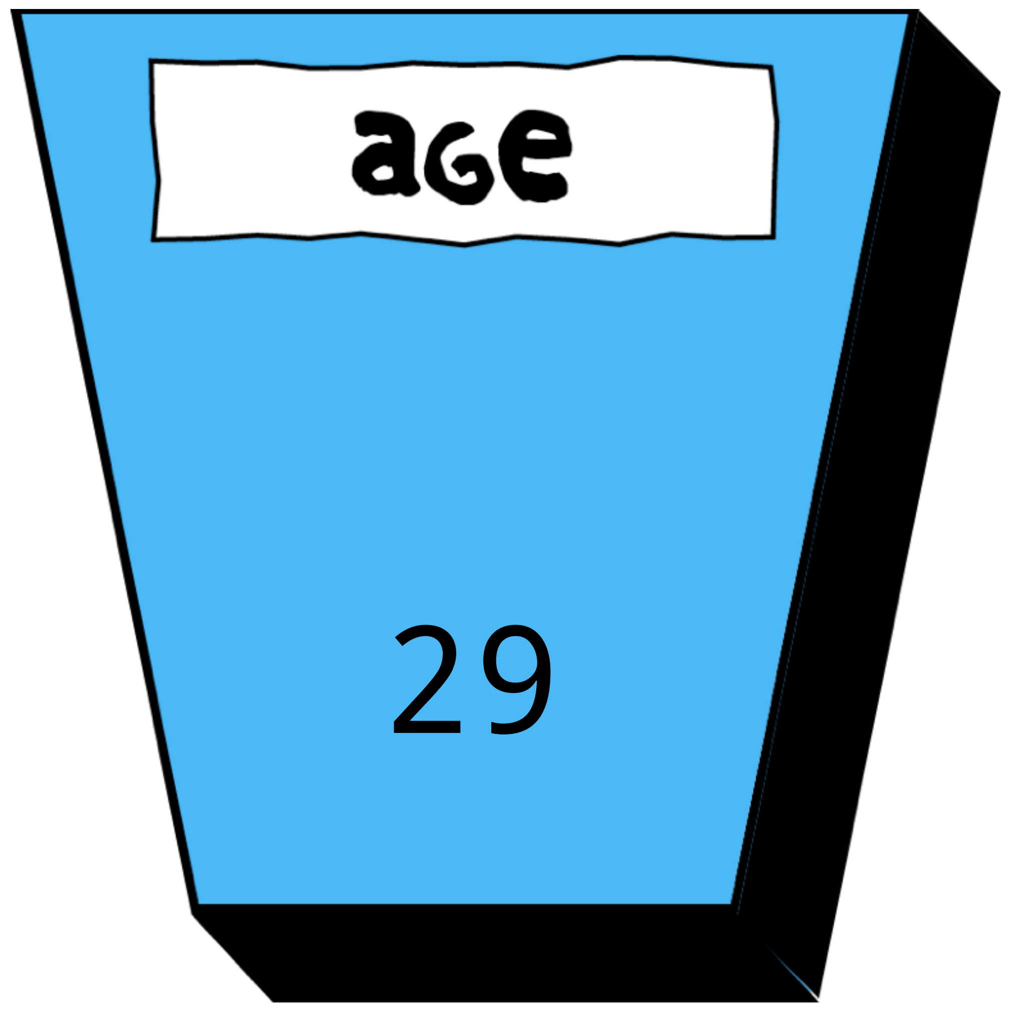


```
int age;
age = 29;
age = age + 1;
```

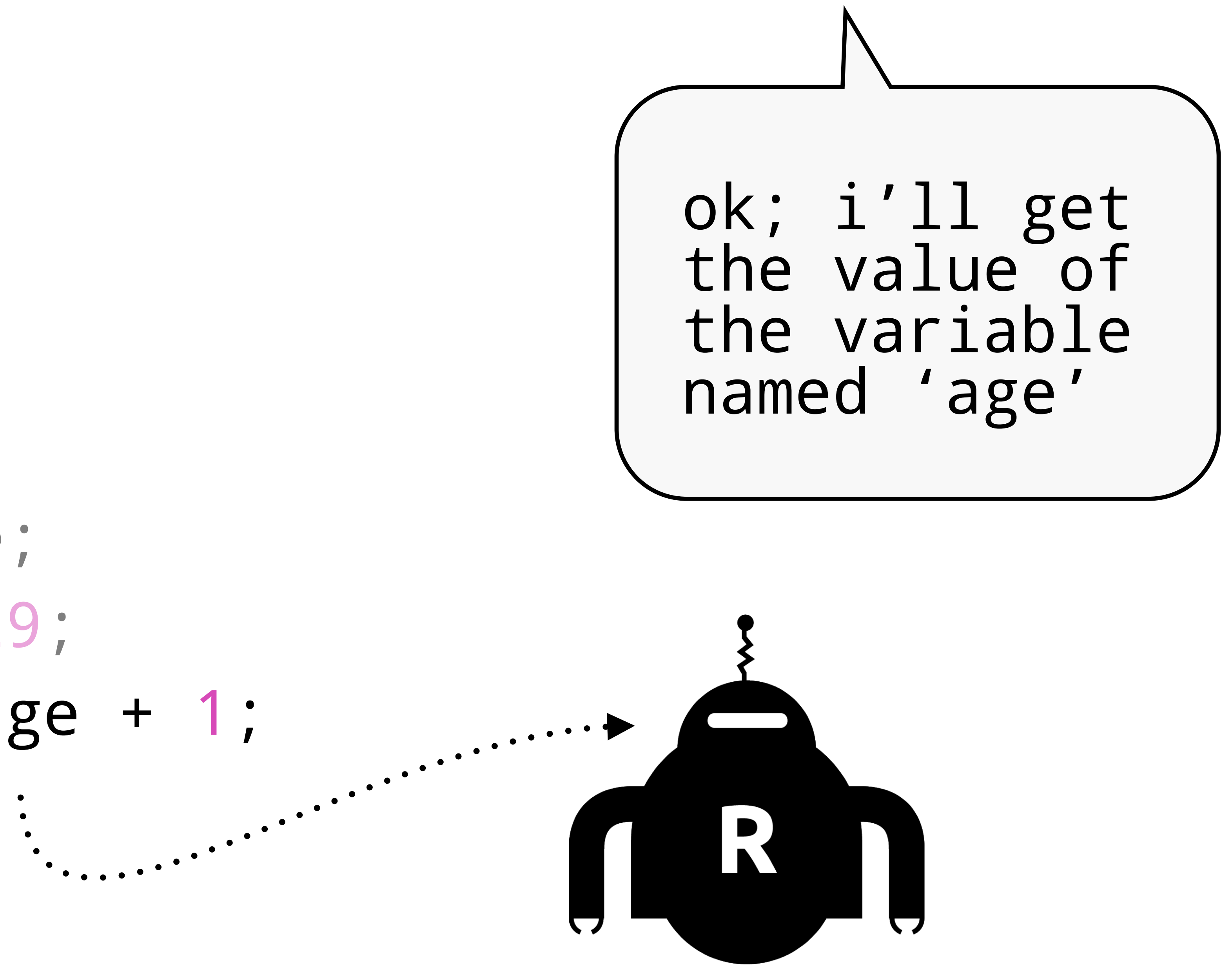


so far i’ve created an integer variable named age and set it’s value to ’29’.

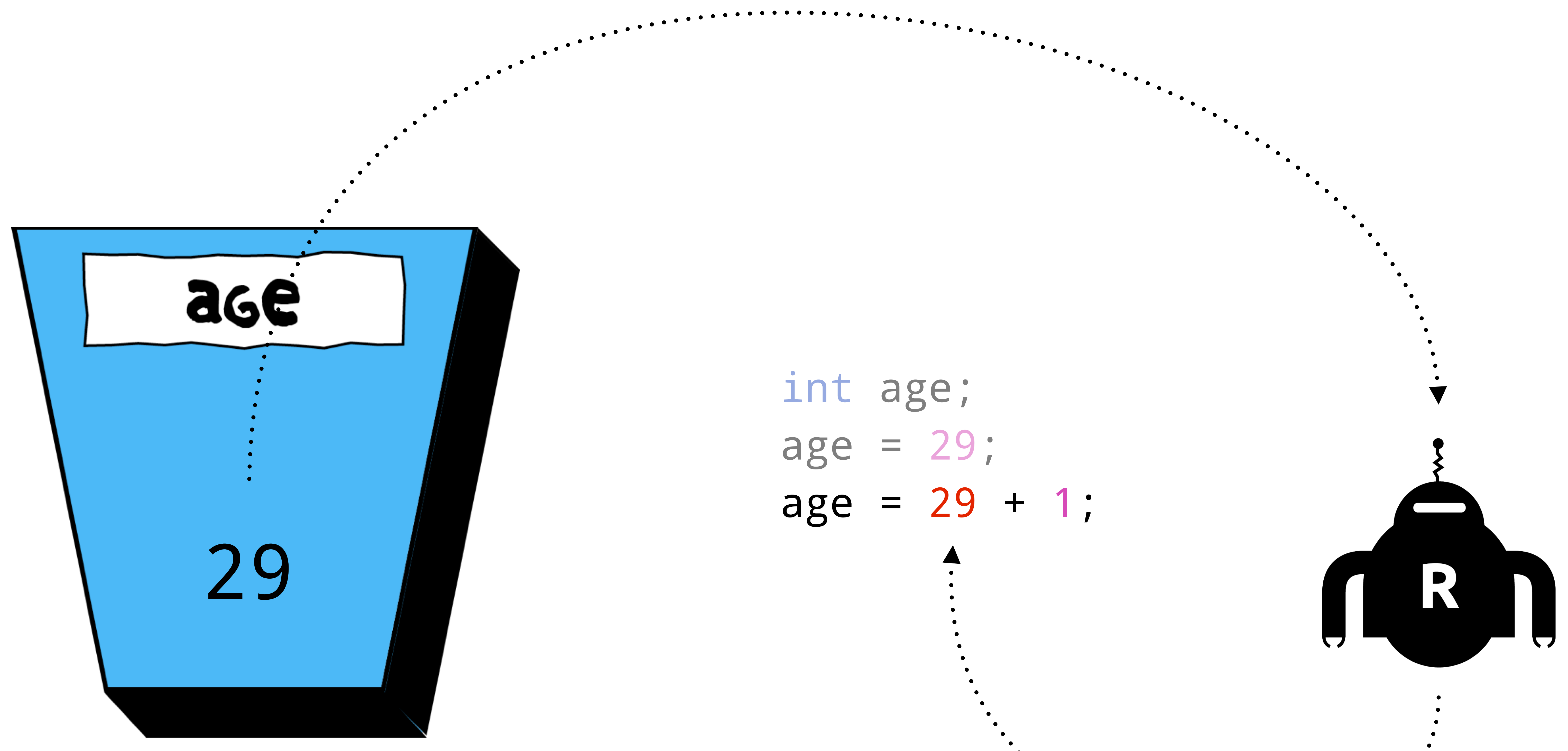
getting a variable



```
int age;
age = 29;
age = age + 1;
```

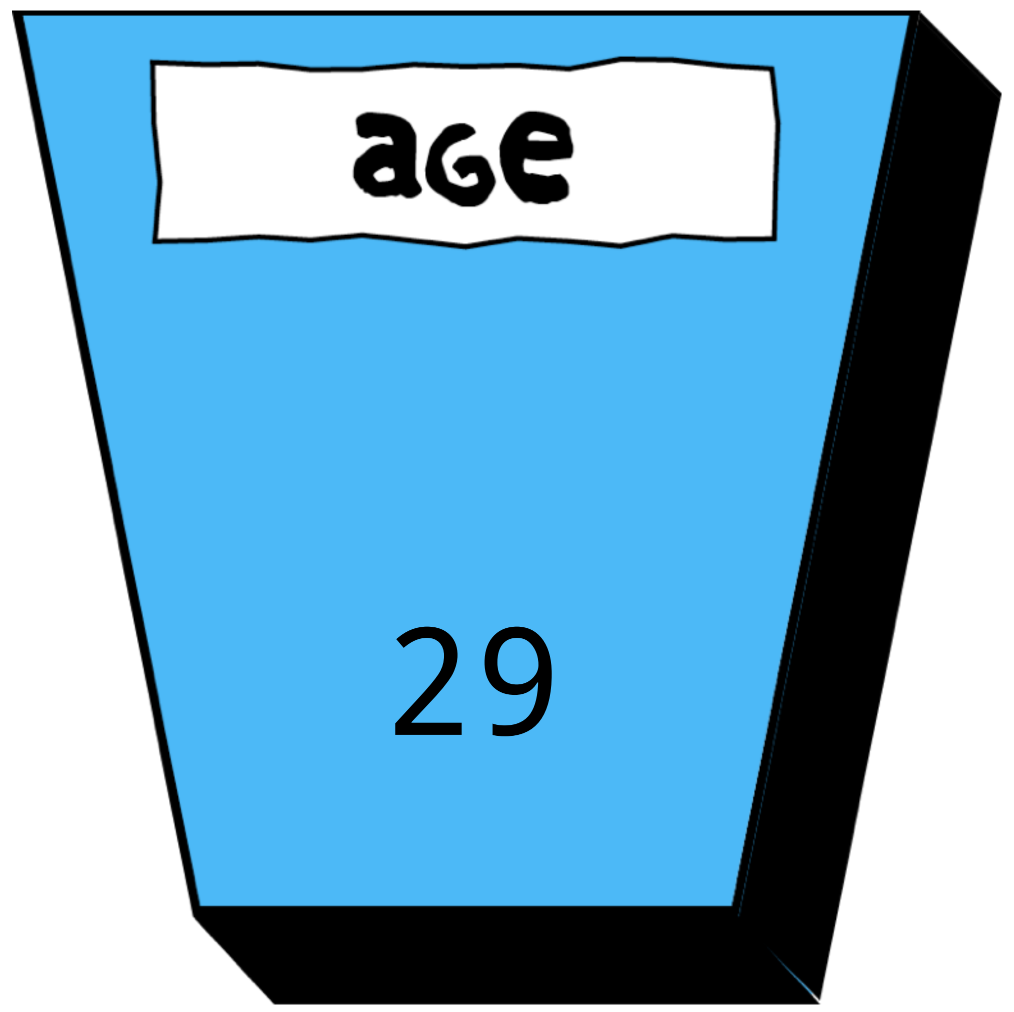


getting a variable

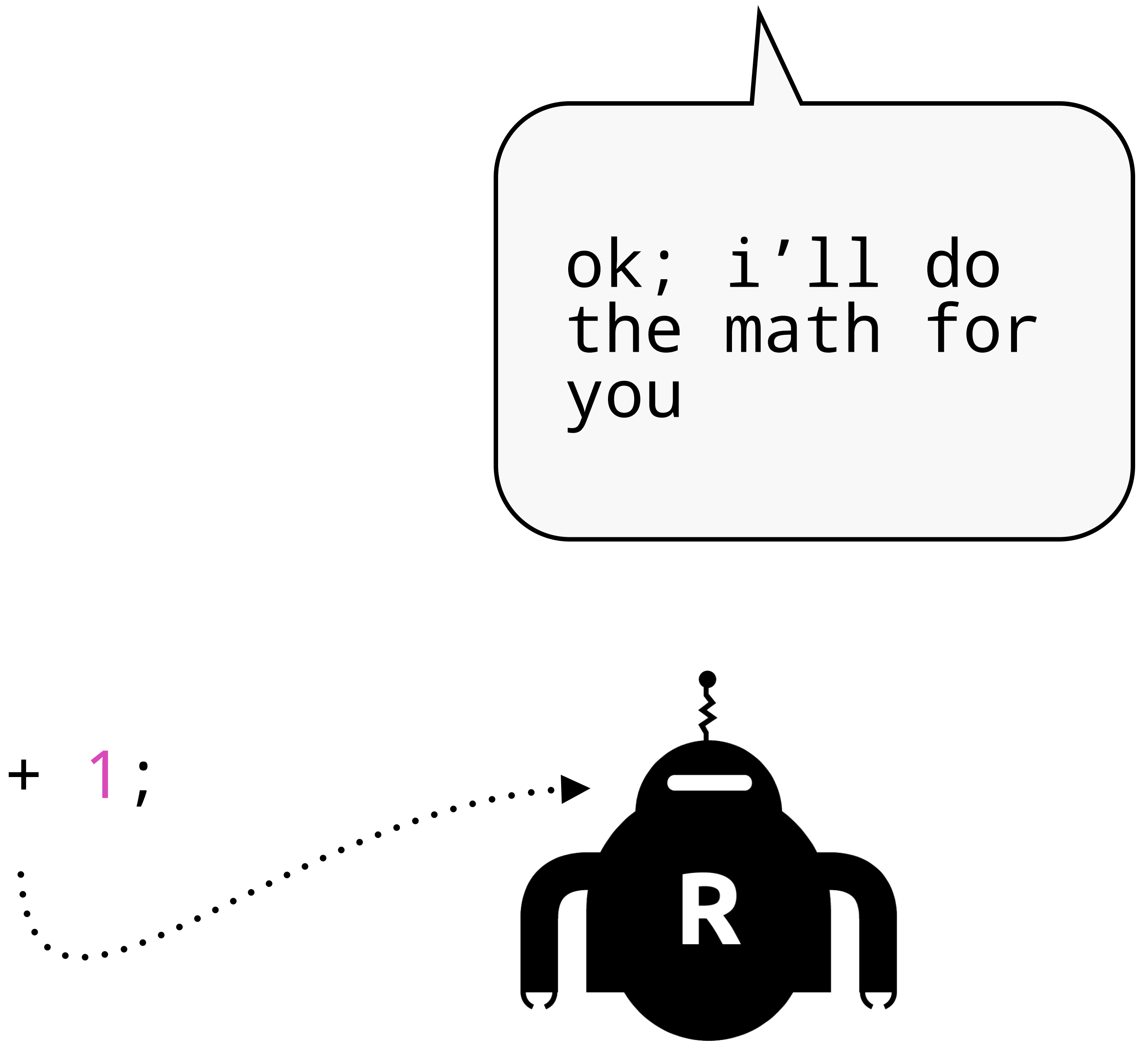


```
int age;
age = 29;
age = 29 + 1;
```

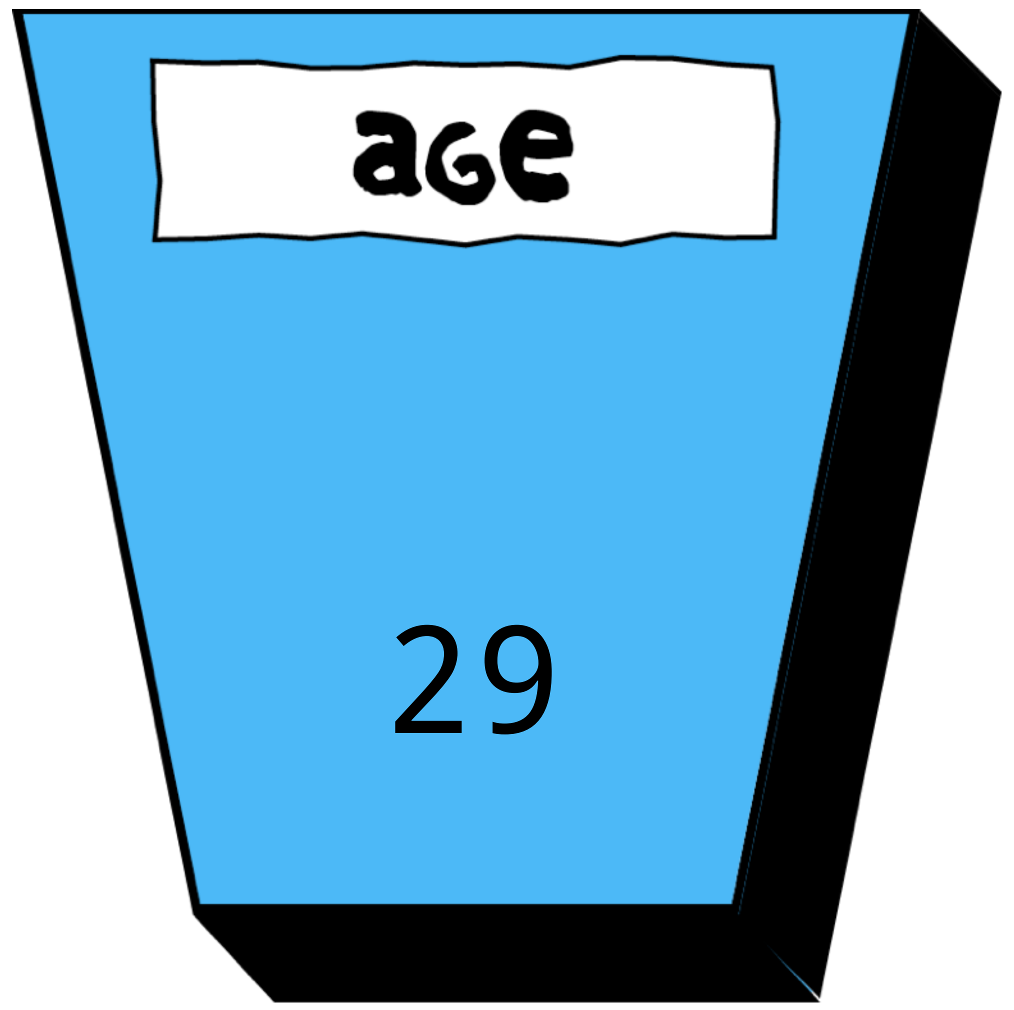
getting a variable



```
int age;
age = 29;
age = 29 + 1;
```

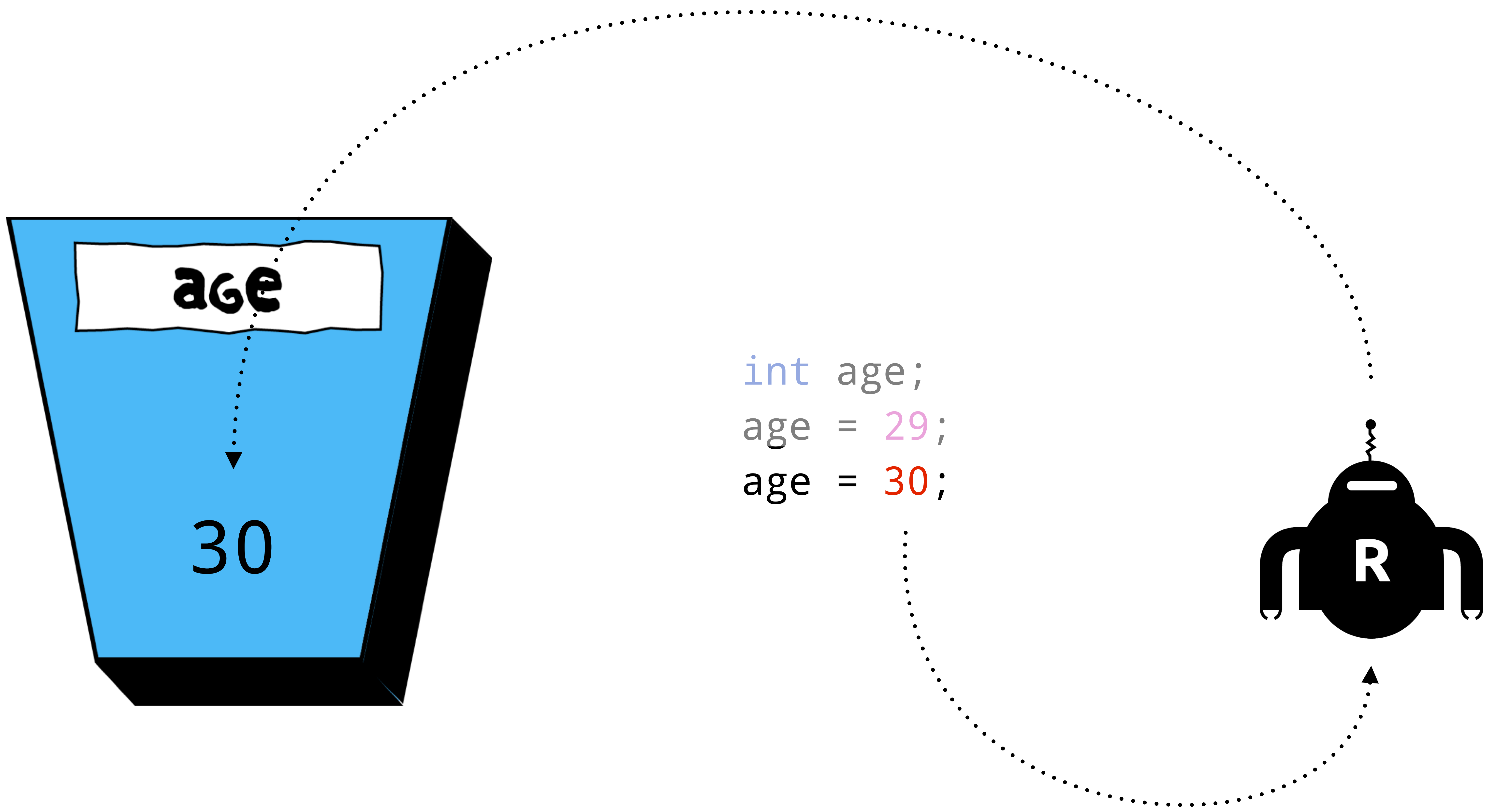


getting a variable



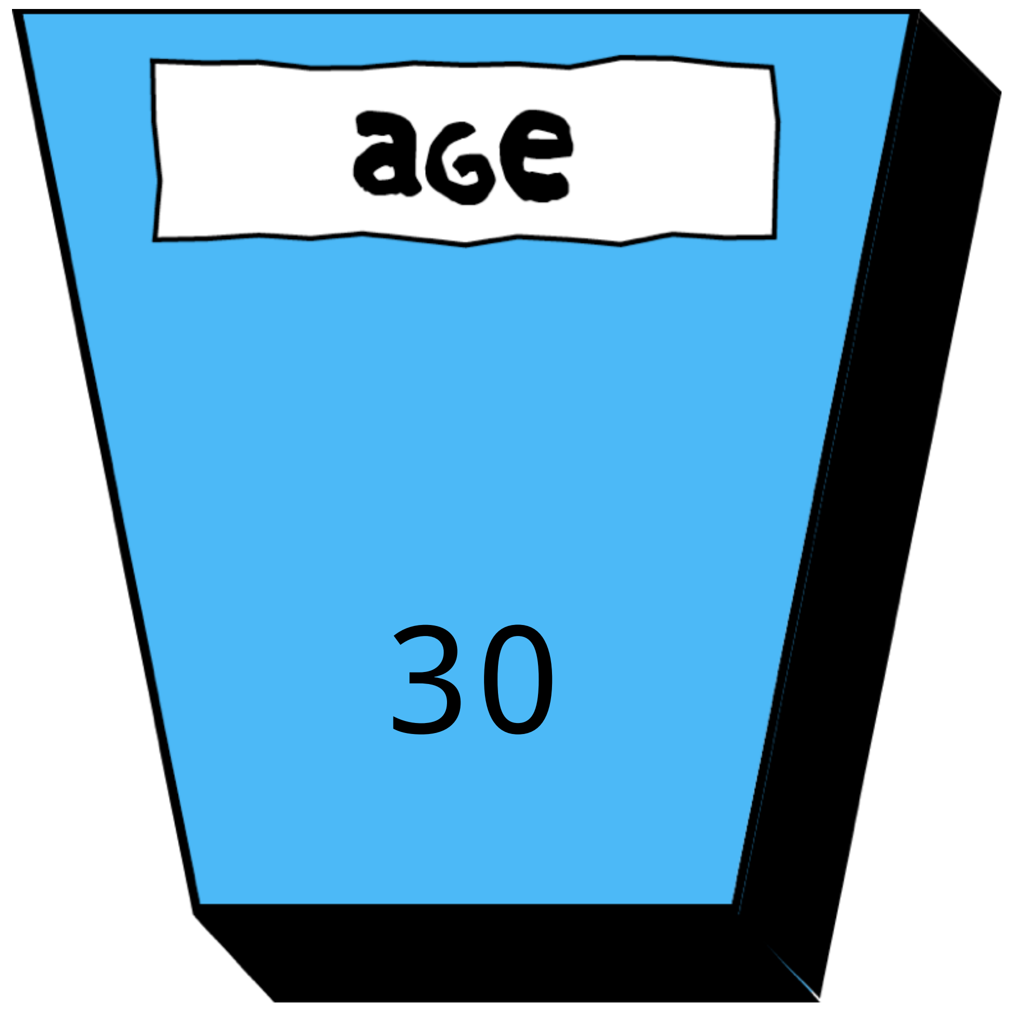
```
int age;
age = 29;
age = 30;
```

getting a variable

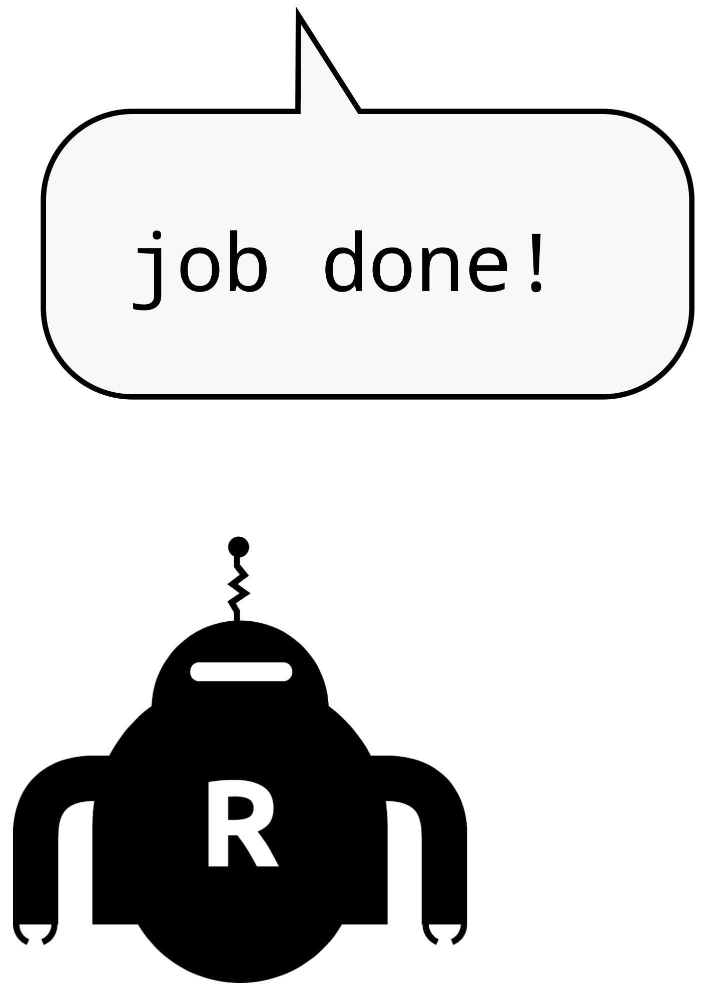


```
int age;
age = 29;
age = 30;
```

getting a variable



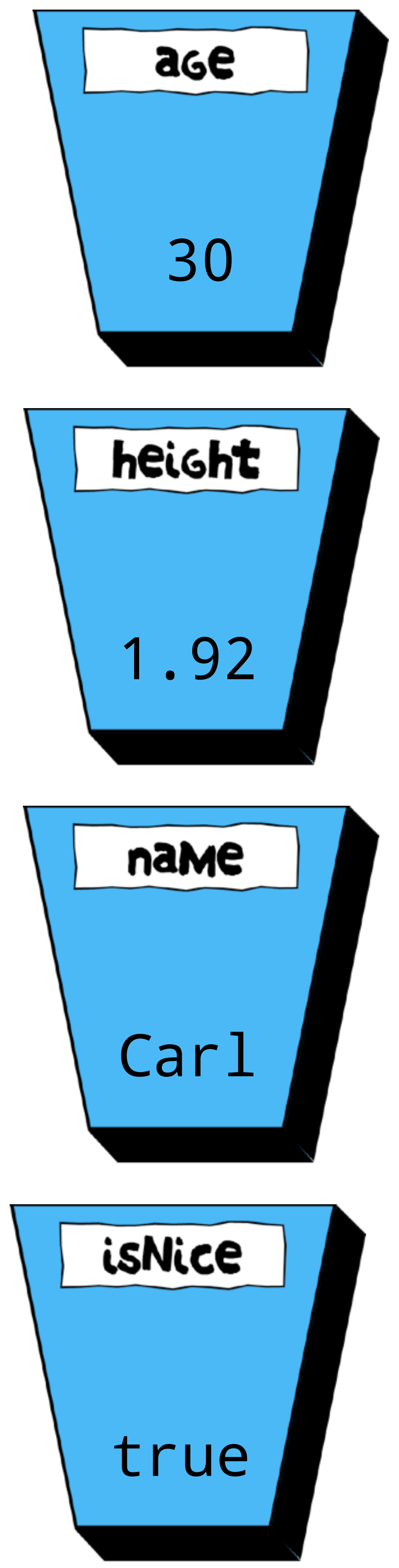
```
int age;
age = 29;
age = age + 1;
```



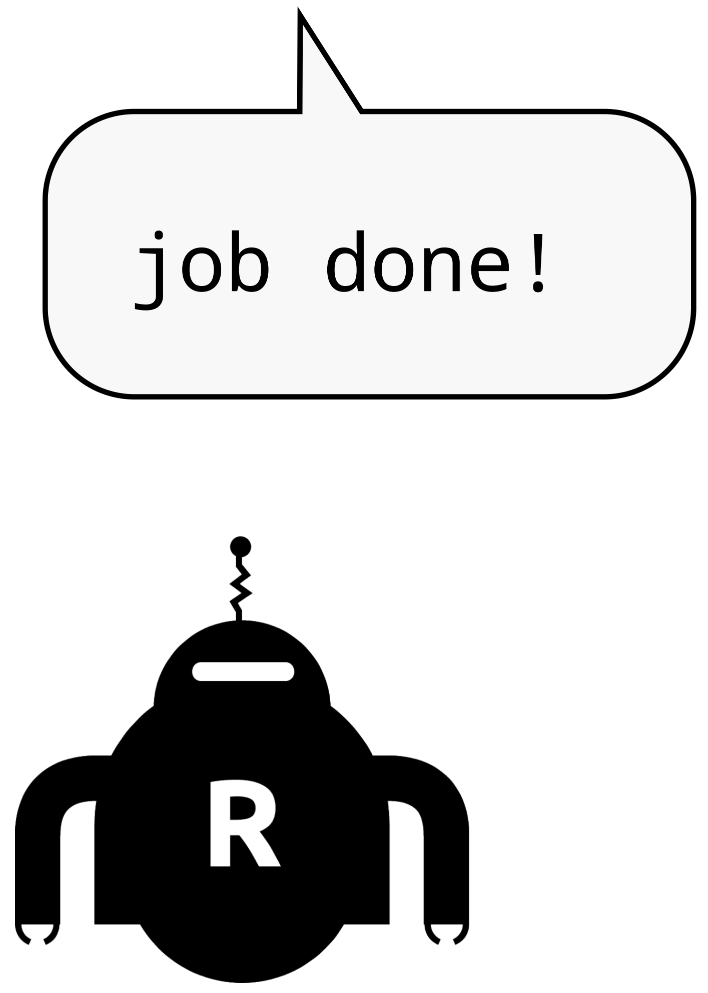
getting a variable

```
int age = 35;
float height = 1.92f;
string name = ”Carl”;
bool likesCoffee = true;
```

common data types



```
int age = 30;
float height = 1.92f;
string name = "Carl";
bool isNice = true;
```



common data types

{ }

scopes

```
{
    // code goes here
    //
    //
    //
    //
    //
    //
    //
    //
    //
}
```

scope

```
begin  {
           // code goes here
           //
           //
           //
           //
           //
           //
           //
           //
           //
 end   }
```

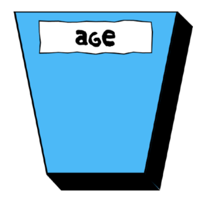
scope

```
{
    // code goes here
    //
    //
    {
        // code goes here
        //
    }
    //
    //
    //
}
```

scopes can be nested

```
{
   int age;
   //
   //
   {
      // code goes here
      //
   }
   //
   //
   //
}
```

variable in outer scope



the variable "age" is available here:

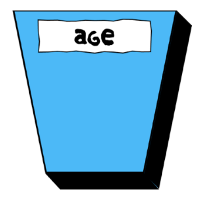
```
{
    int age;
    //
    //
    {
        // code goes here
        //
    }
    //
    //
    //
}
```

variable in outer scope

```
{
    int age;
    //
    //
    {
        int height;
        //
    }
    //
    //
    //
}
```

variable in inner scope

```
{
    int age;
    //
    //
    {
        int height;
        //
    }
    //
    //
    //
}
```

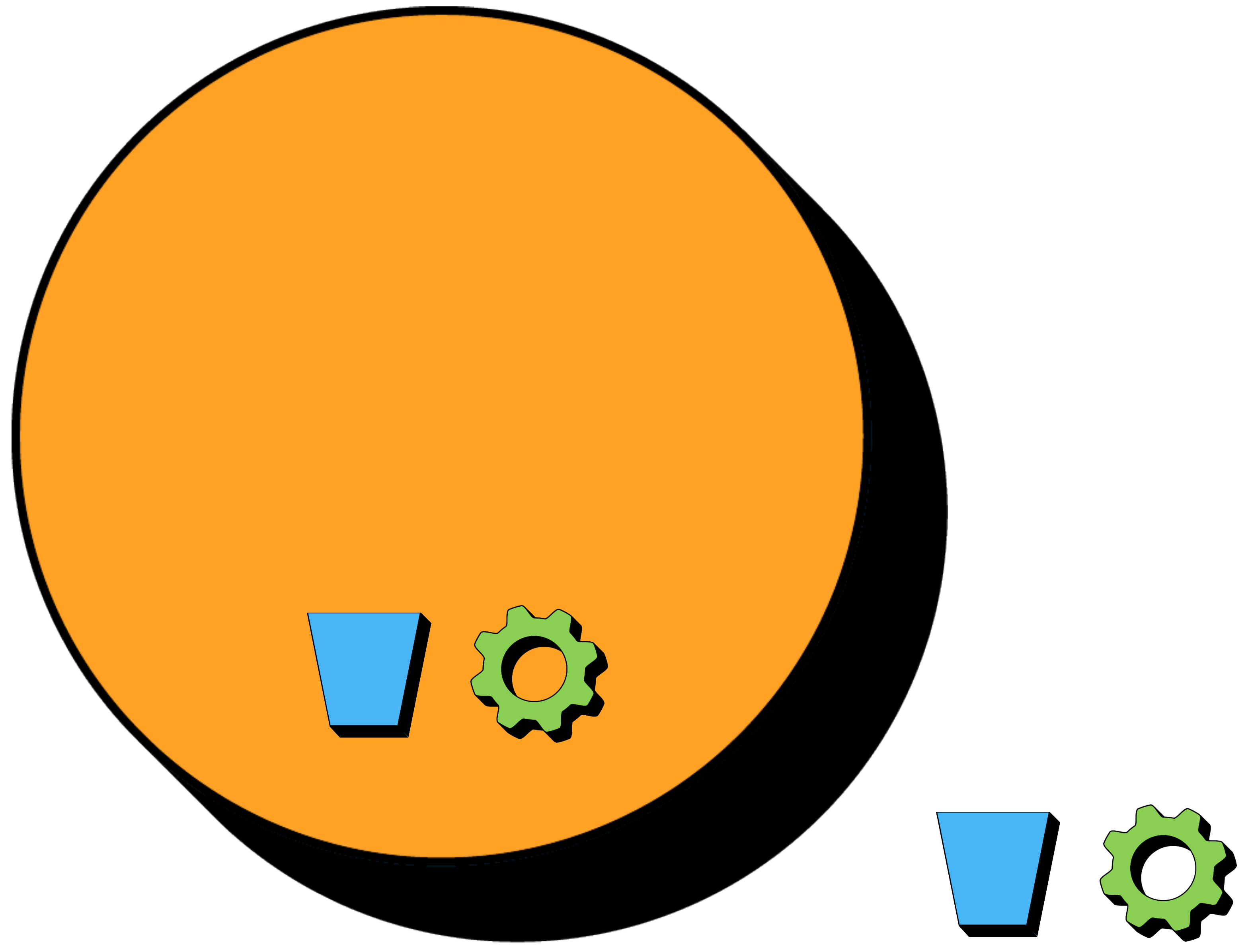


the variable "height"
is available here:

variable in inner scope

```
{
   int age;
   //
   //
   {
      int height;
      //
   }
   //
   //
   //
}
```

conclusion: variables live inside scopes

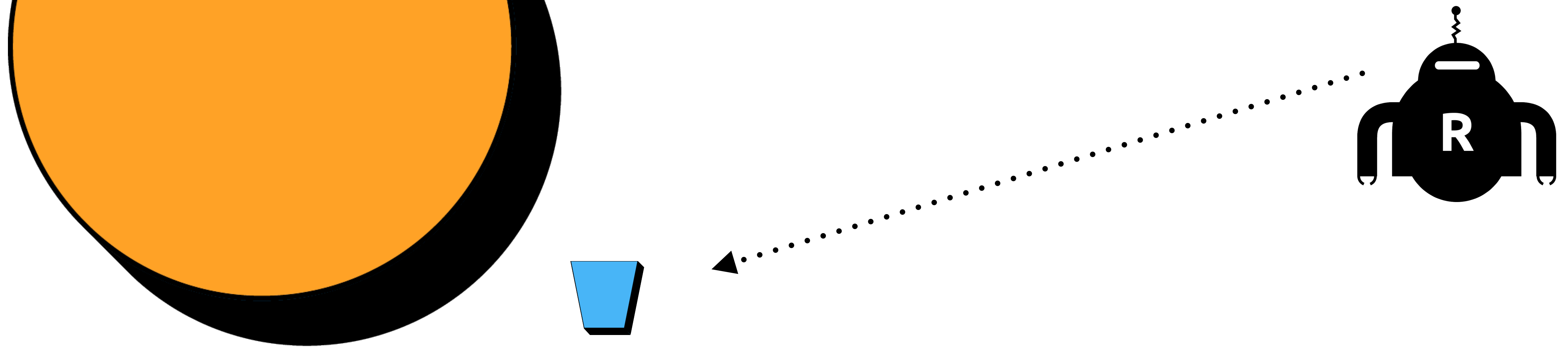


private and public

cannot access
the variable
‘age’
R

```
int age = 30;
```

private variable



```
public int age = 30;
```

public variable

`if`

conditional statements

```
if( true ){
   // then execute code here
}
```

the if-statement

```
if( false ){
   // do not execute code here
}
```

the if-statement

```
if( false ){
   // do not execute code here
} else {
   // instead, execute code here
}
```

the else-statement

```
if( true ){
   // code here will be executed
} else {
   // code here will not be executed
}
```

the else-statement

```
bool isSunny = true;
bool isRainy = true;

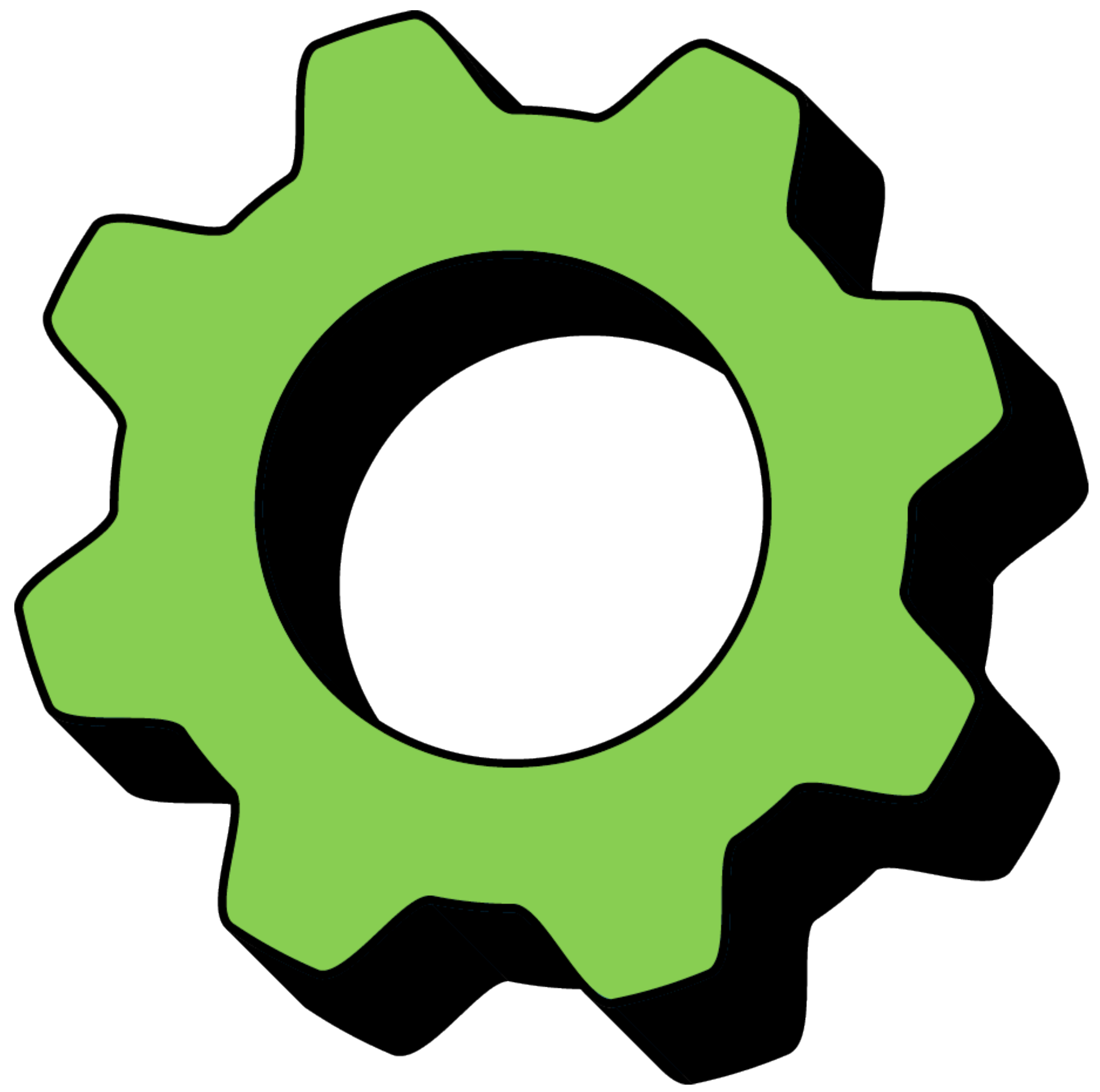
if( isSunny && isRainy ){
   // show rainbow!
}
```

the AND-statement

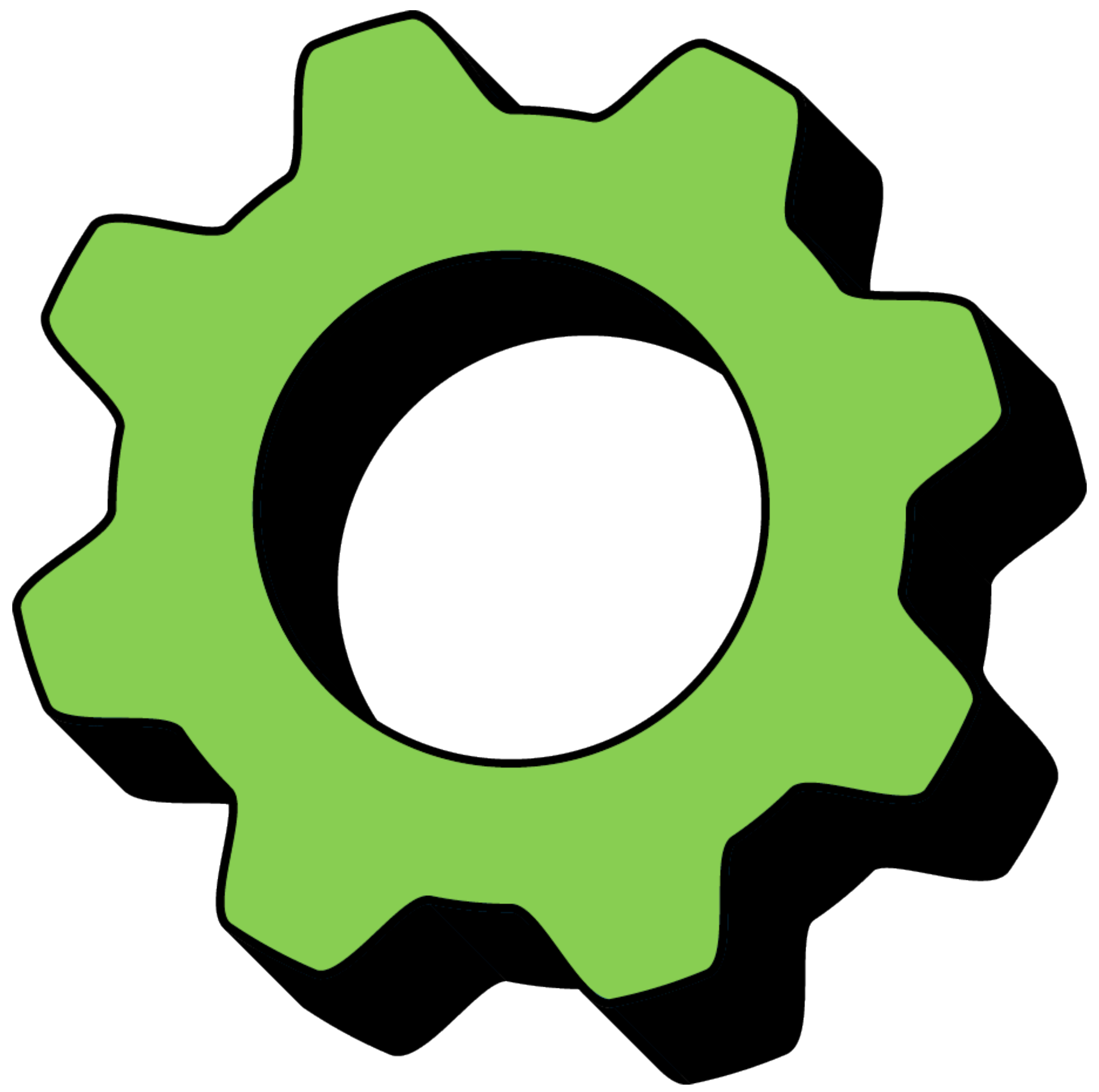
```
bool isAlarmDead = false;
bool isBusLate = true;

if( isAlarmDead || isBusLate ){
   // will be late for work
}
```

the OR-statement



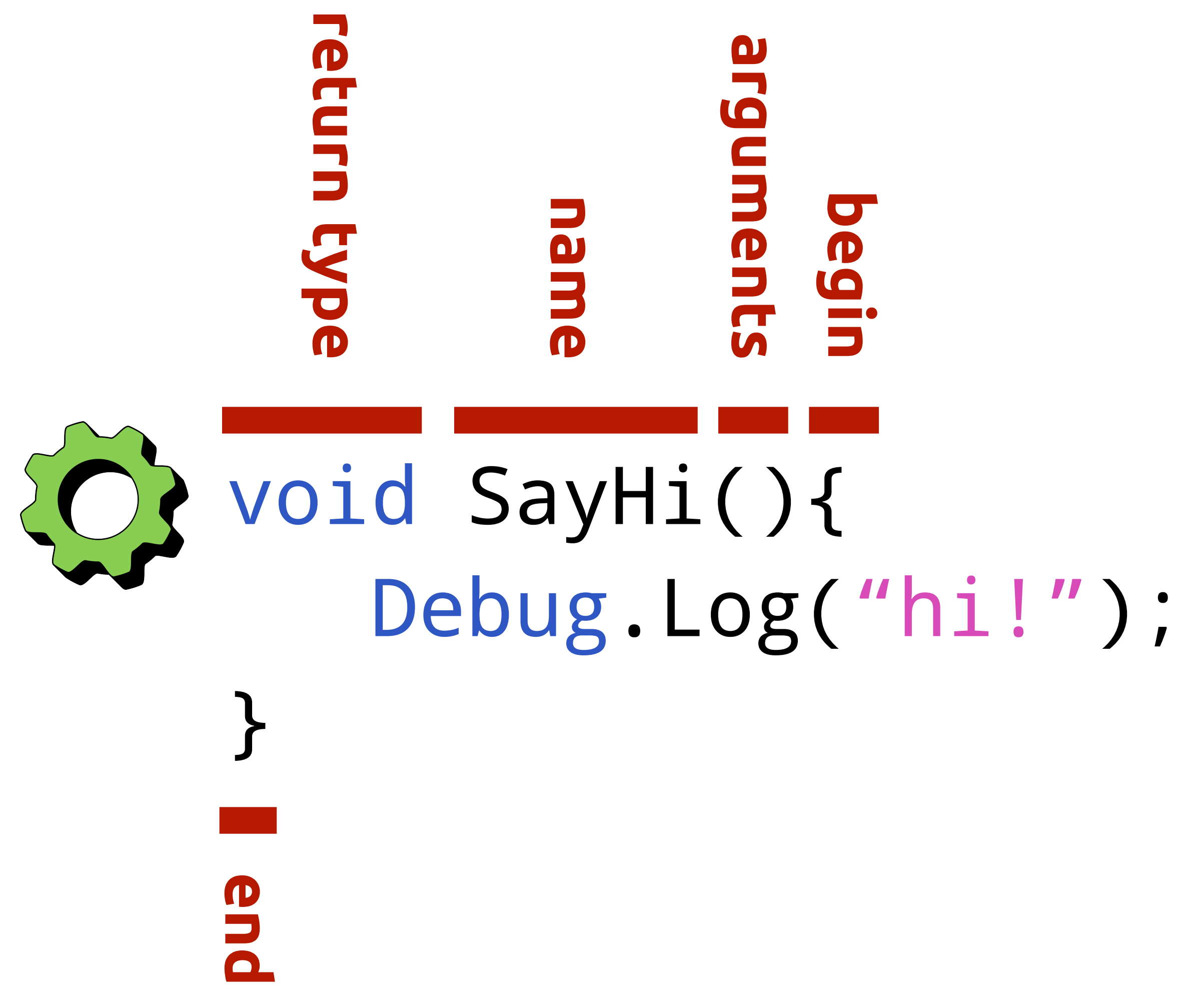
a function does a job



defining a function

```
void SayHi(){
   Debug.Log(“hi!”);
}
```

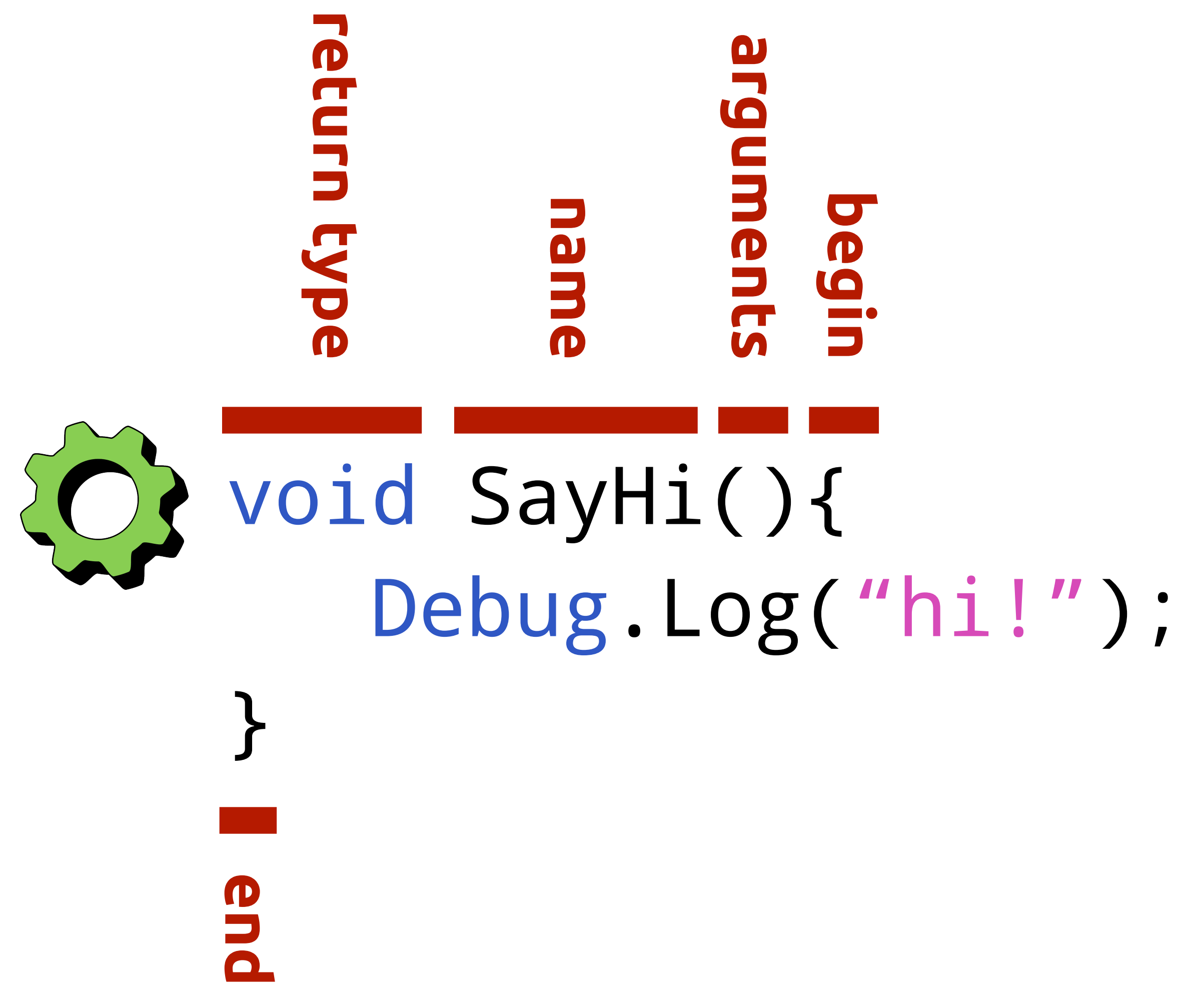
defining a function



```
void SayHi(){
   Debug.Log("hi!");
}
```

defining a function

function names always begins with a capital letter



```
void SayHi(){
   Debug.Log(“hi!”);
}
```

defining a function

```
void Start(){
   SayHi();
}
```

calling a function

```
void Start(){
    SayHi();
}
```

function name

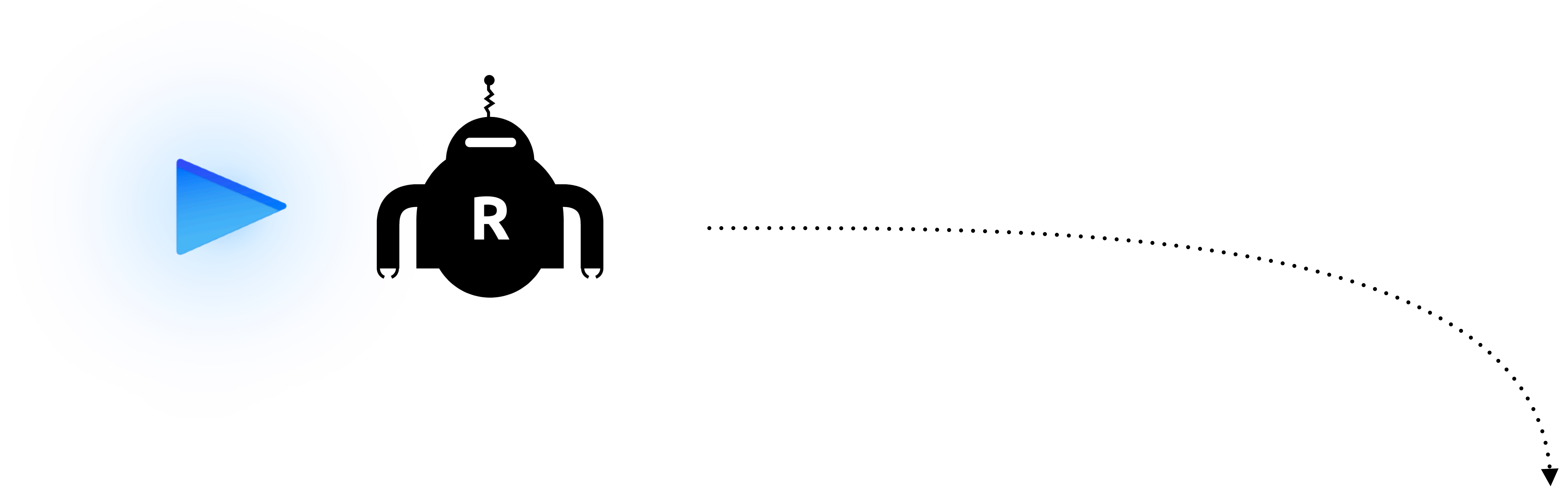
call it!

calling a function

```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log(“hi!”);
}
```

calling a function



unity calls the
Start function
on the first
frame

```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log(“hi!”);
}
```

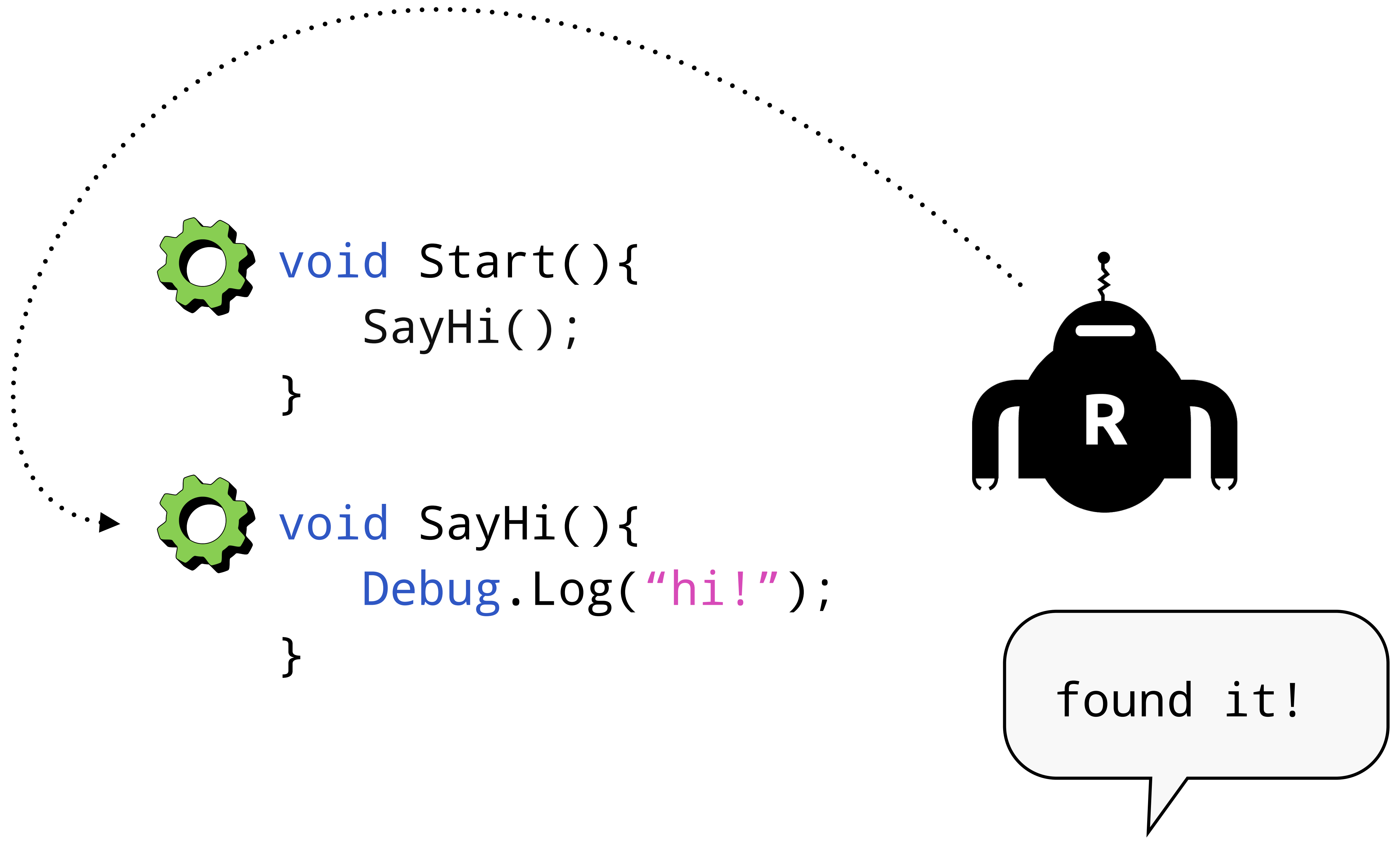
calling a function

```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```

R
ok; i'll find the function named 'SayHi' and continue there

calling a function



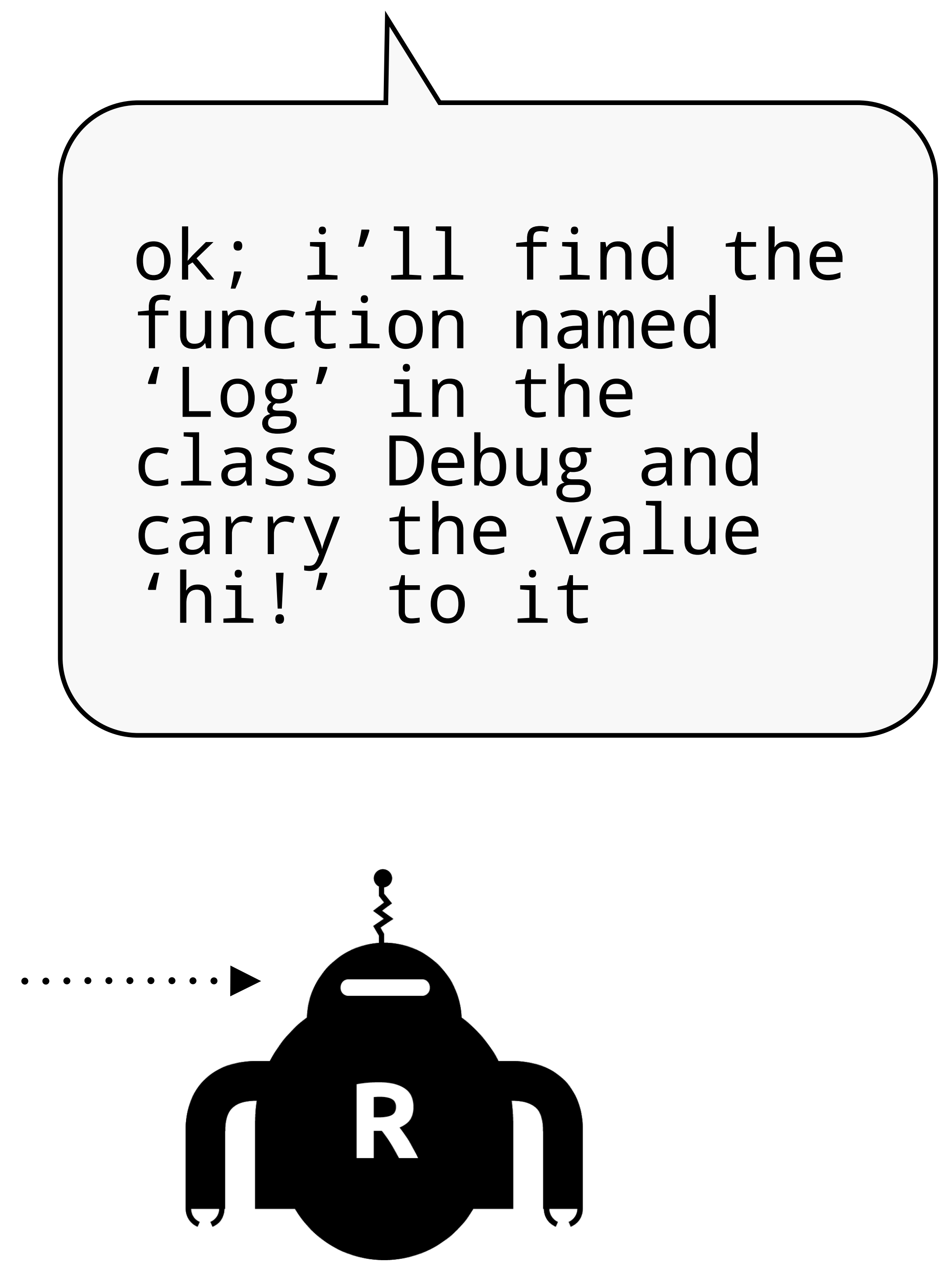
```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```

calling a function

```
void Start(){
    SayHi();
}

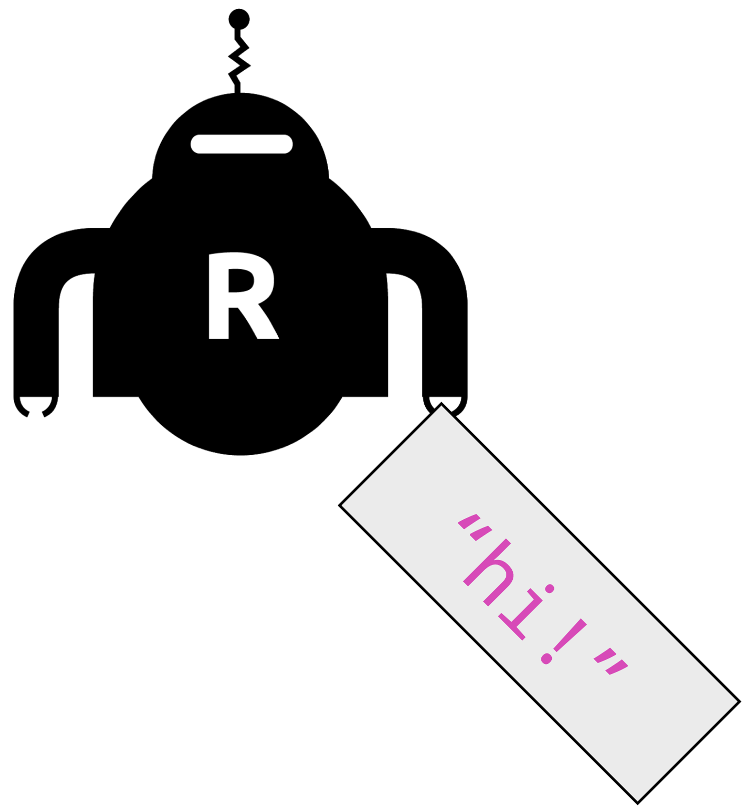
void SayHi(){
    Debug.Log("hi!");
}
```


ok; i'll find the function named 'Log' in the class Debug and carry the value 'hi!' to it

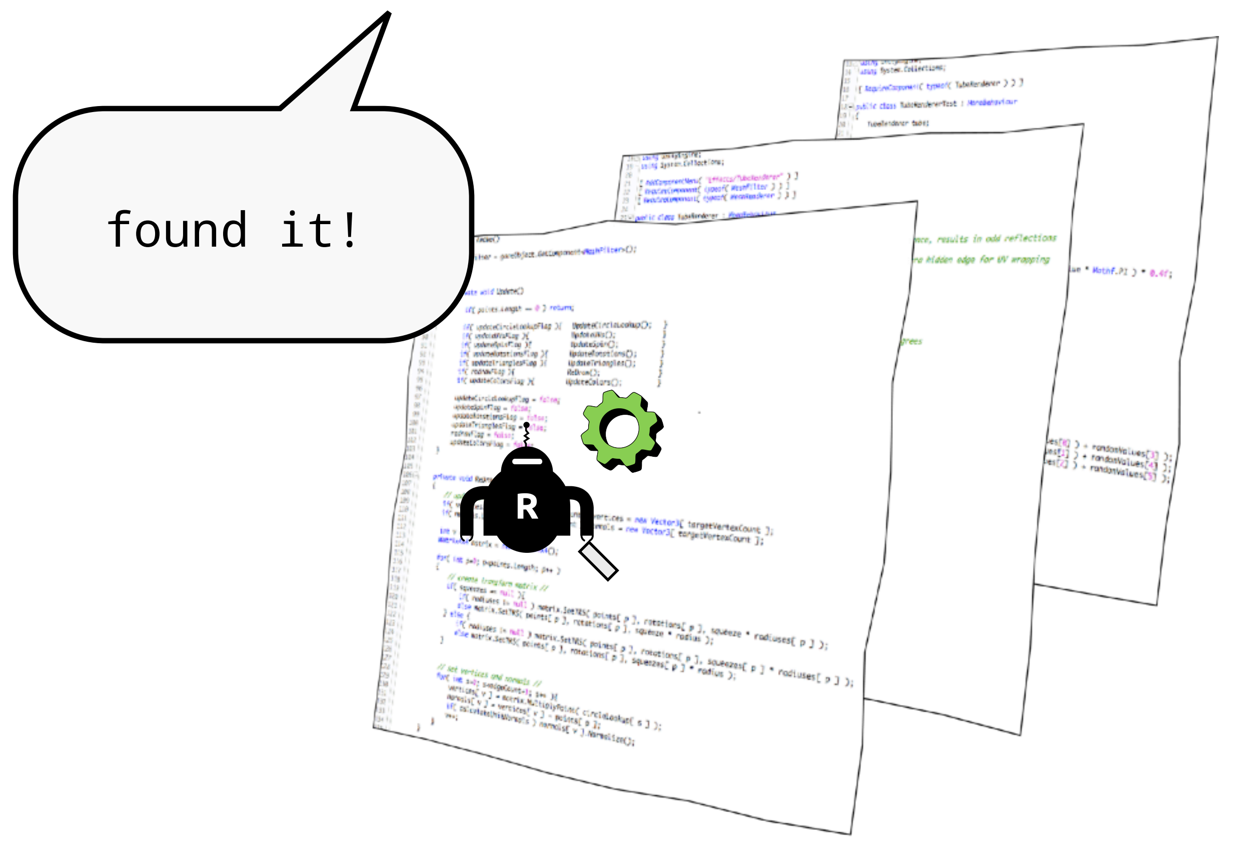
calling a function

```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```



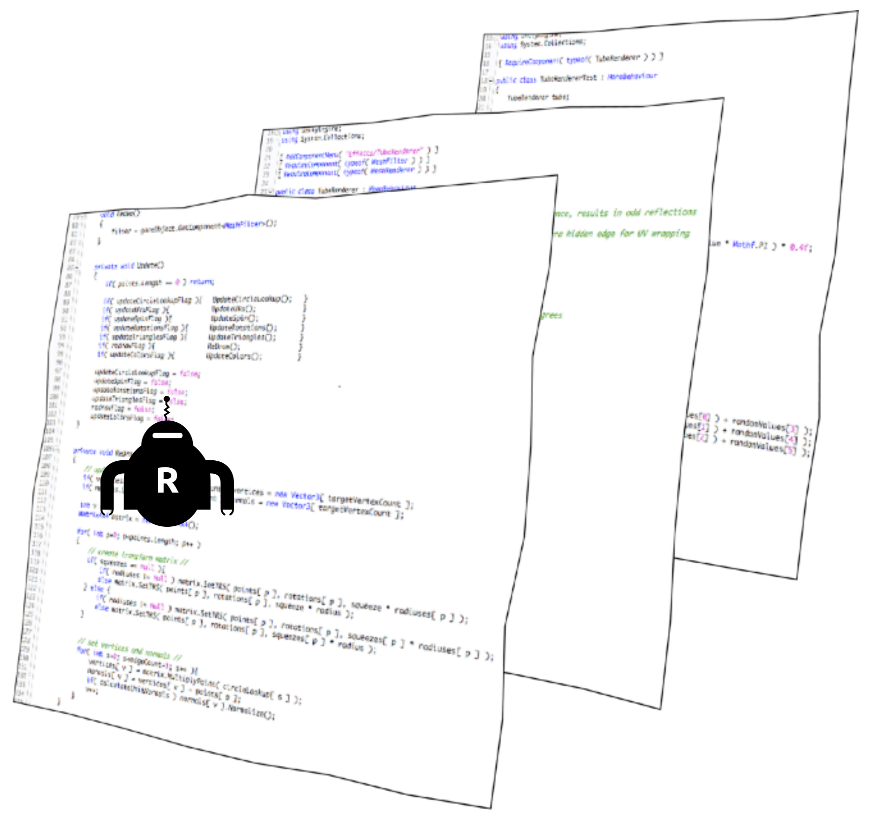
calling a function

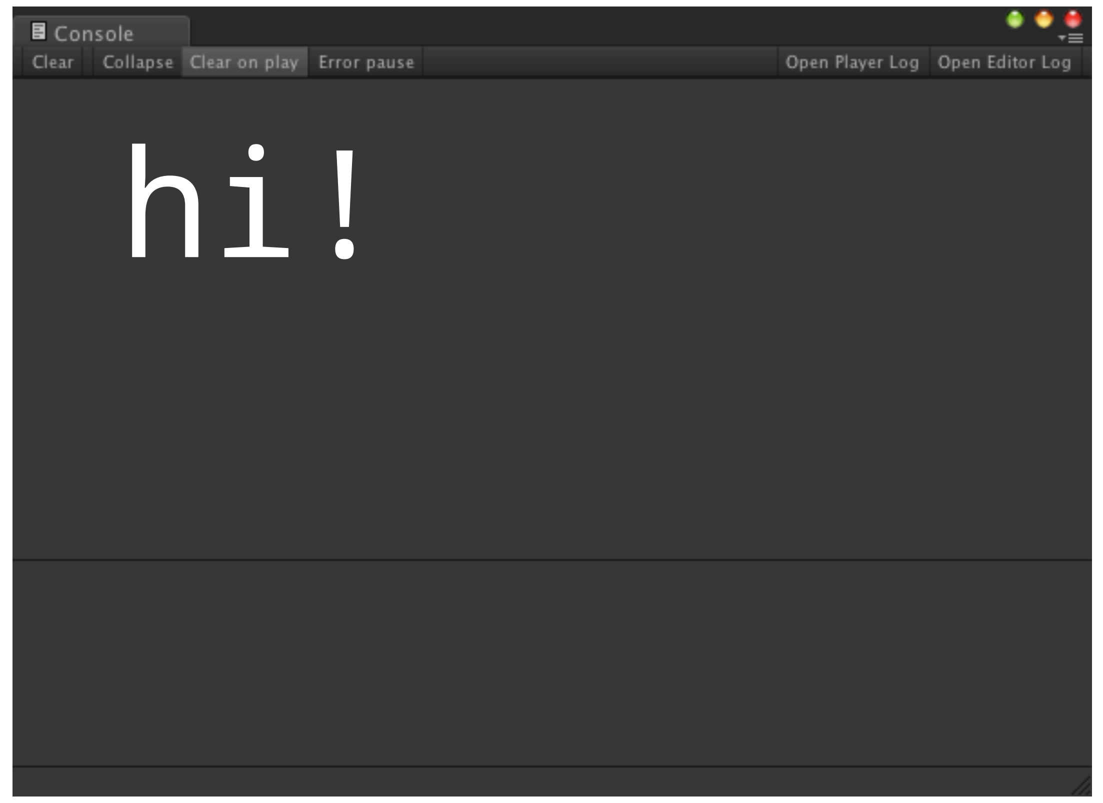


```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```

calling a function



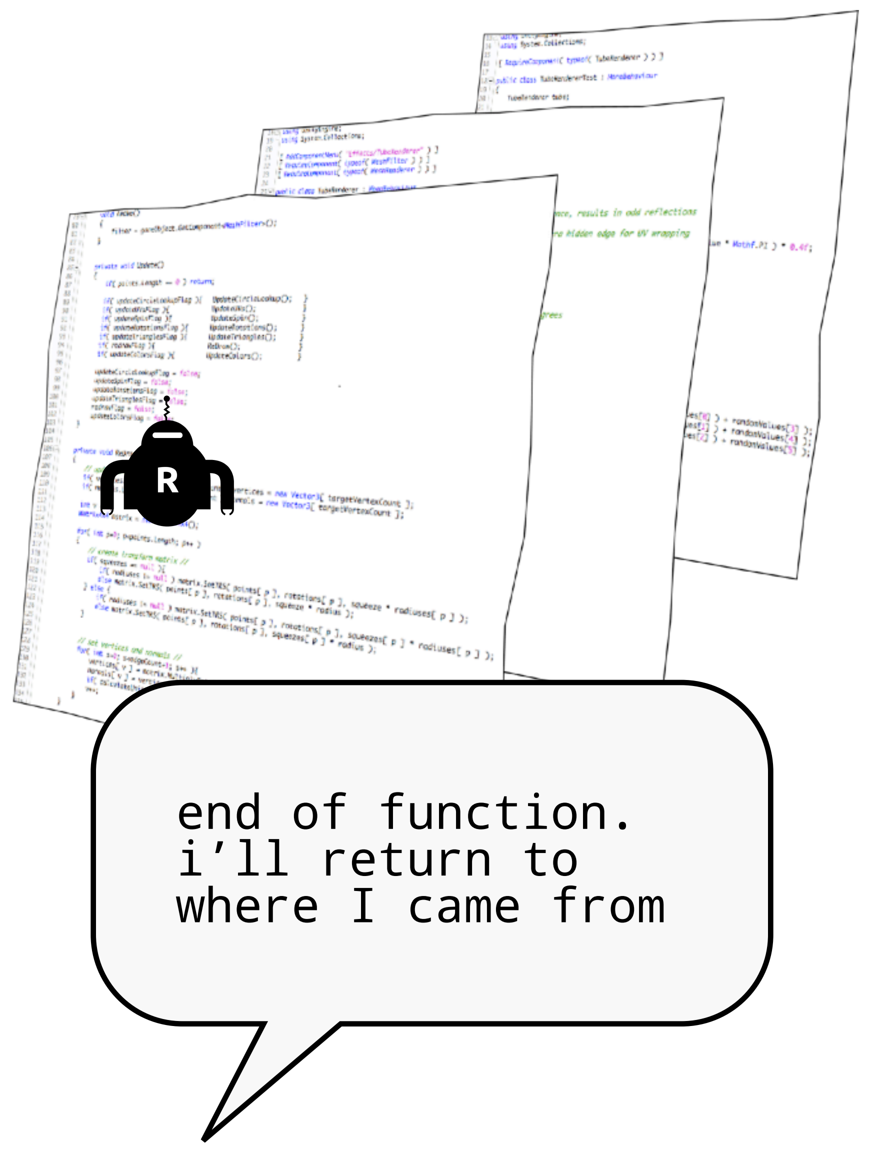


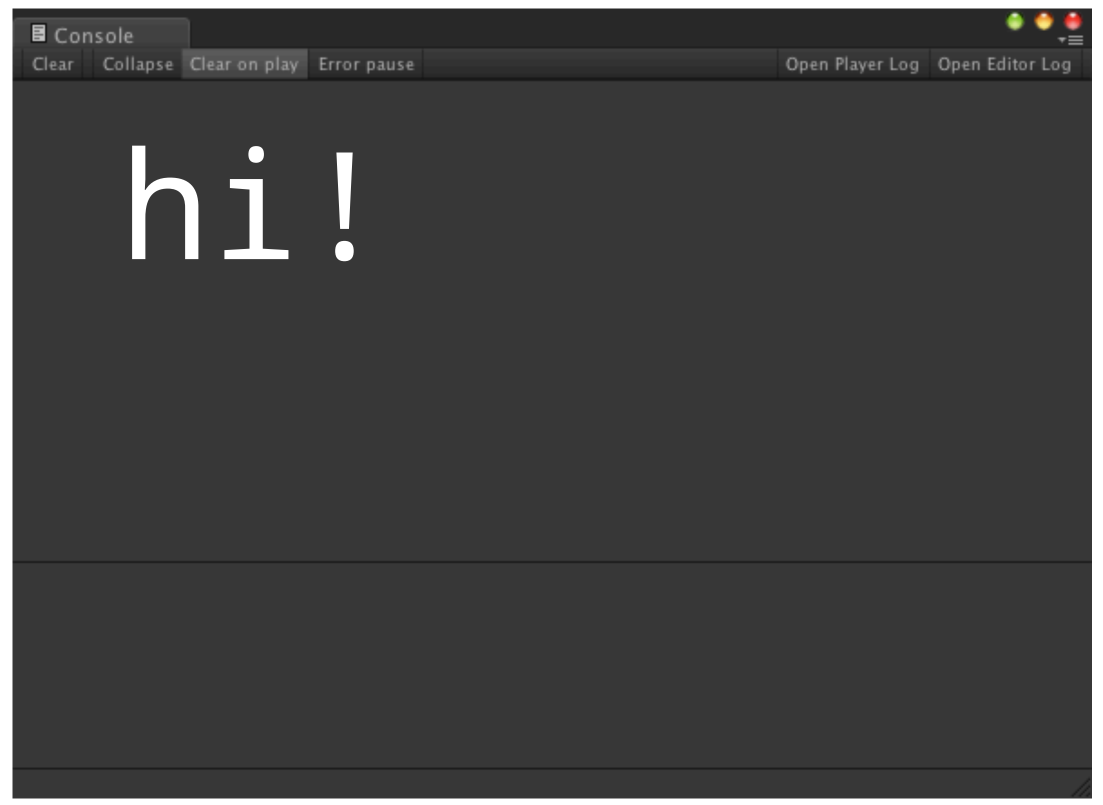
```
hi!
```

```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```

calling a function



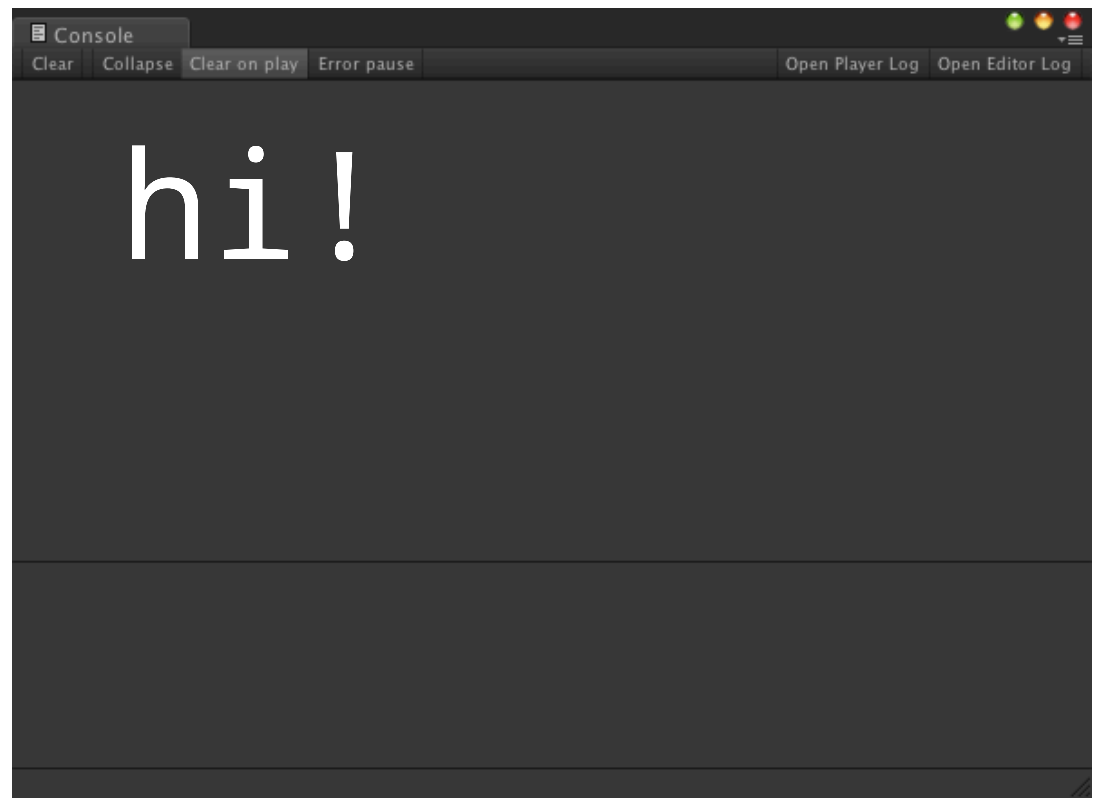


```
hi!
```

```
void Start(){
    SayHi();
}

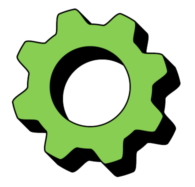
void SayHi(){
    Debug.Log(“hi!”);
}
```

calling a function

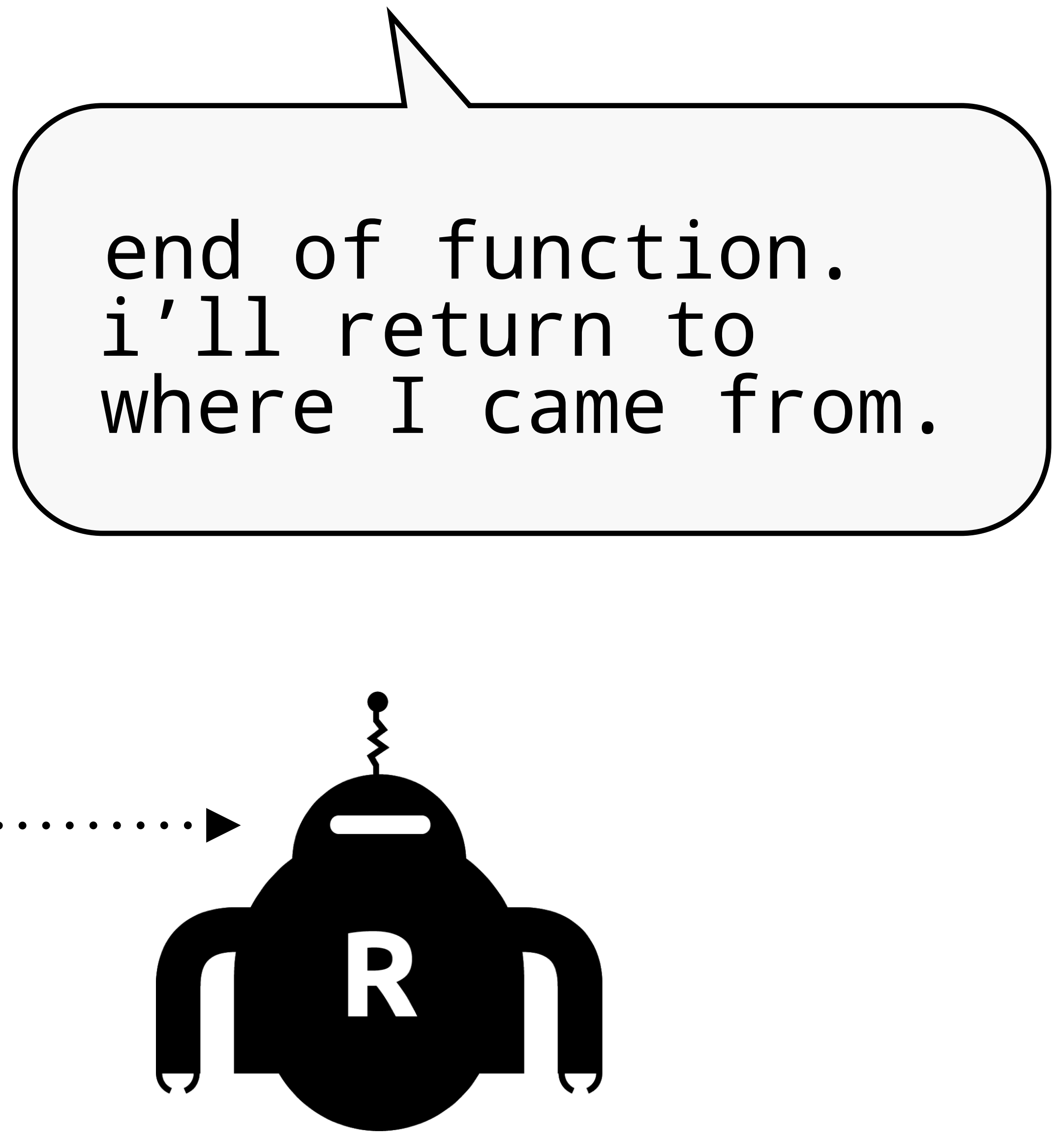


```
hi!
```

```
void Start(){
    SayHi();
}
```

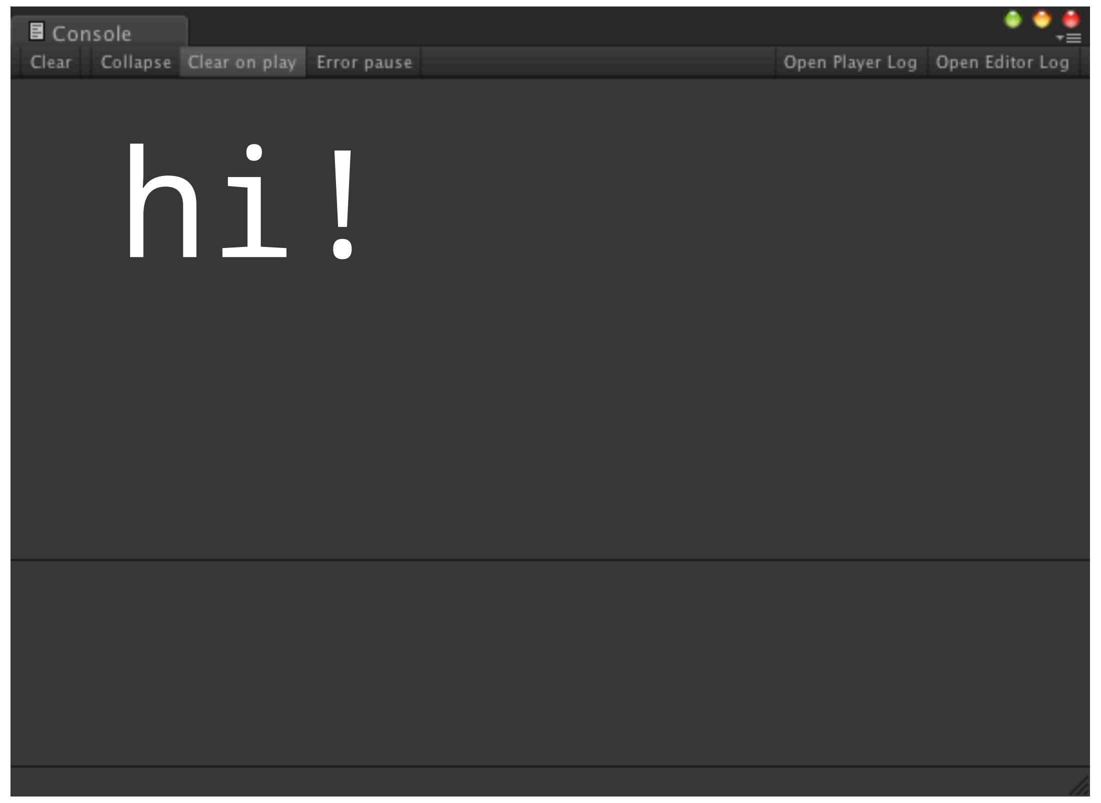


```
void SayHi(){
    Debug.Log("hi!");
}
```



end of function.
i'll return to
where I came from.

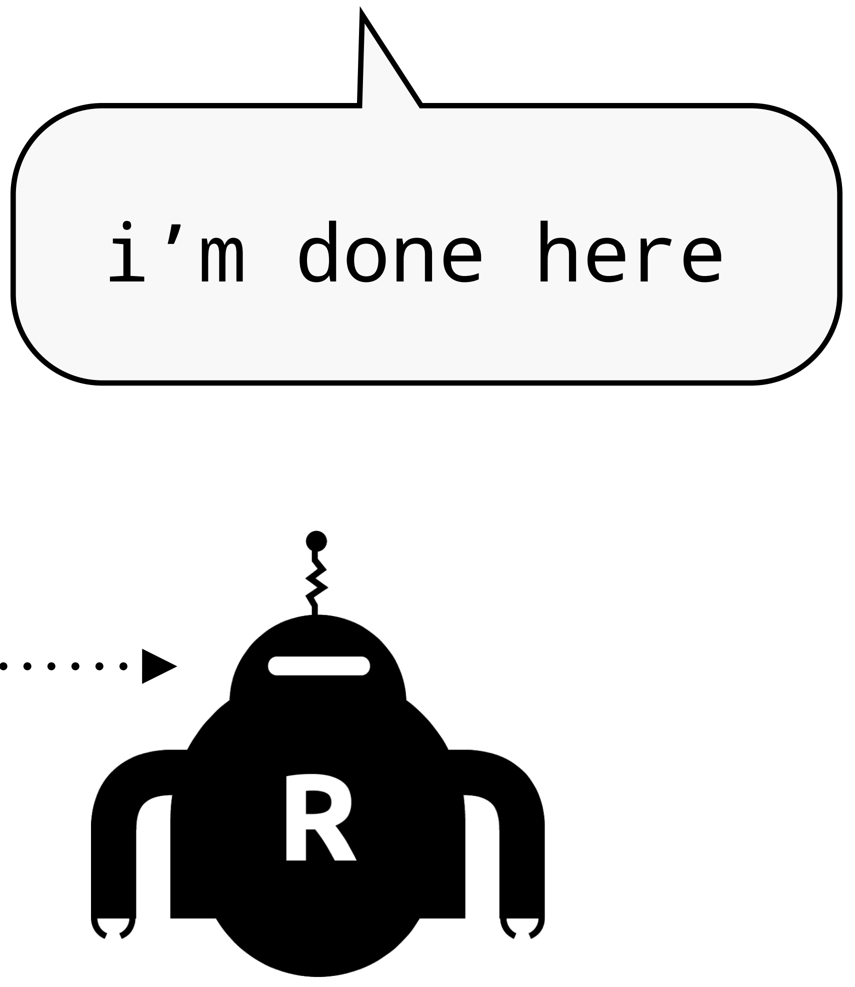
calling a function



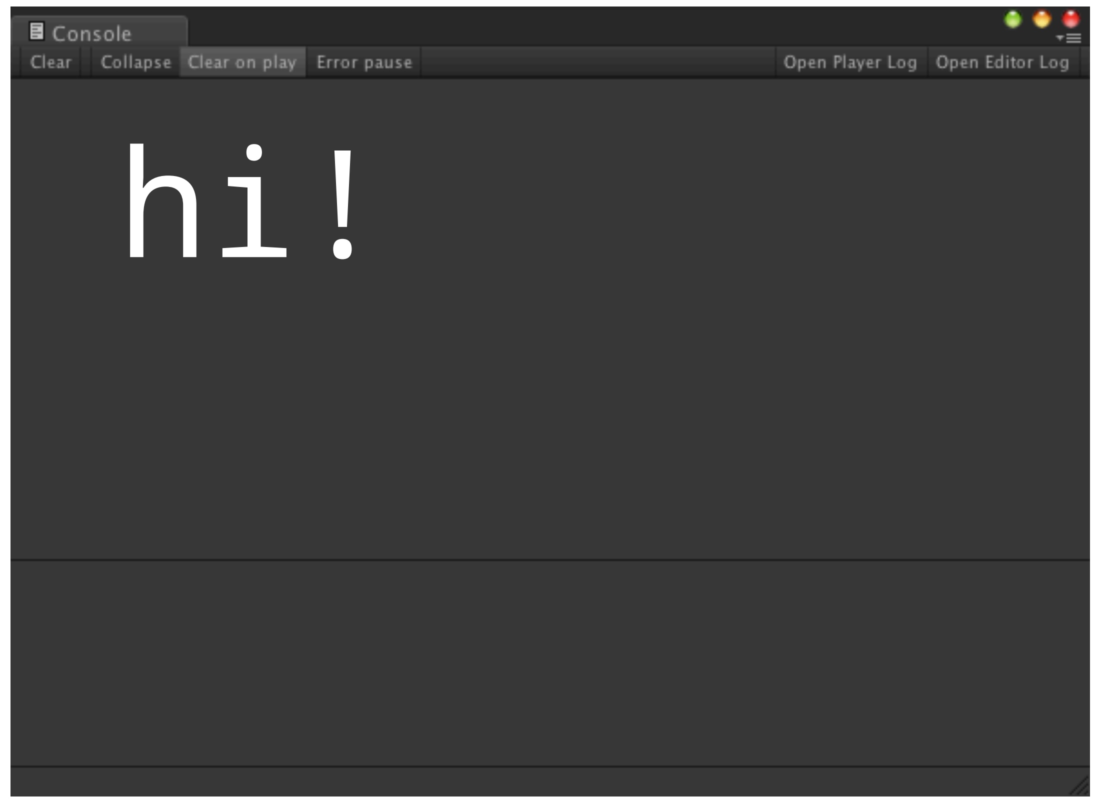
```
hi!
```

```
void Start(){
    SayHi();
}

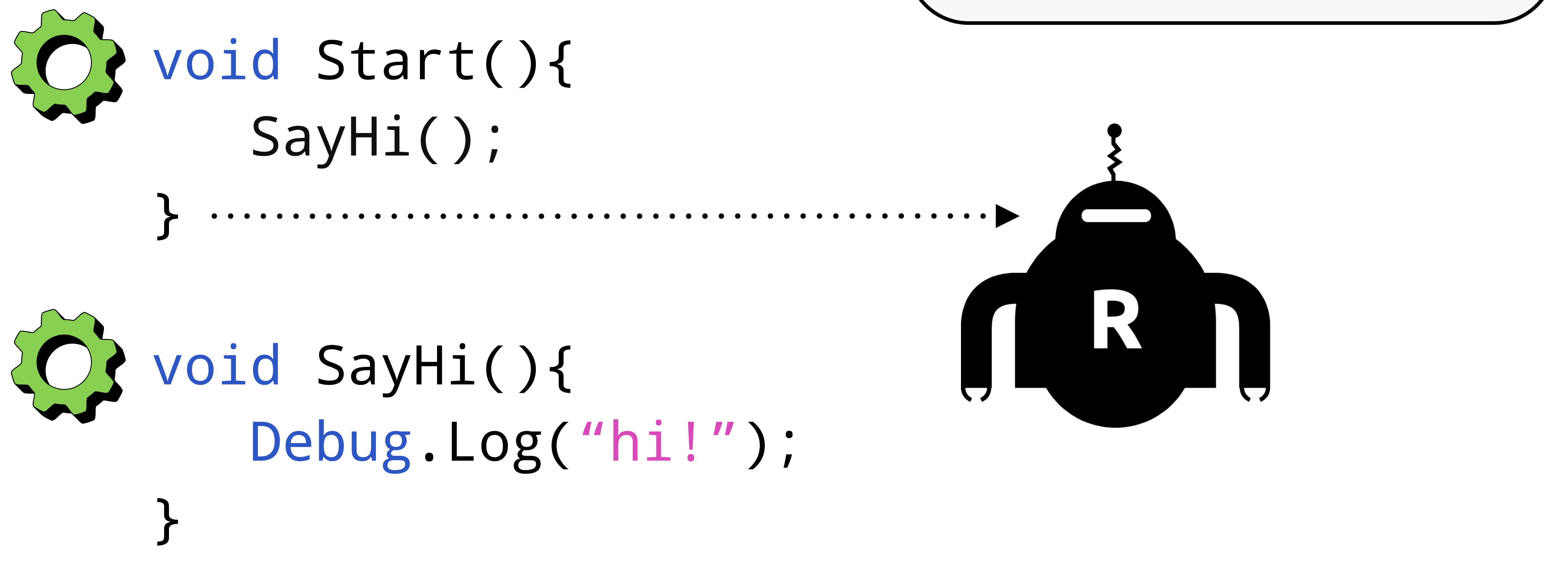
void SayHi(){
    Debug.Log(“hi!”);
}
```



calling a function



```
hi!
```

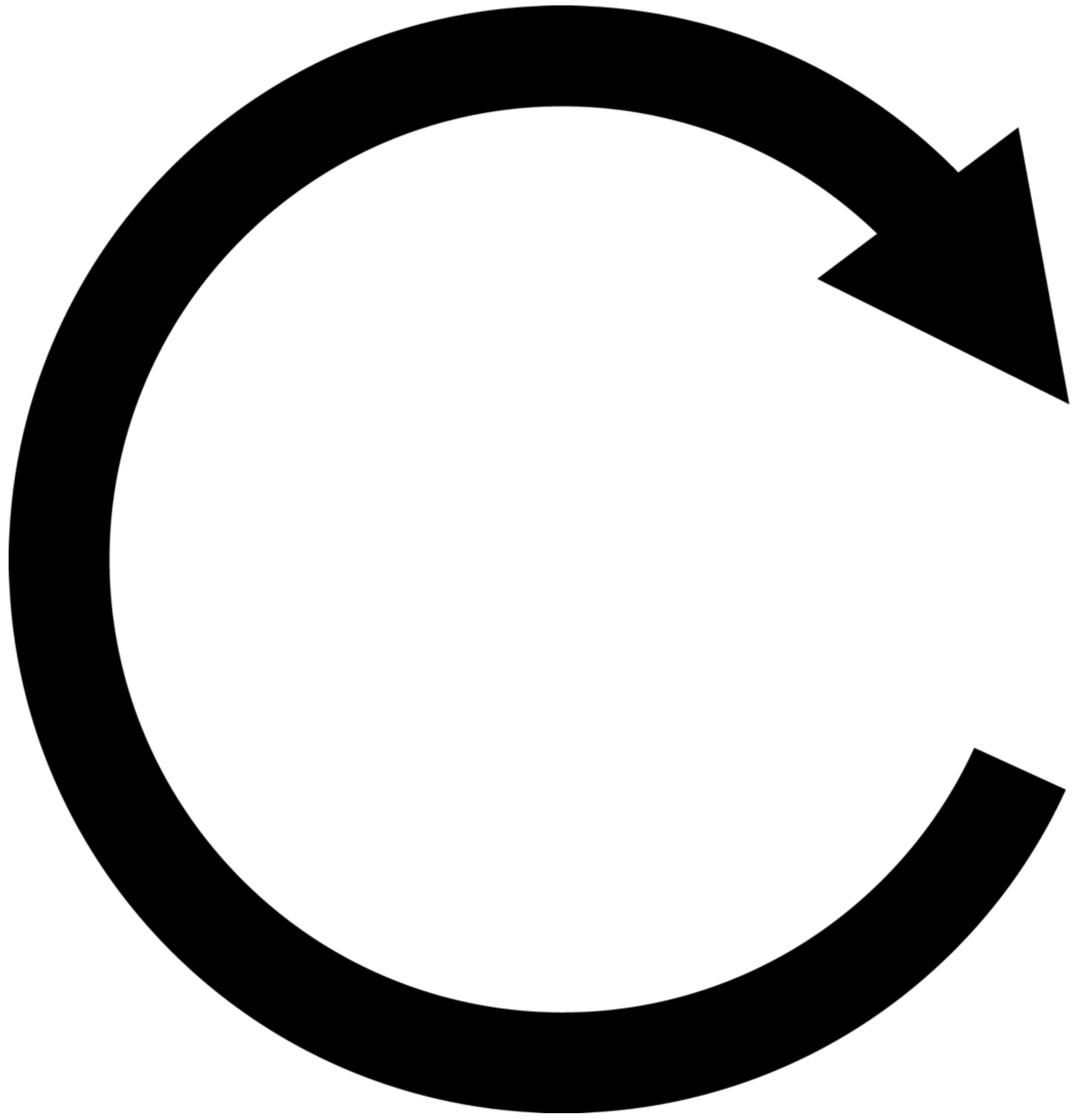


```
void Start(){
    SayHi();
}

void SayHi(){
    Debug.Log("hi!");
}
```

end of function. I'll return to wherever I came from in the unity system

calling a function



loops

```
for( int i=0; i<2; i++ ){
   // repeat this code
}
```

the for-statement

start with the variable 8i9 at value 0

repeat as long as condition is true

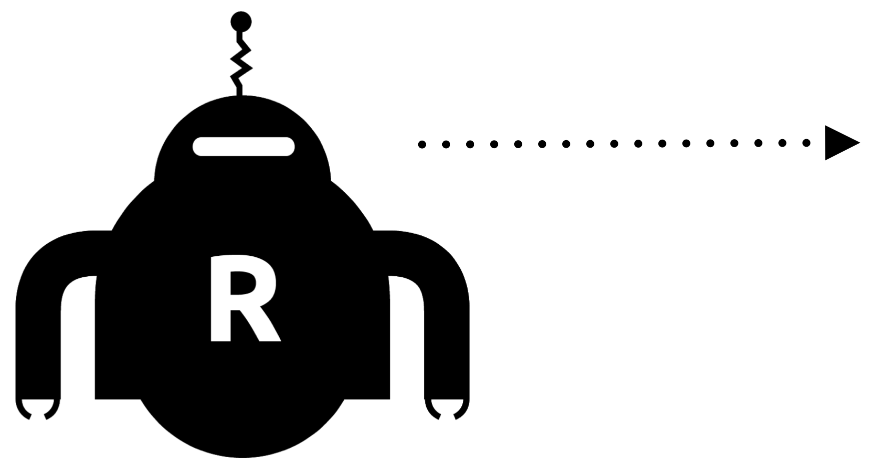
increase 8i9 by 1 every iteration

```
for( int i=0; i<2; i++ ){
   // repeat this code
}
```

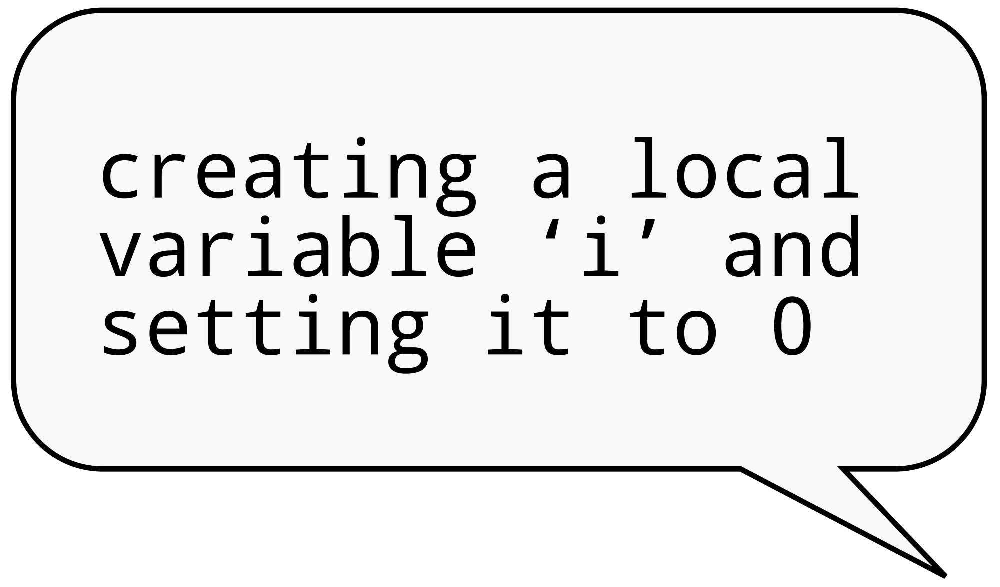
the for-statement

```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

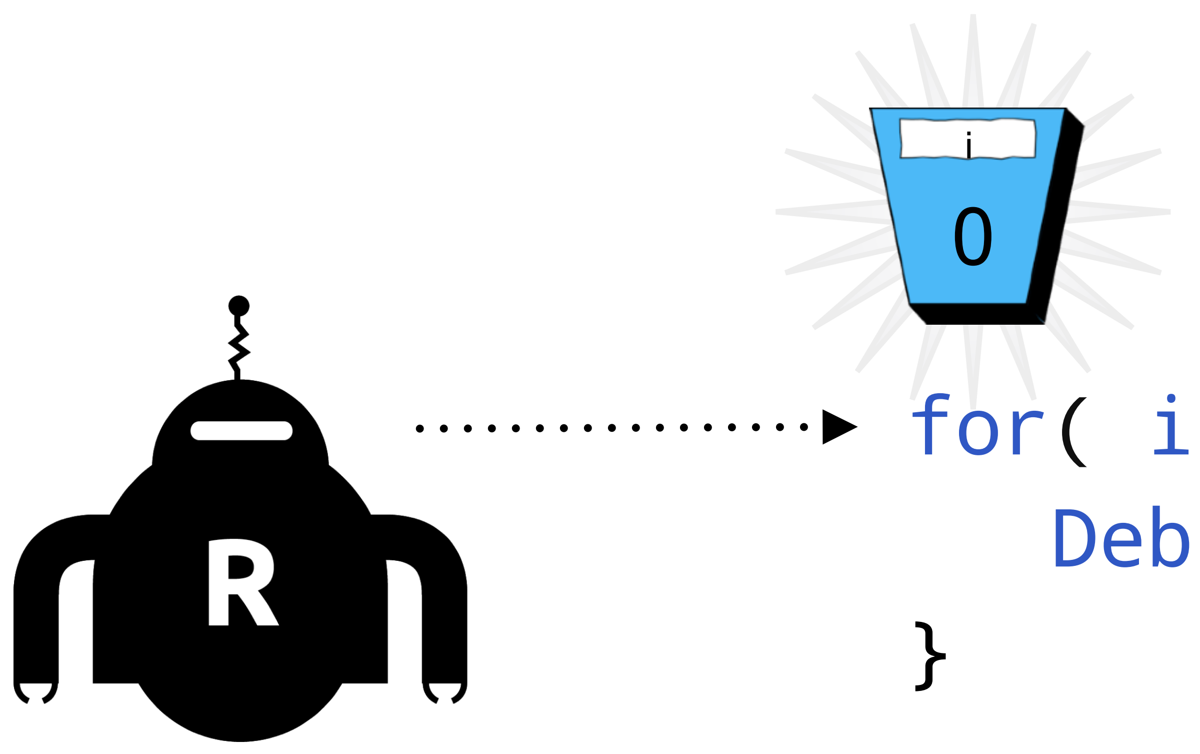
the for-statement



```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

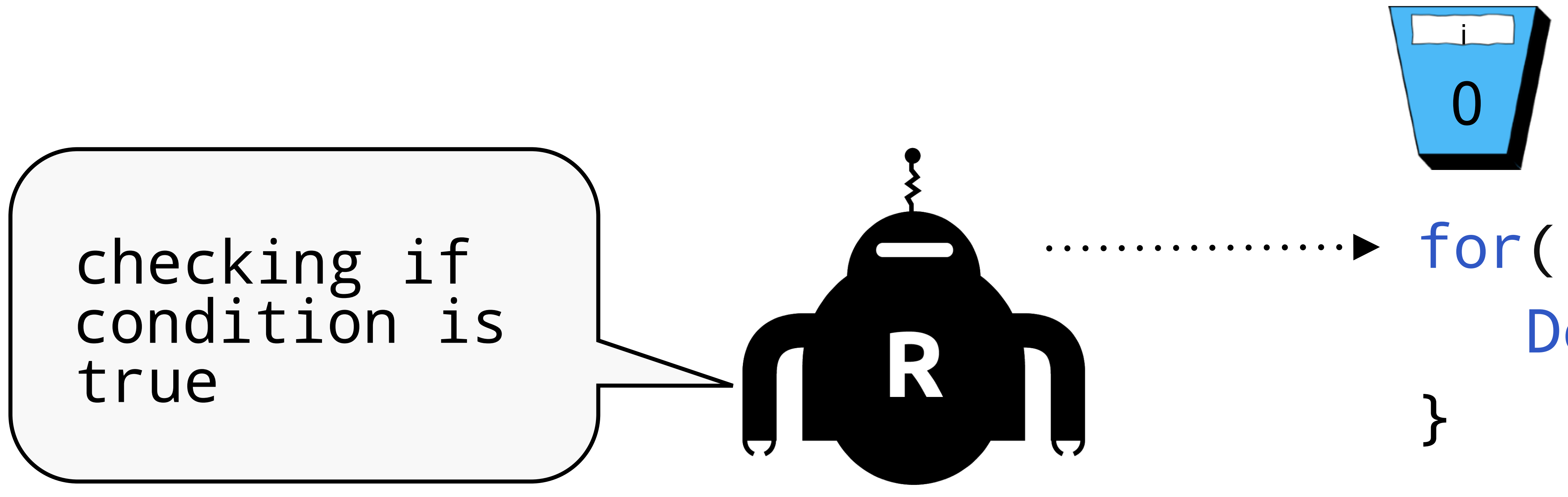


the for-statement



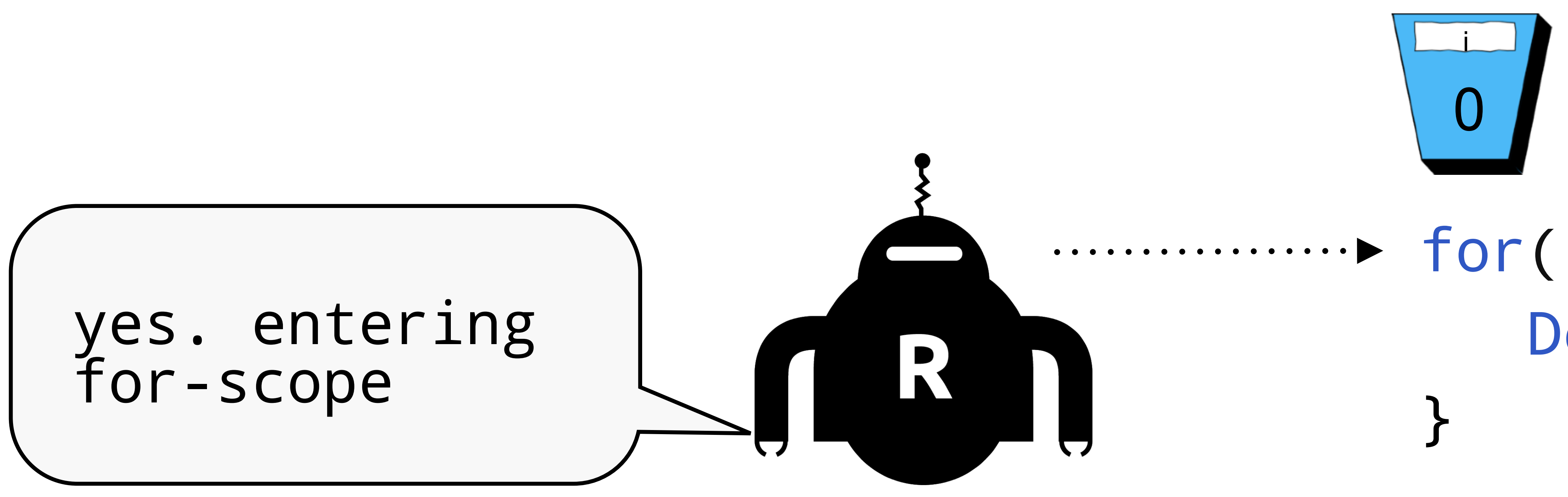
```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement



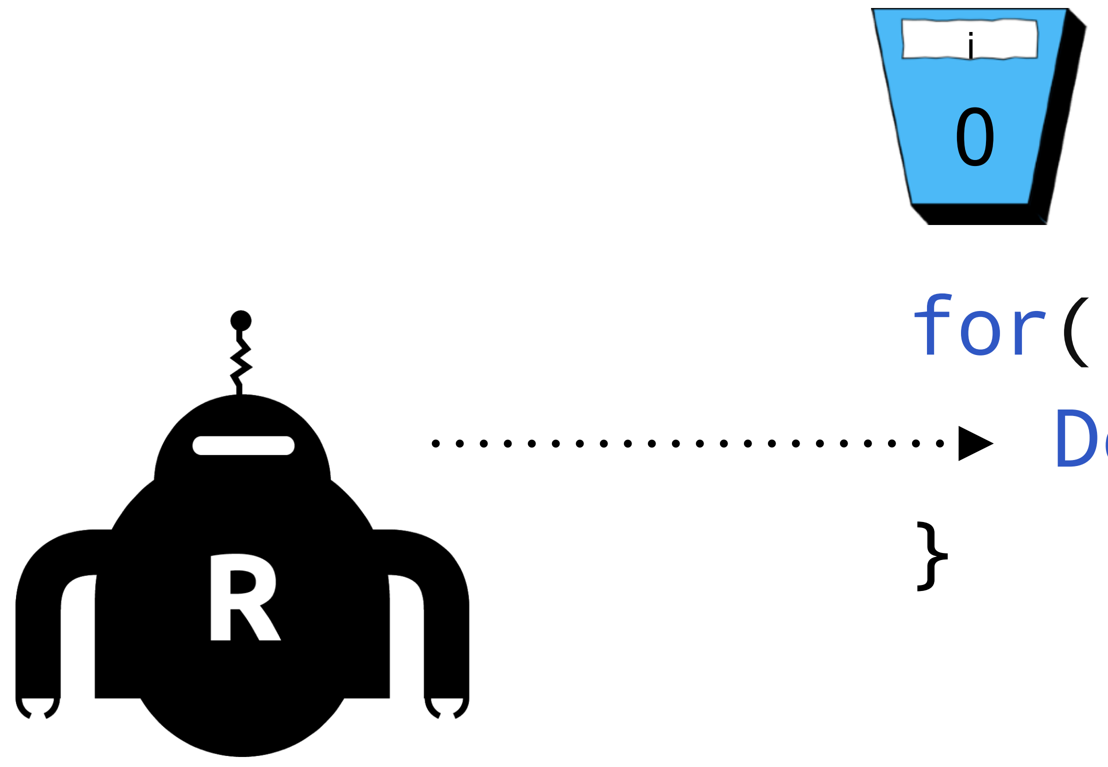
```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement

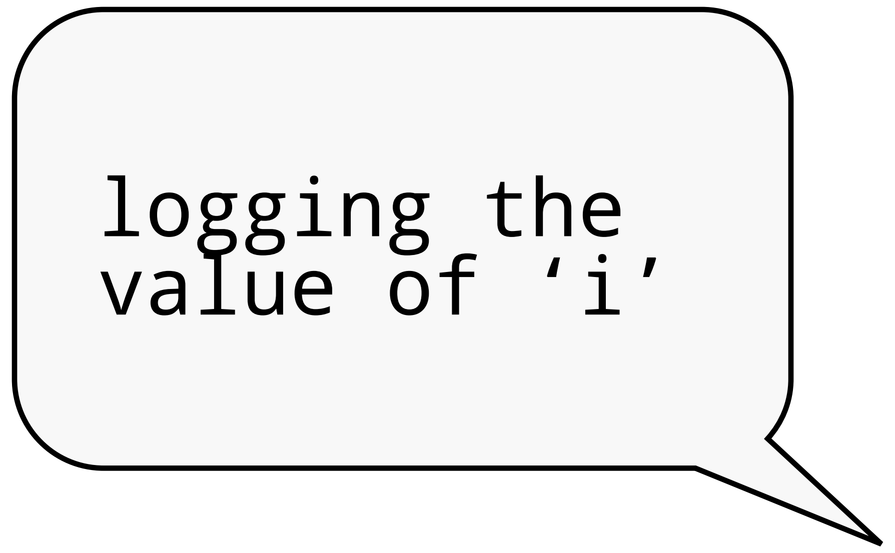


```
for( int i=0; true; i++ ){
   Debug.Log( i );
}
```

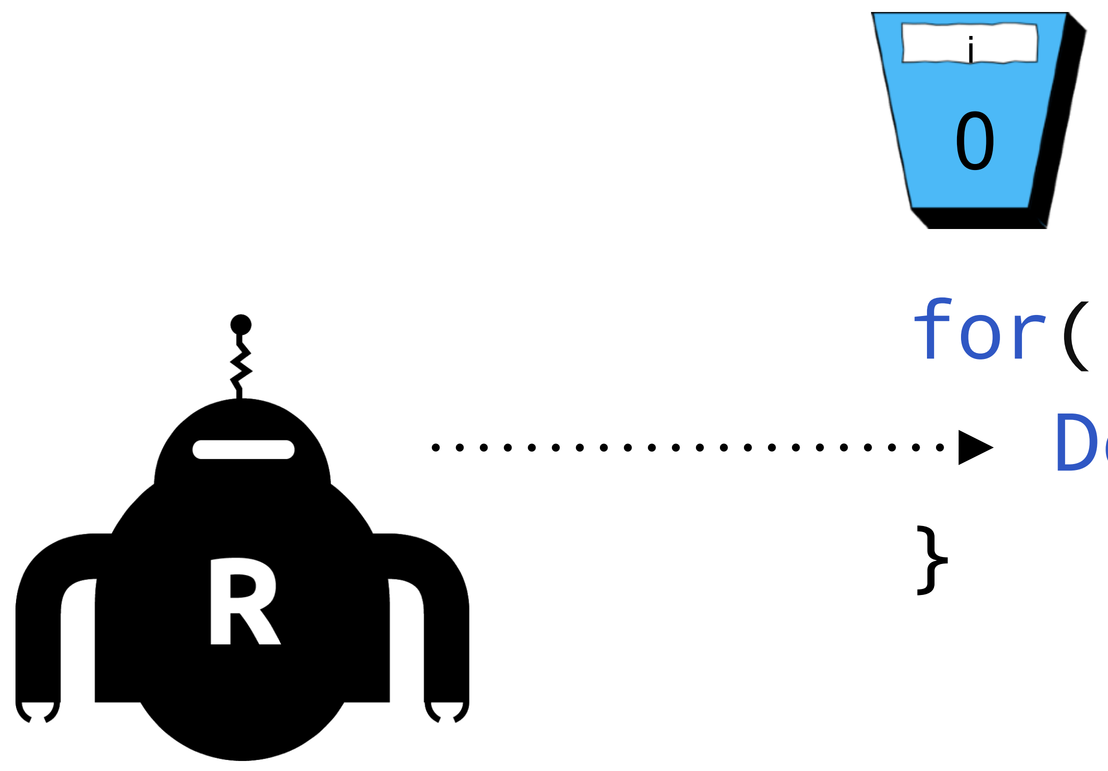
the for-statement



```
for( int i=0; i<2; i++ ){
  Debug.Log( i );
}
```

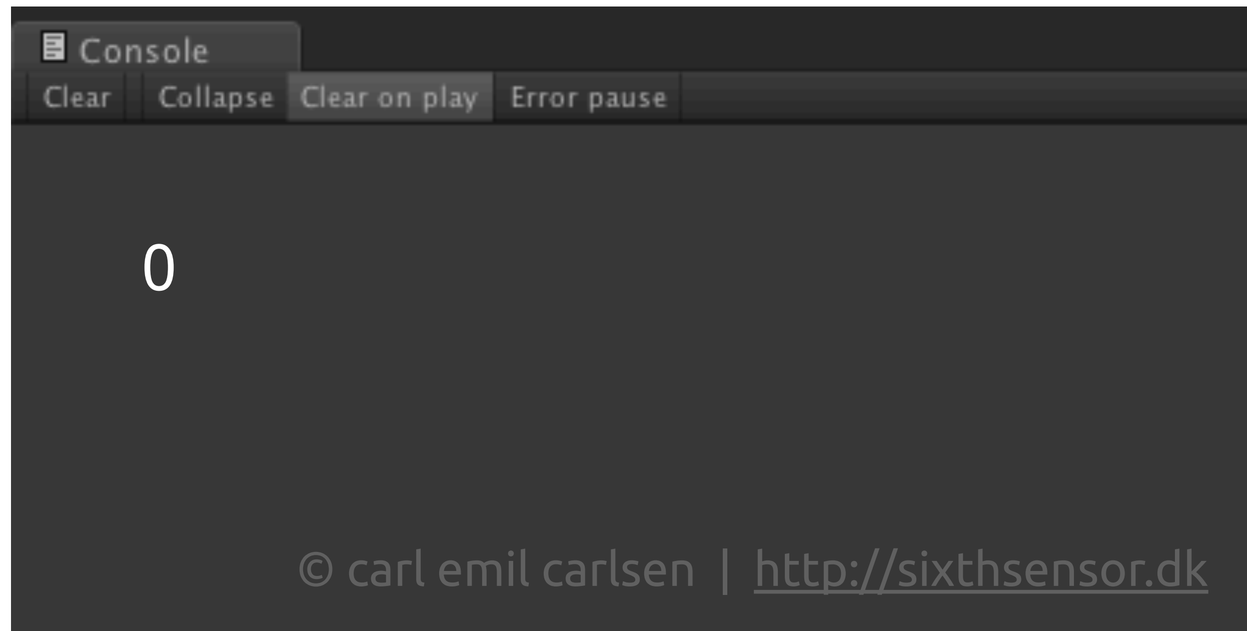


the for-statement

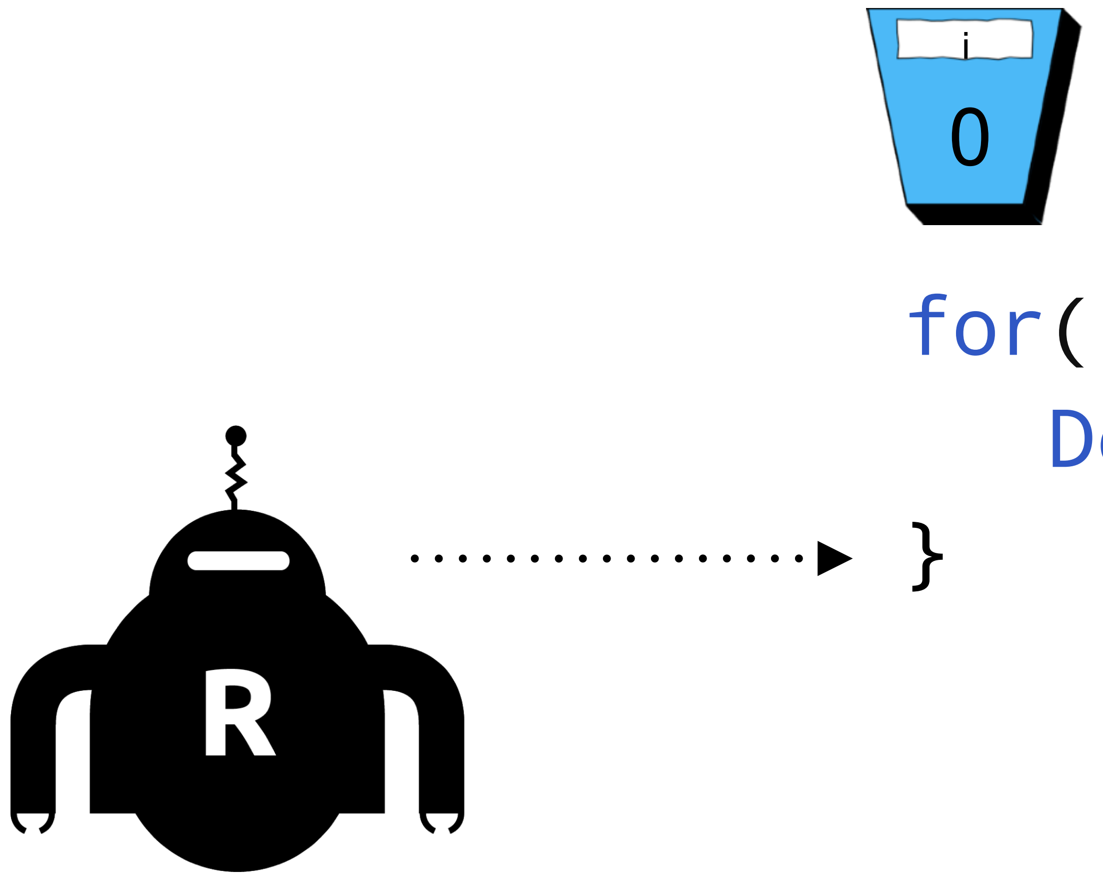


```
for( int i=0; i<2; i++ ){
    Debug.Log( i );
}
```

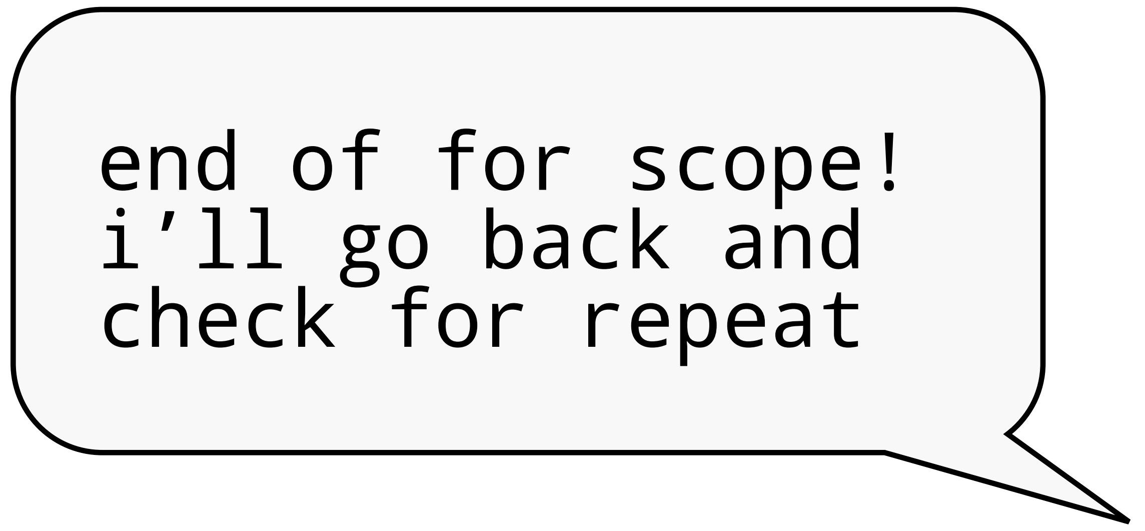
the for-statement



```
0
```

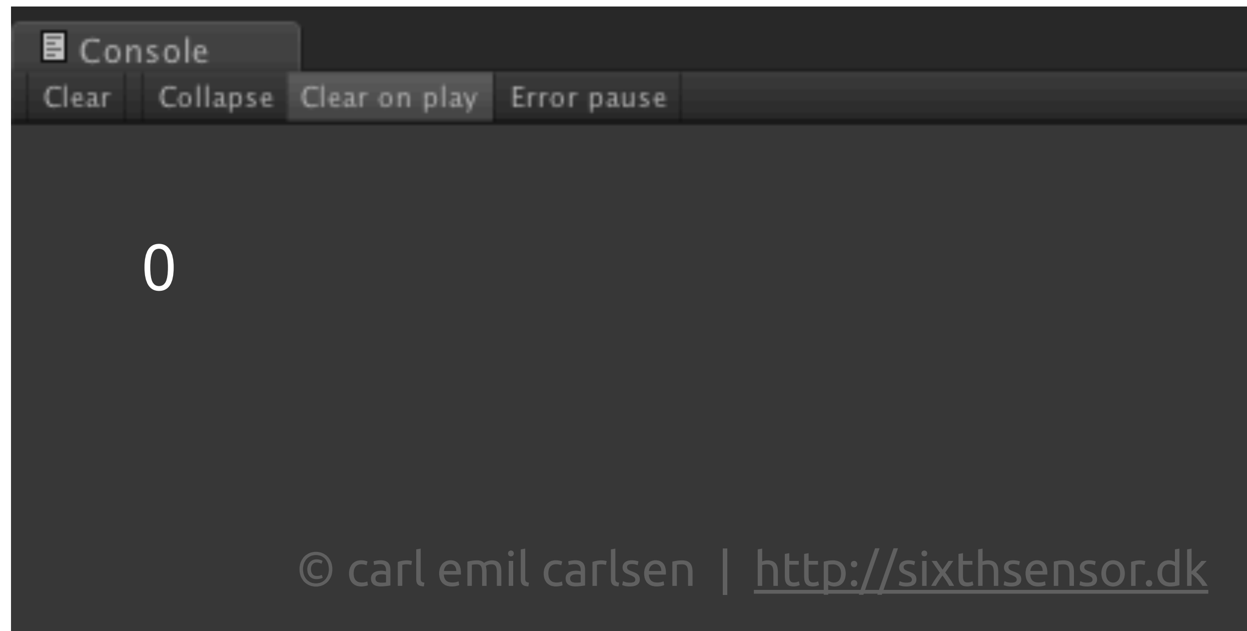


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

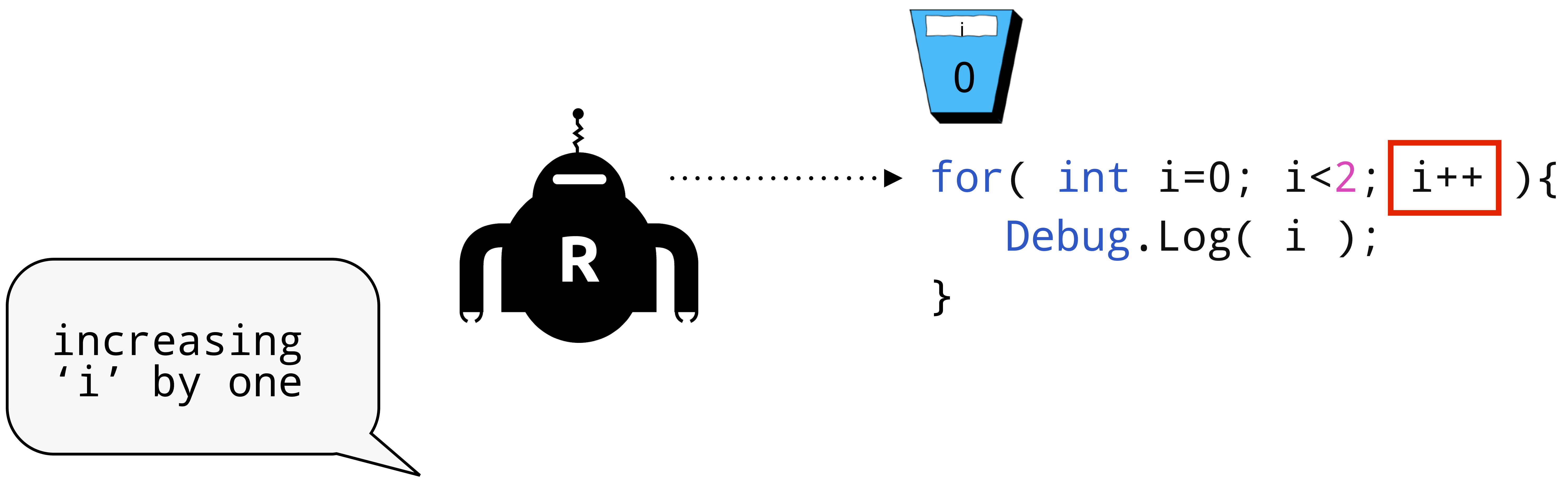


```
end of for scope!
i'll go back and
check for repeat
```

the for-statement

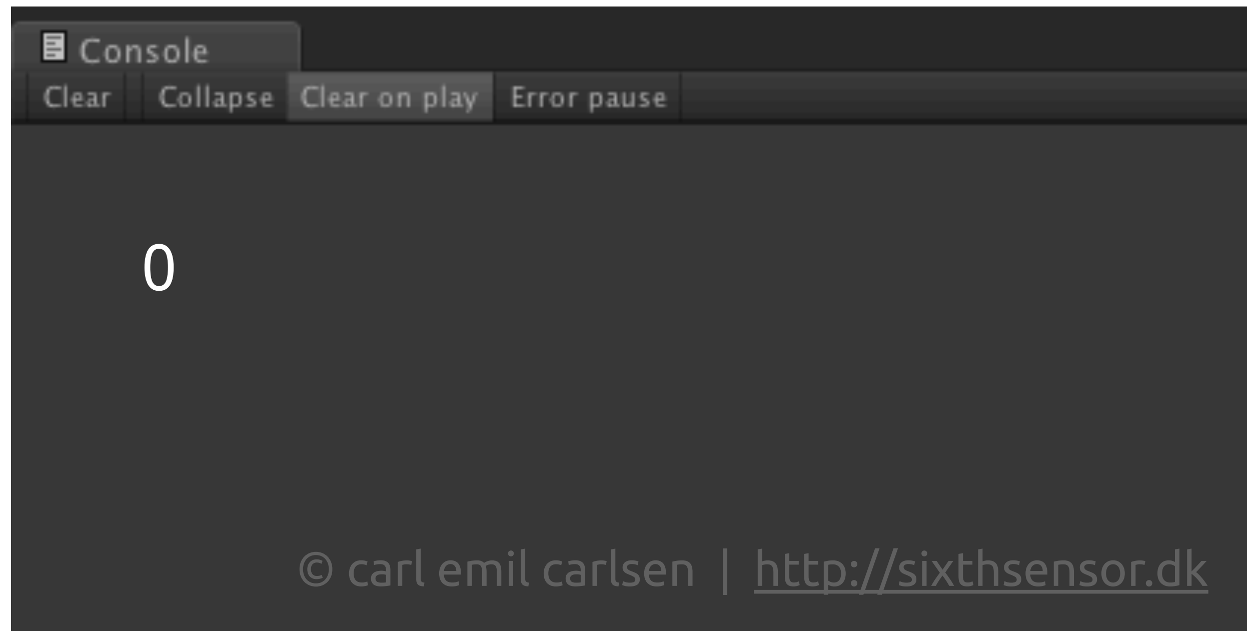


```
0
```

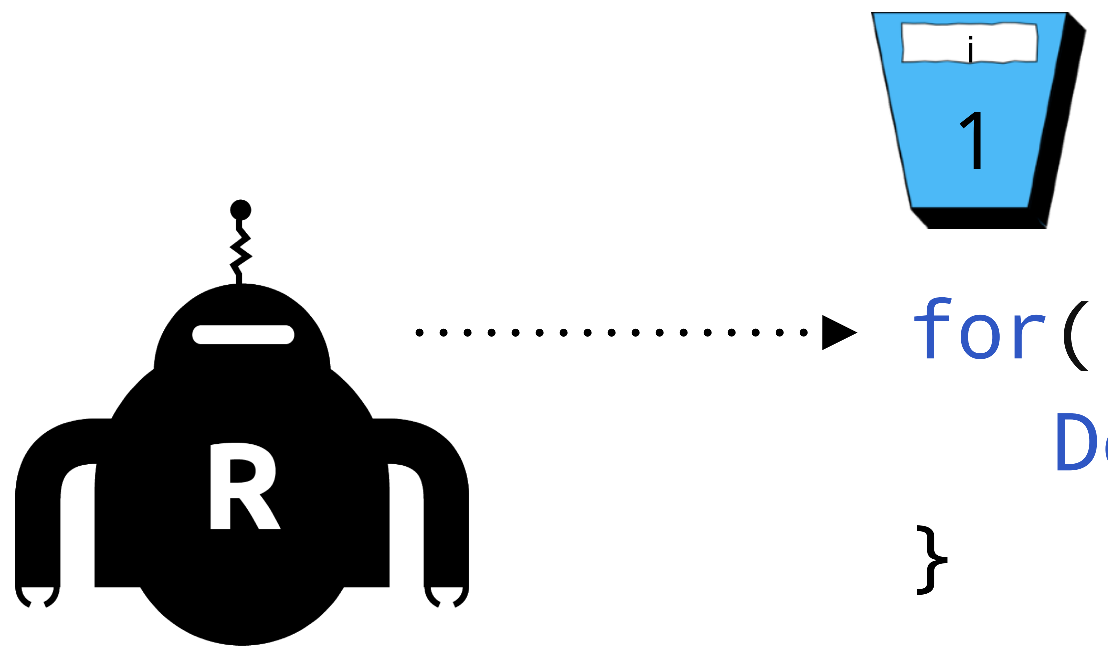


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement

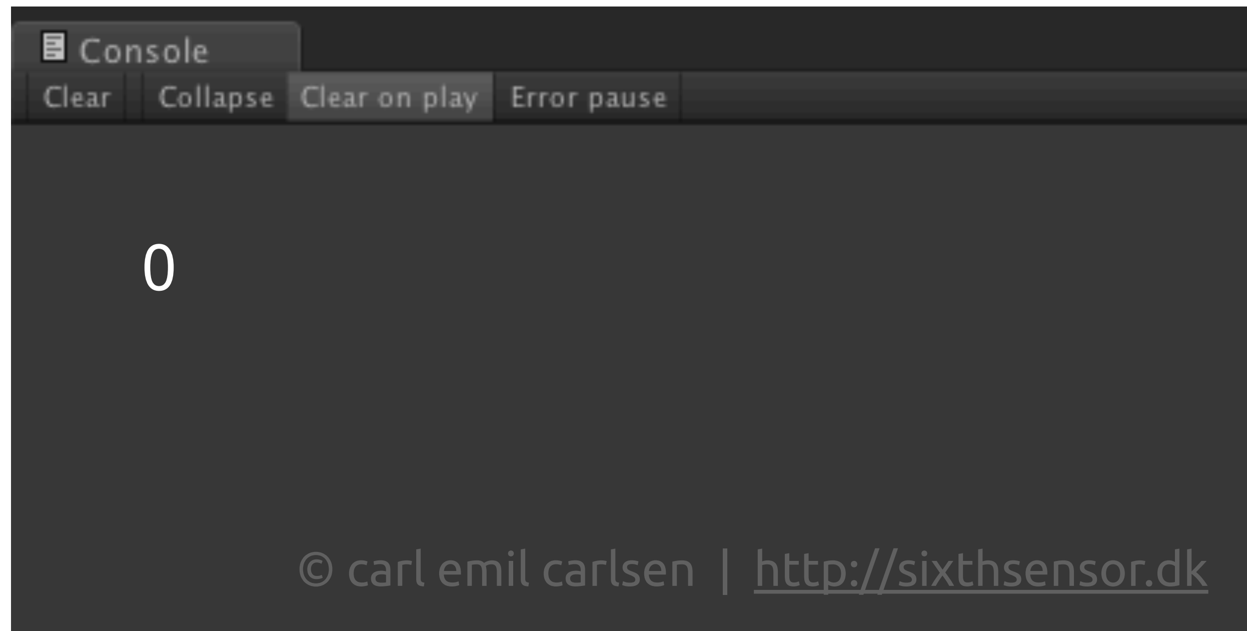


```
0
```

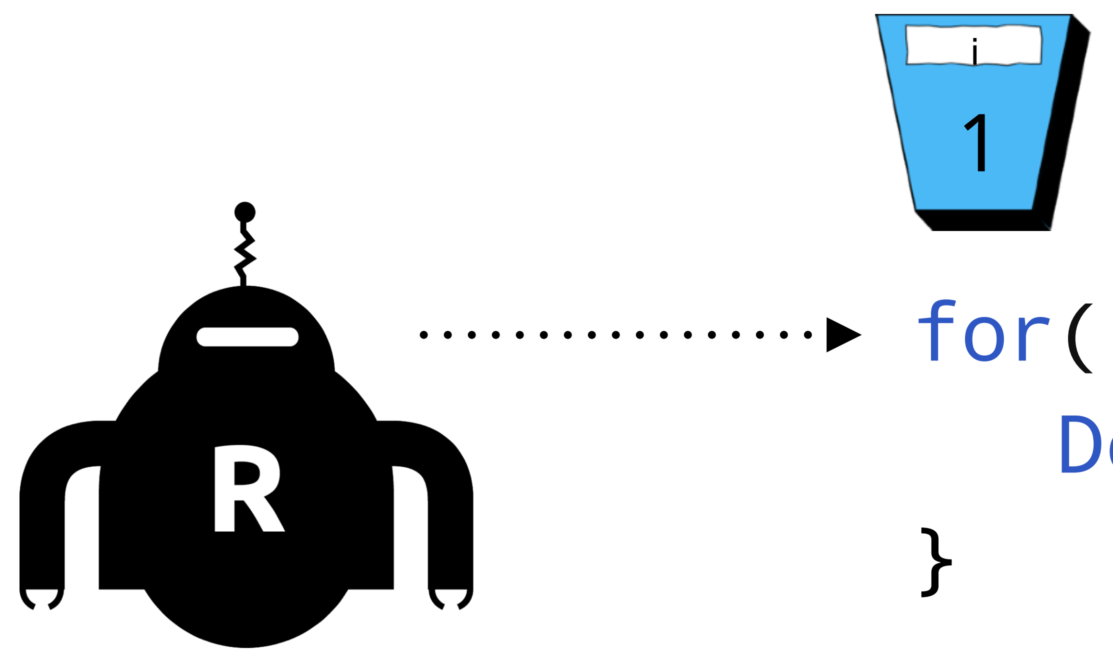


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement



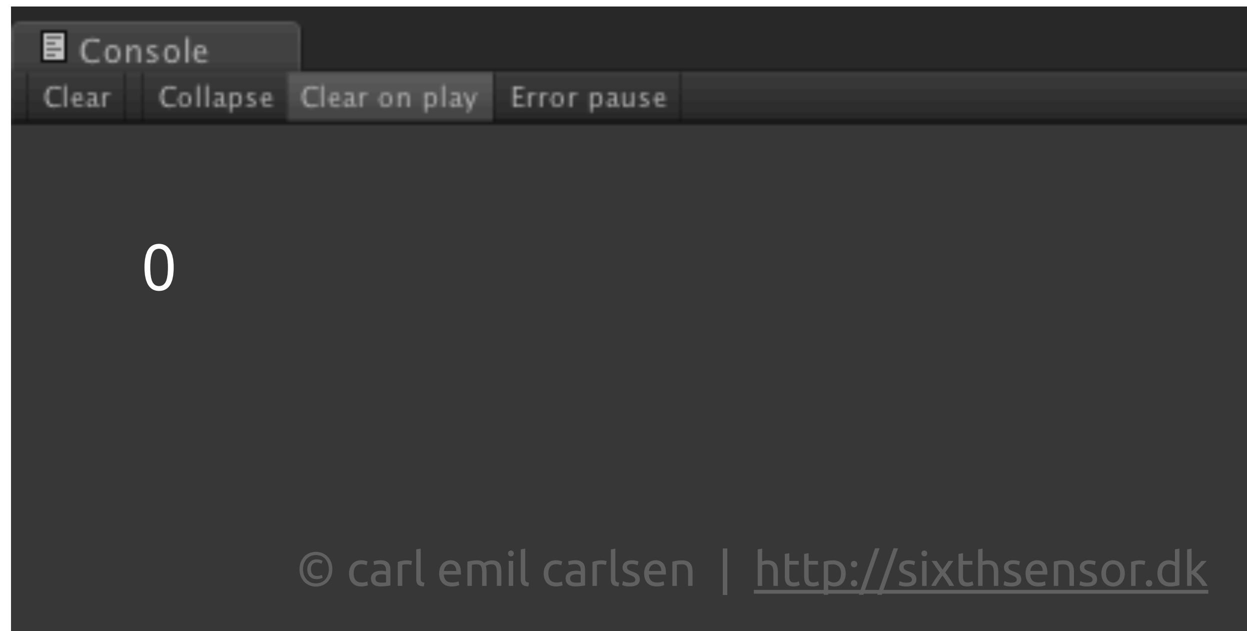
```
0
```



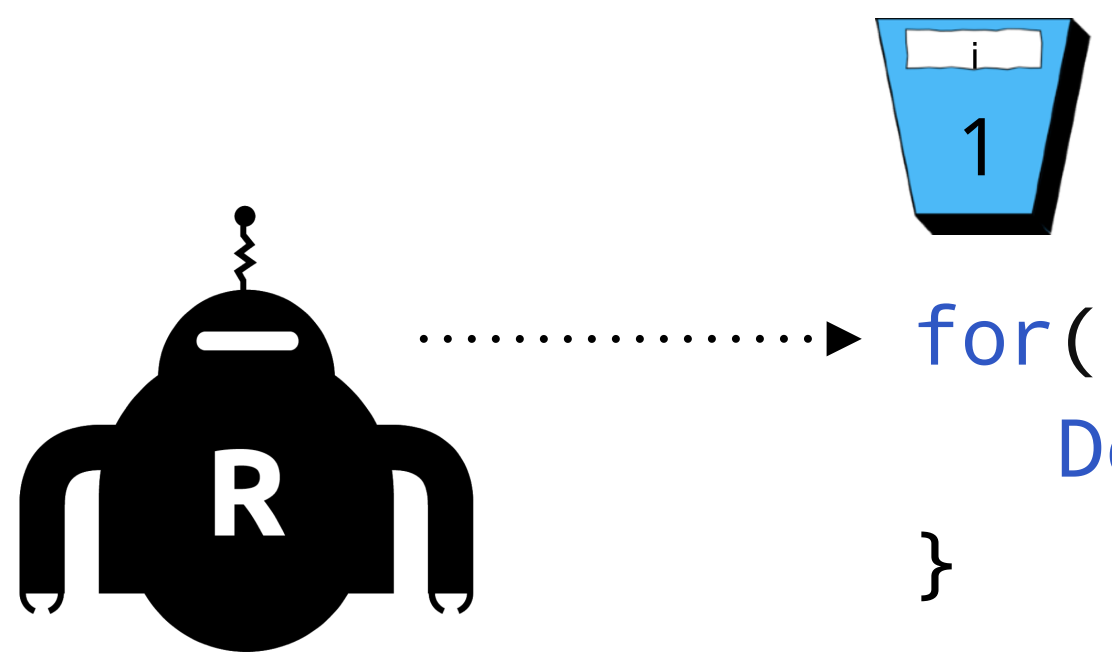
```
for( int i=0; i<2; i++ ){
    Debug.Log( i );
}
```

checking if
condition is true

the for-statement



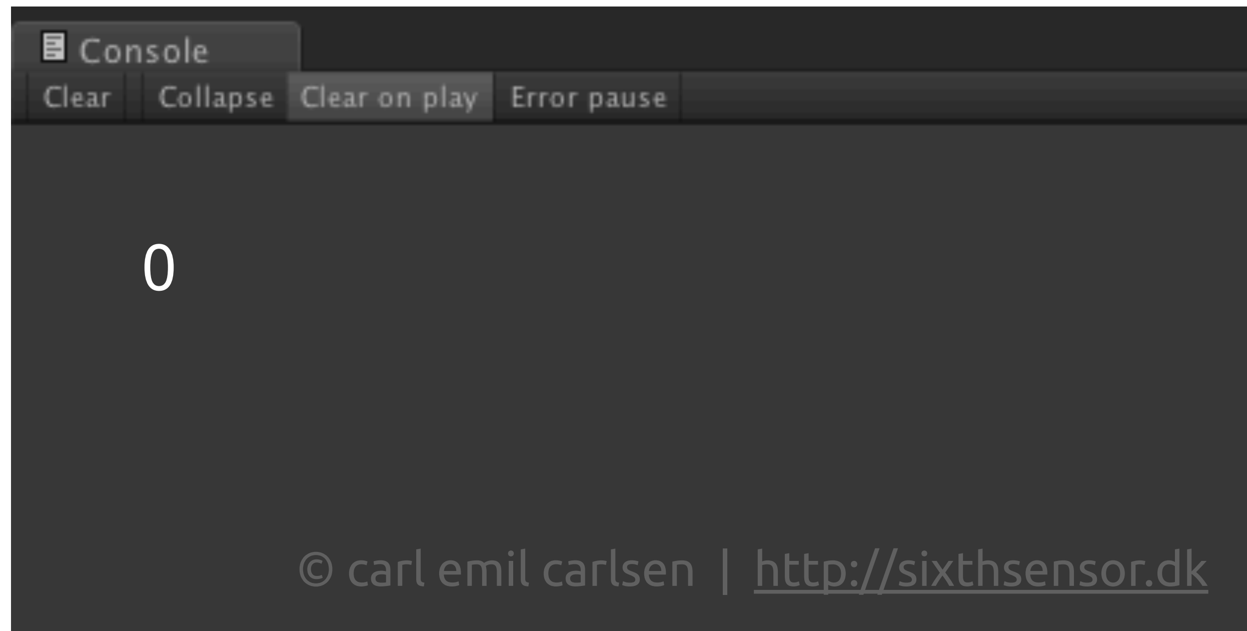
```
0
```



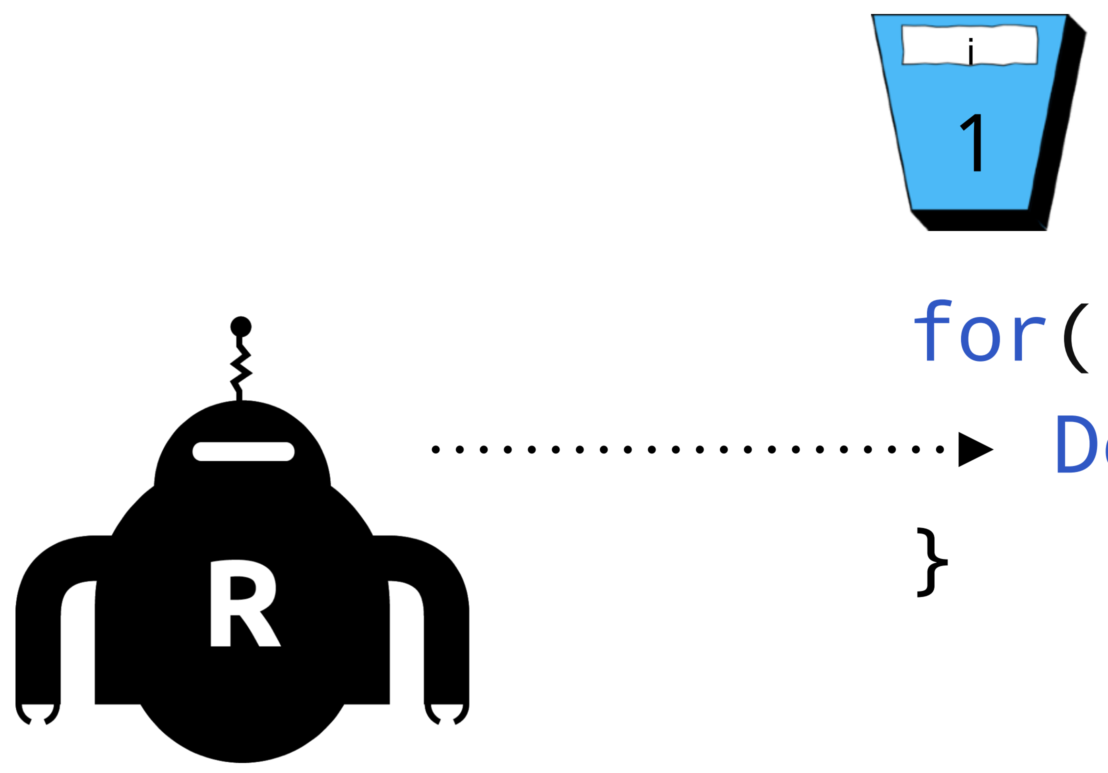
yes.
repeating the
scope

```
for( int i=0; true; i++ ){
    Debug.Log( i );
}
```

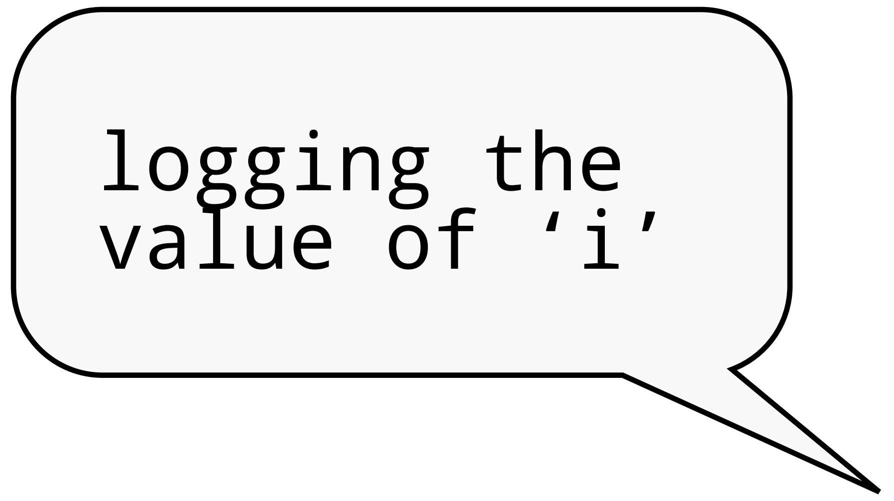
the for-statement



```
0
```

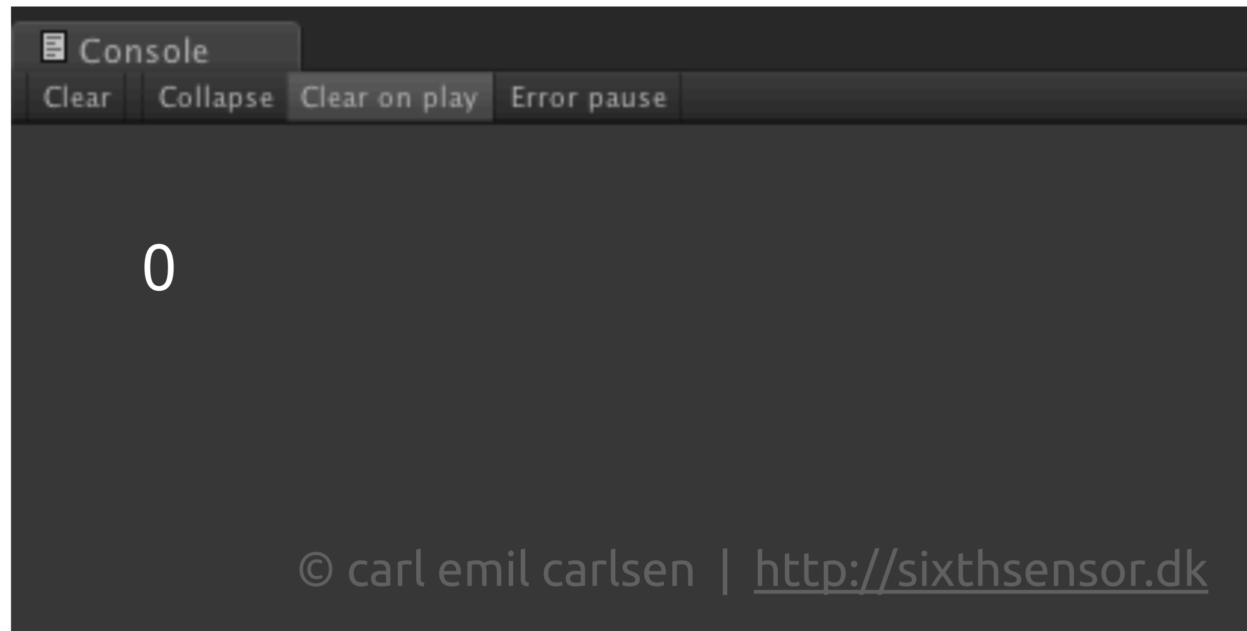


```
for( int i=0; i<2; i++ ){
  Debug.Log( i );
}
```

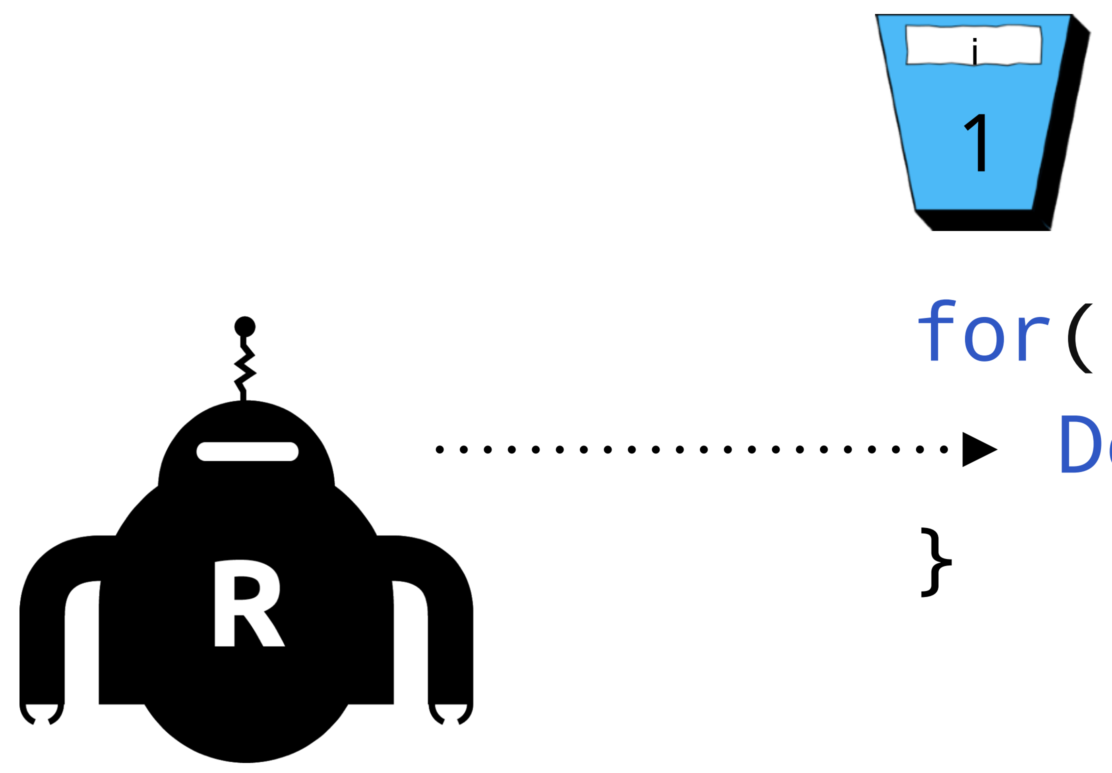


logging the
value of ‘i’

the for-statement

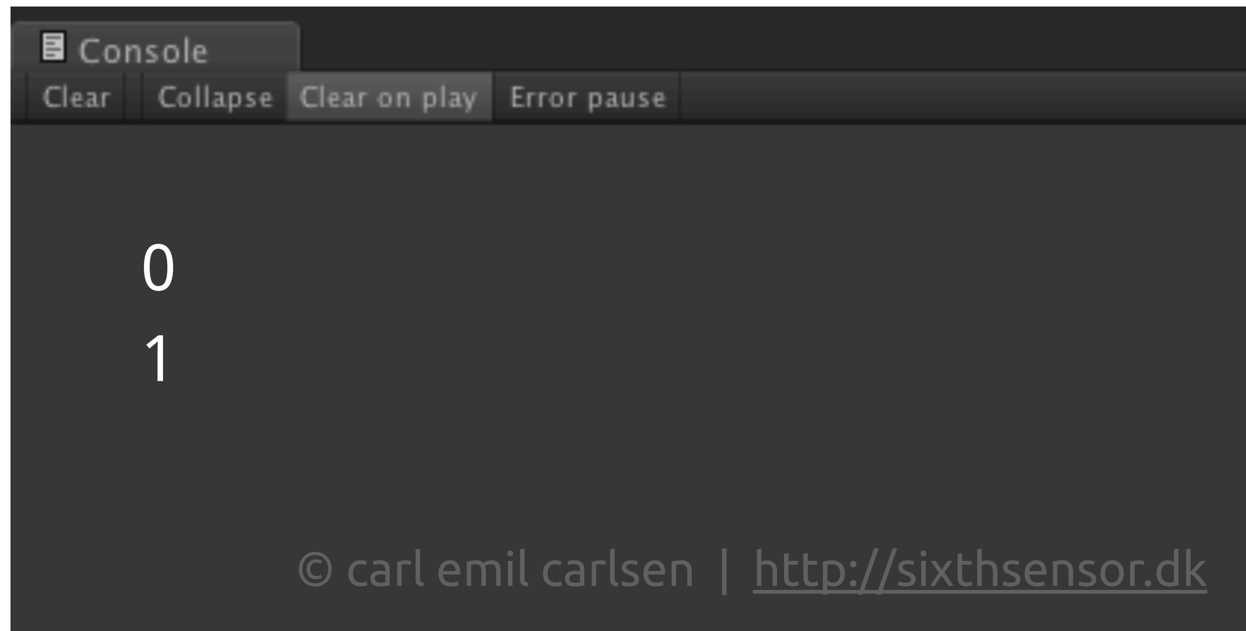


```
0
```



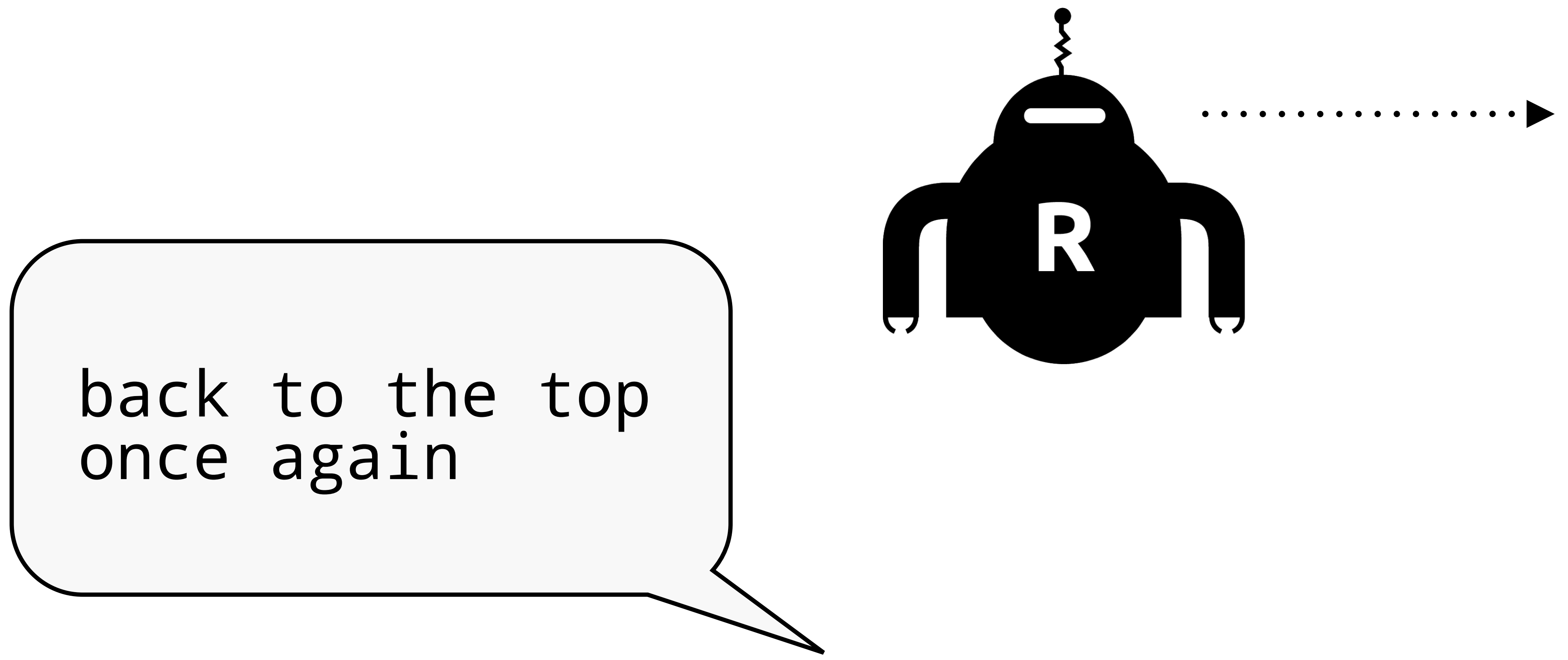
```
for( int i=0; i<2; i++ ){
  Debug.Log( i );
}
```

the for-statement

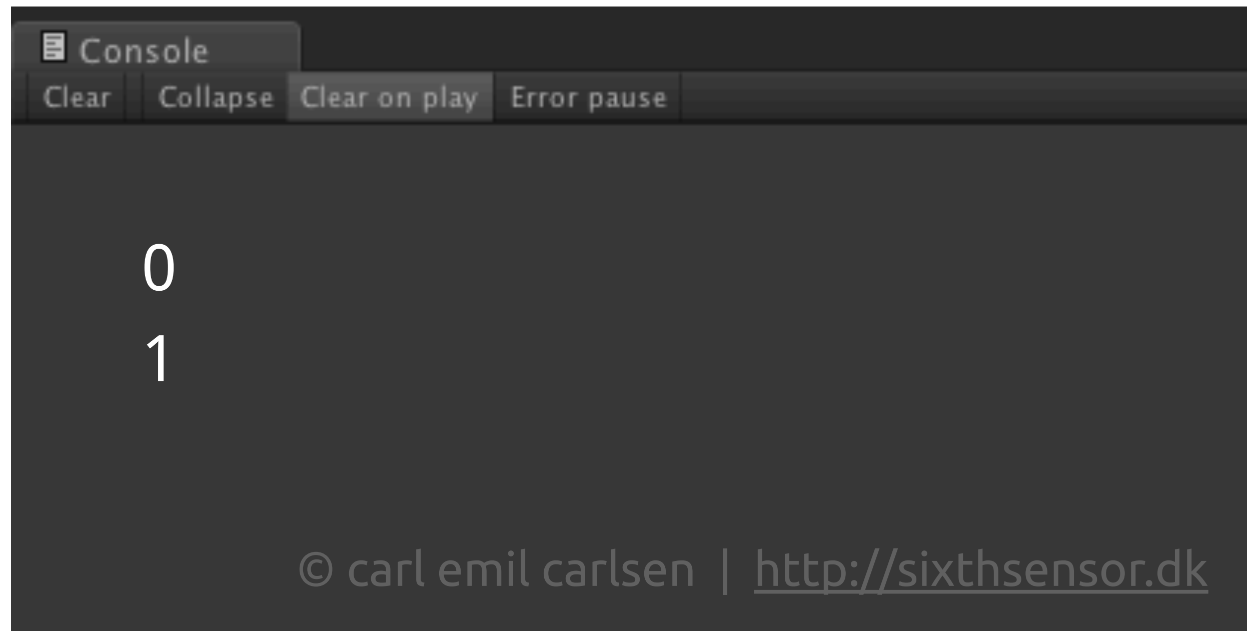


```
0
1
```

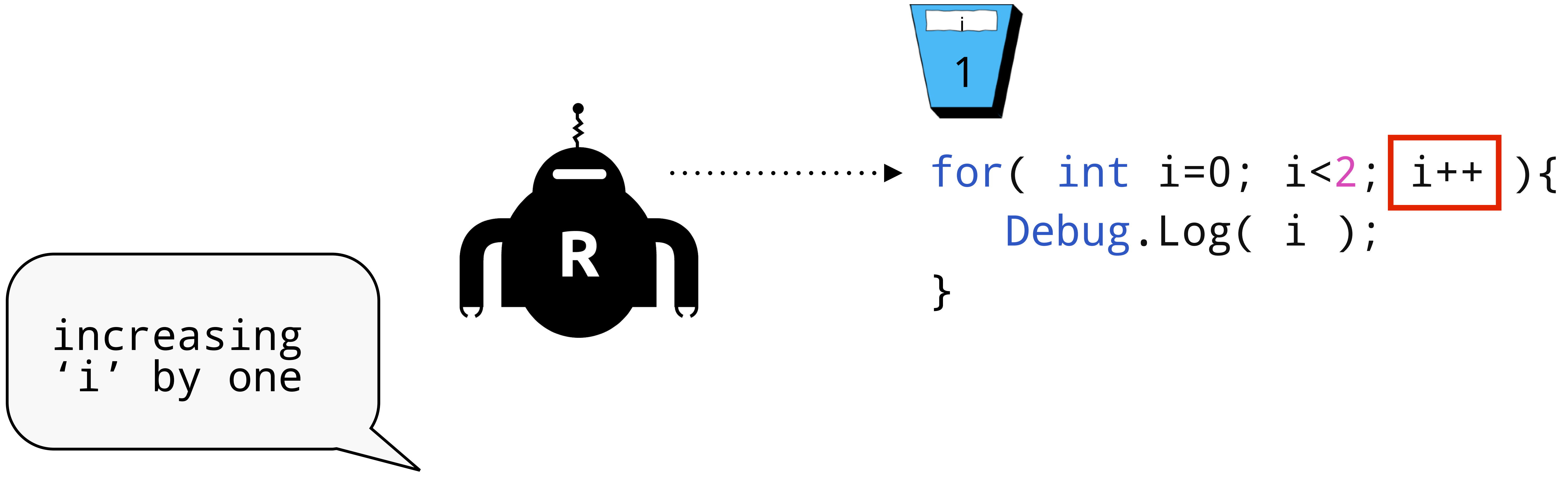
```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```



the for-statement

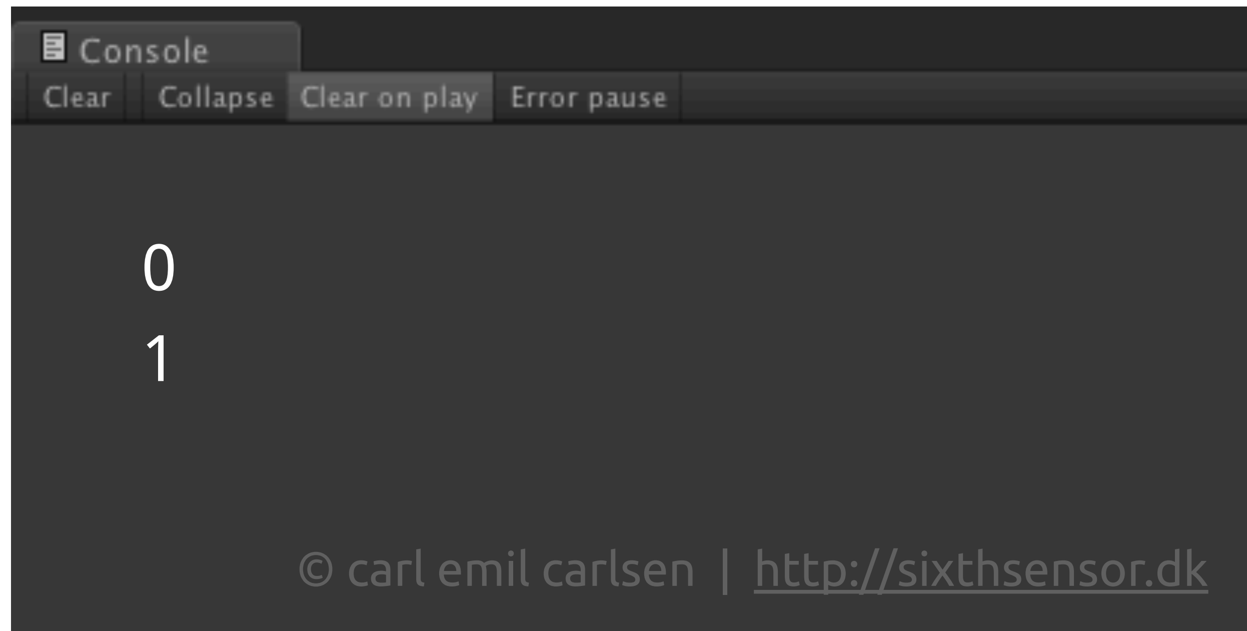


```
0
1
```

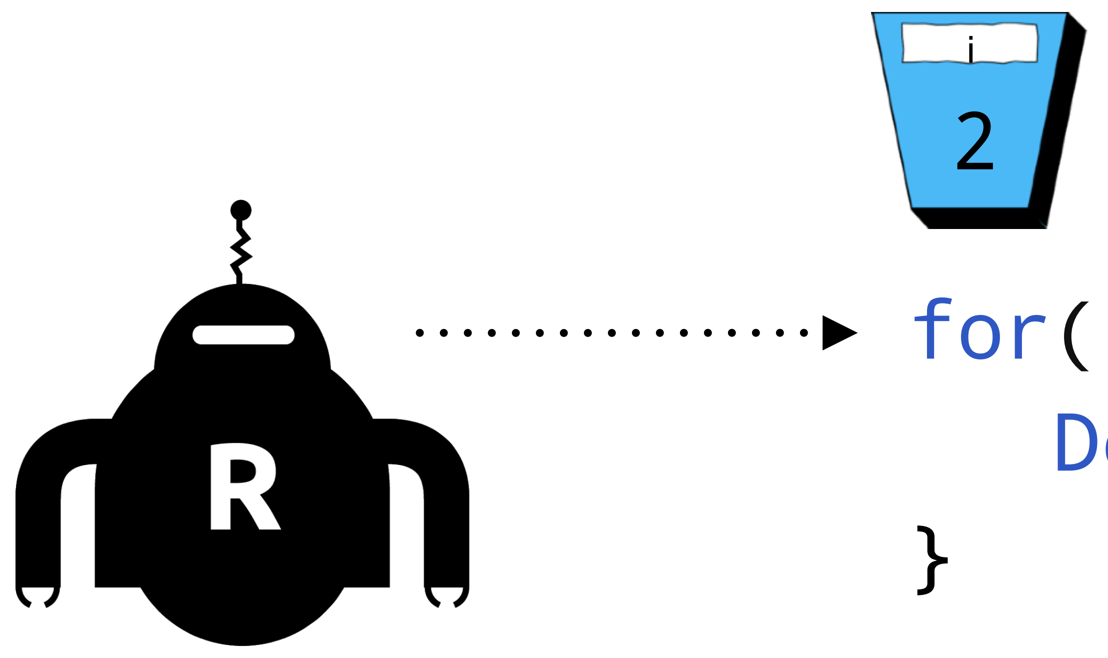


```
for( int i=0; i<2; i++ ){
    Debug.Log( i );
}
```

the for-statement

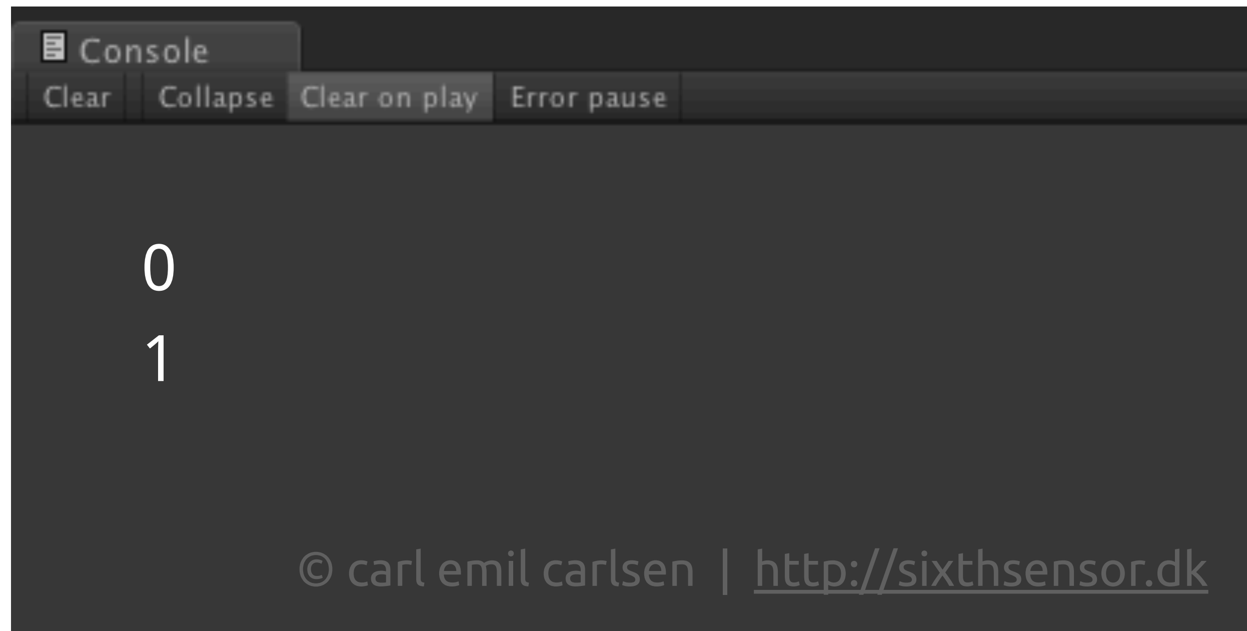


```
0
1
```

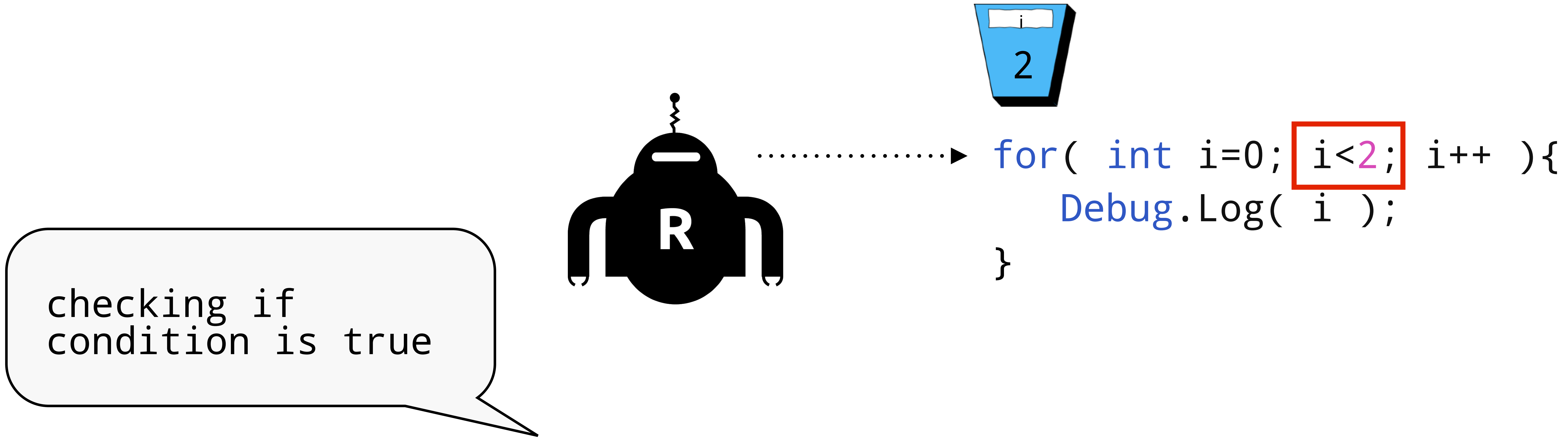


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement

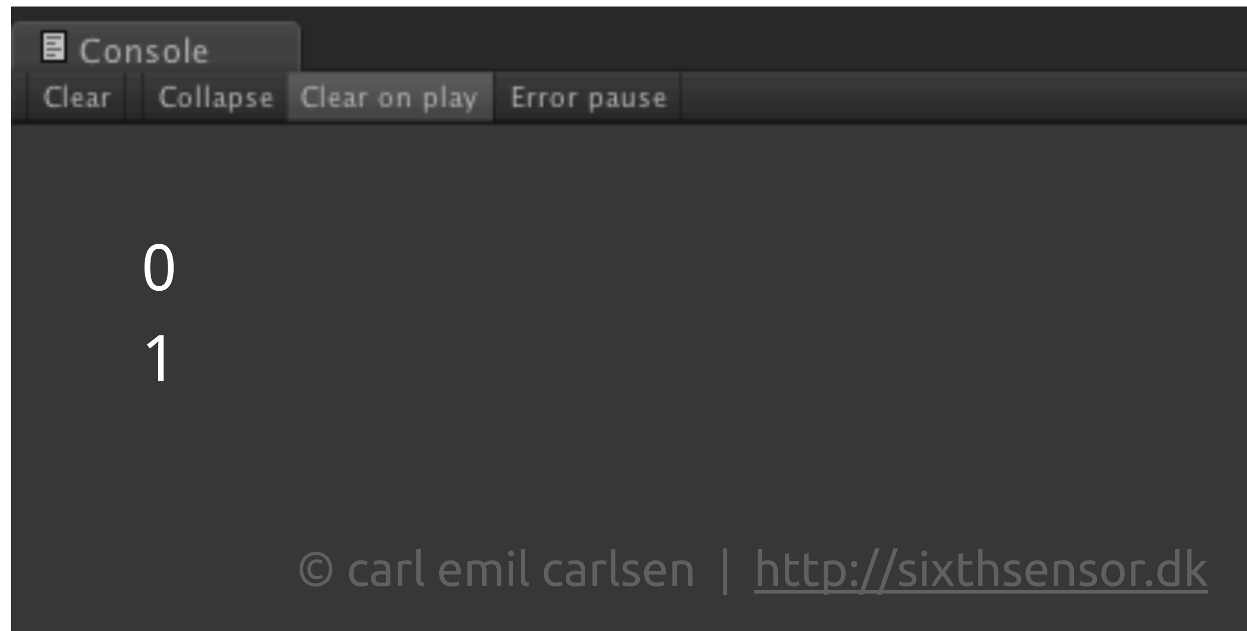


```
0
1
```

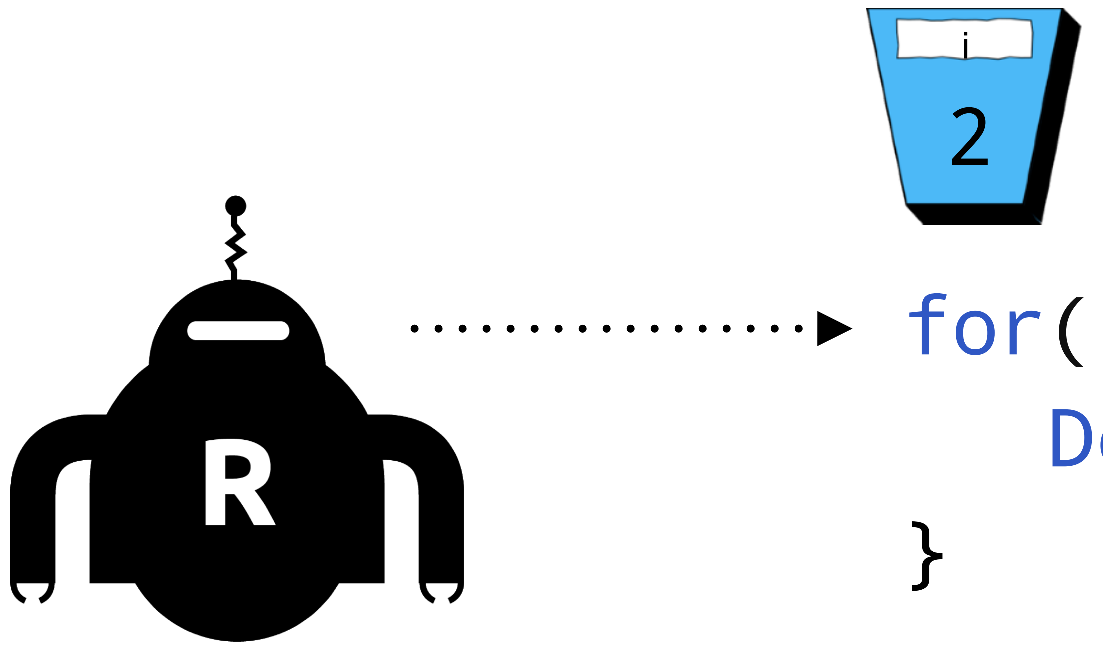


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement



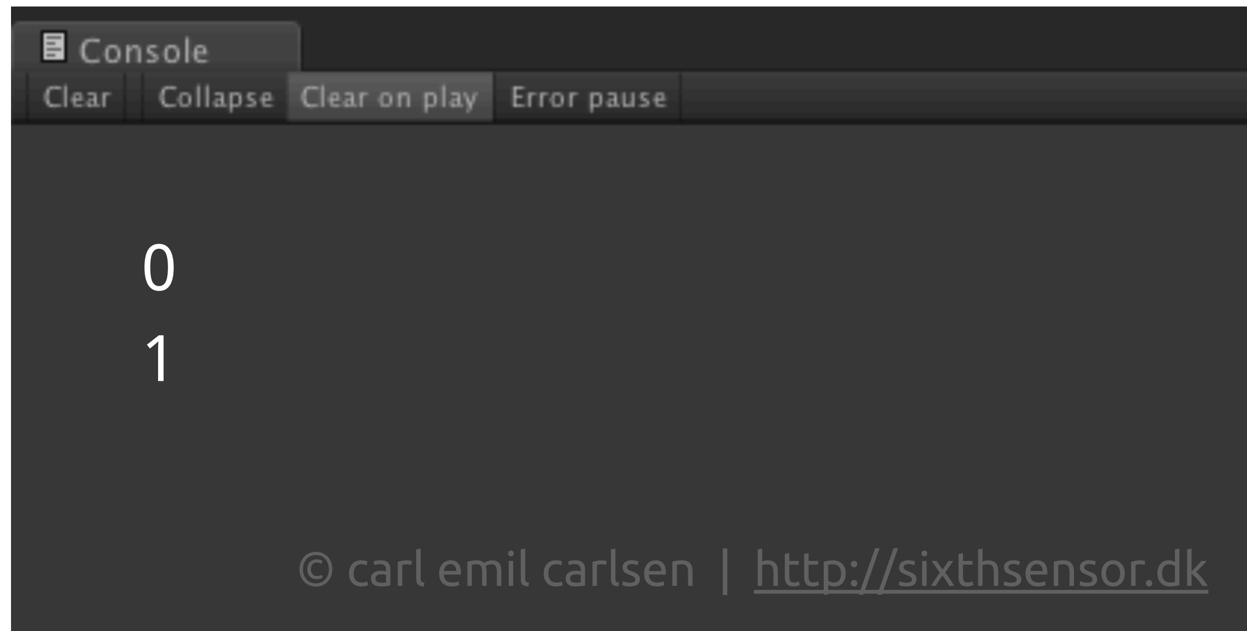
```
0
1
```



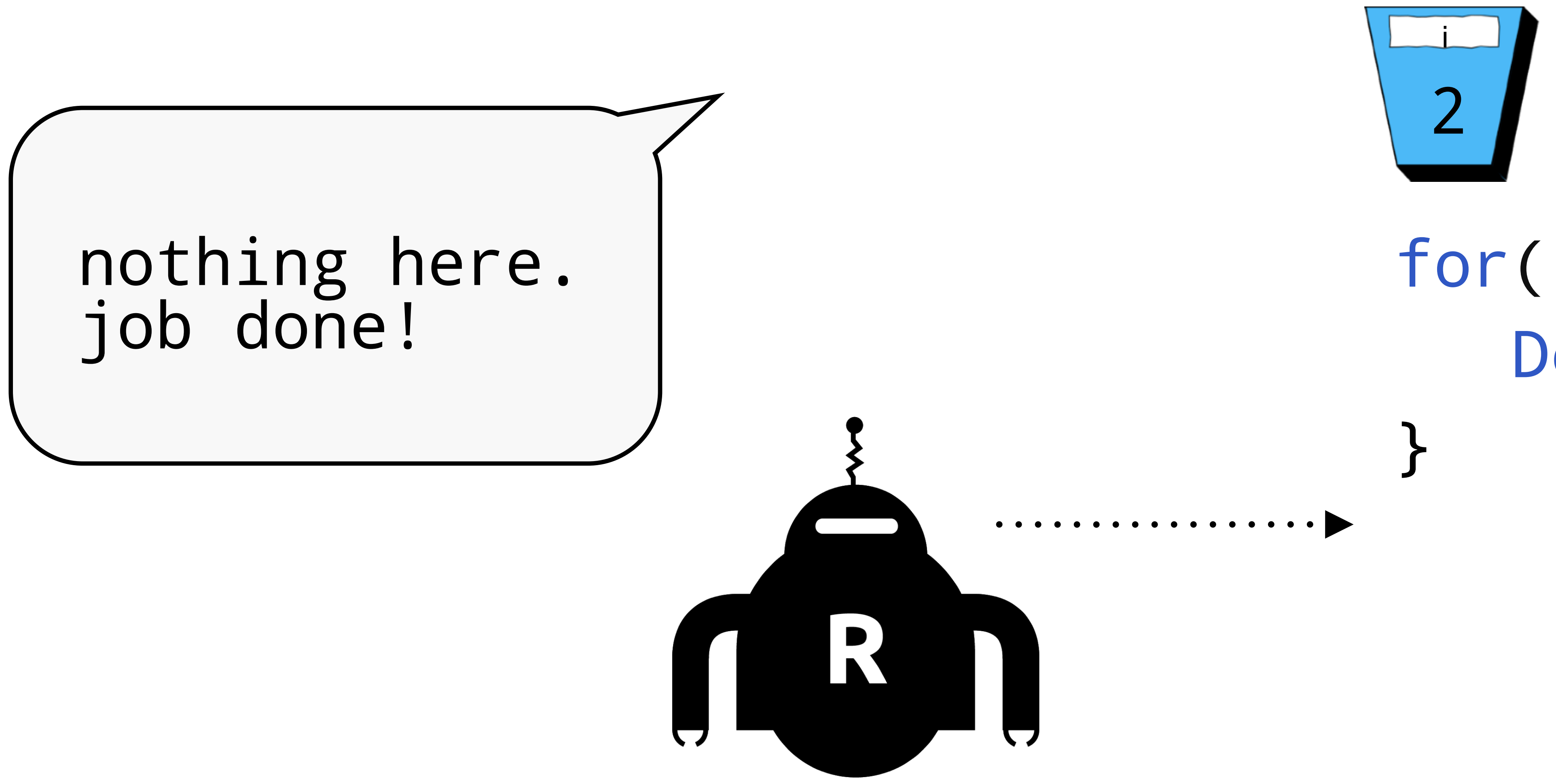
no. the loop has finished, moving on now

```
for( int i=0; false; i++ ){
    Debug.Log( i );
}
```

the for-statement

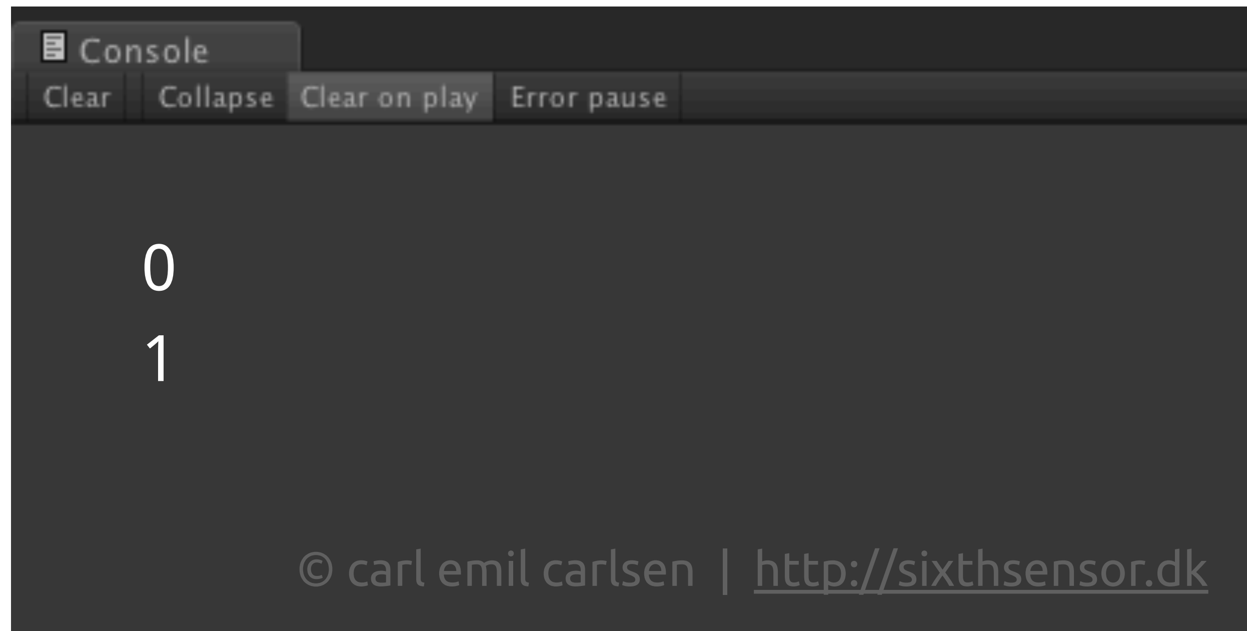


```
0
1
```

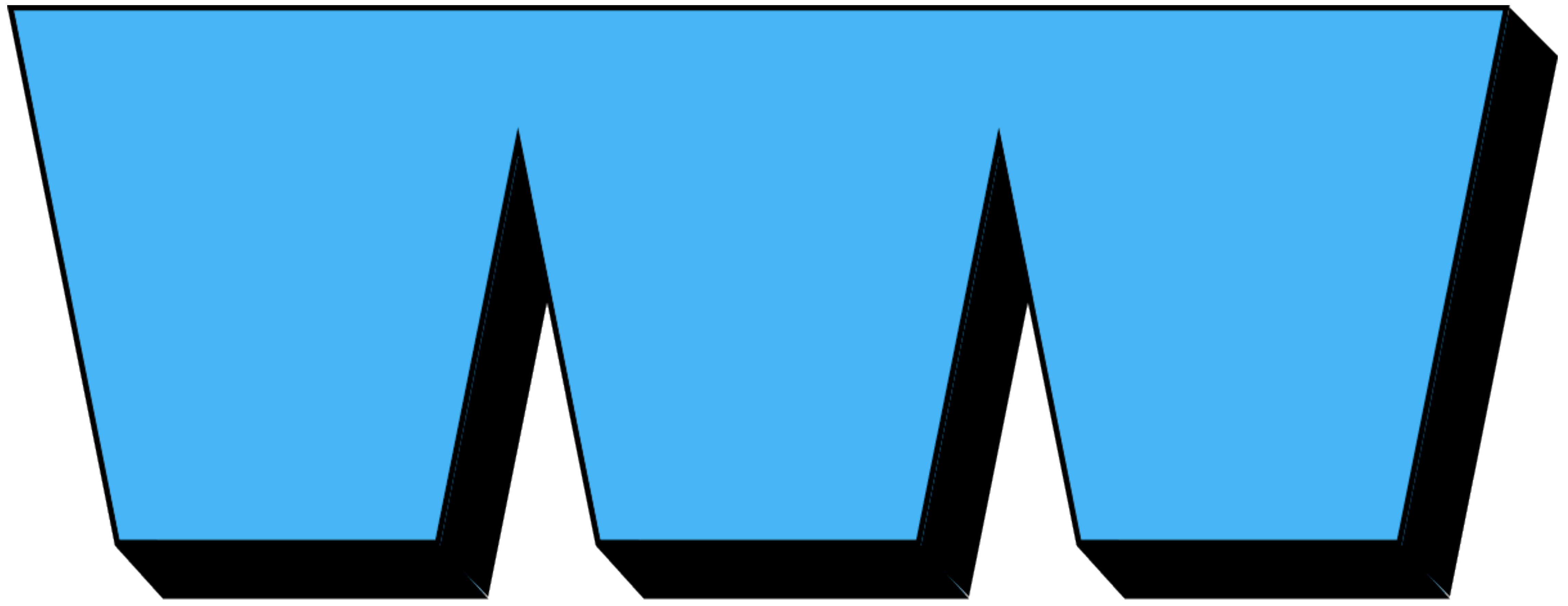


```
for( int i=0; i<2; i++ ){
   Debug.Log( i );
}
```

the for-statement



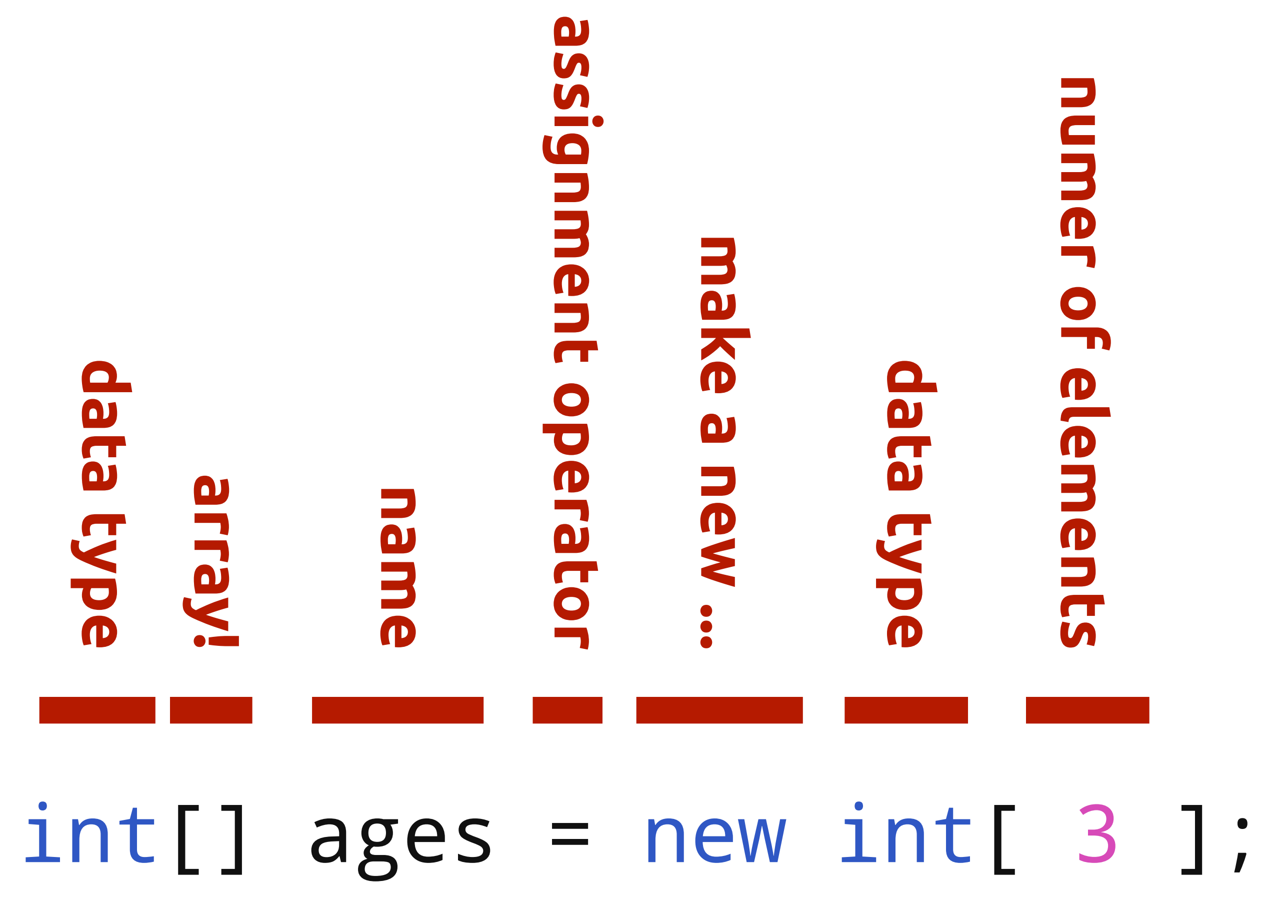
```
0
1
```



arrays

```
int[] ages = new int[ 3 ];
```

defining an array

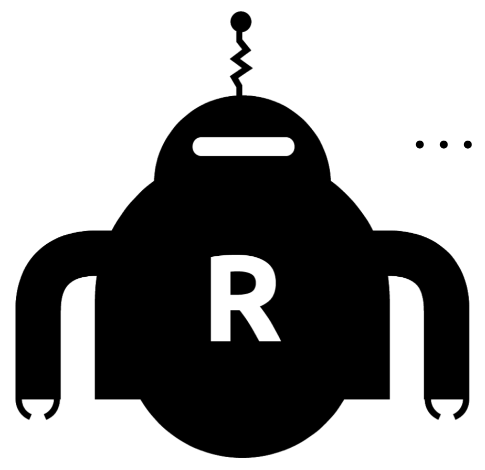


```
int[] ages = new int[ 3 ];
```

defining an array

```
int[] ages = new int[ 3 ];
```

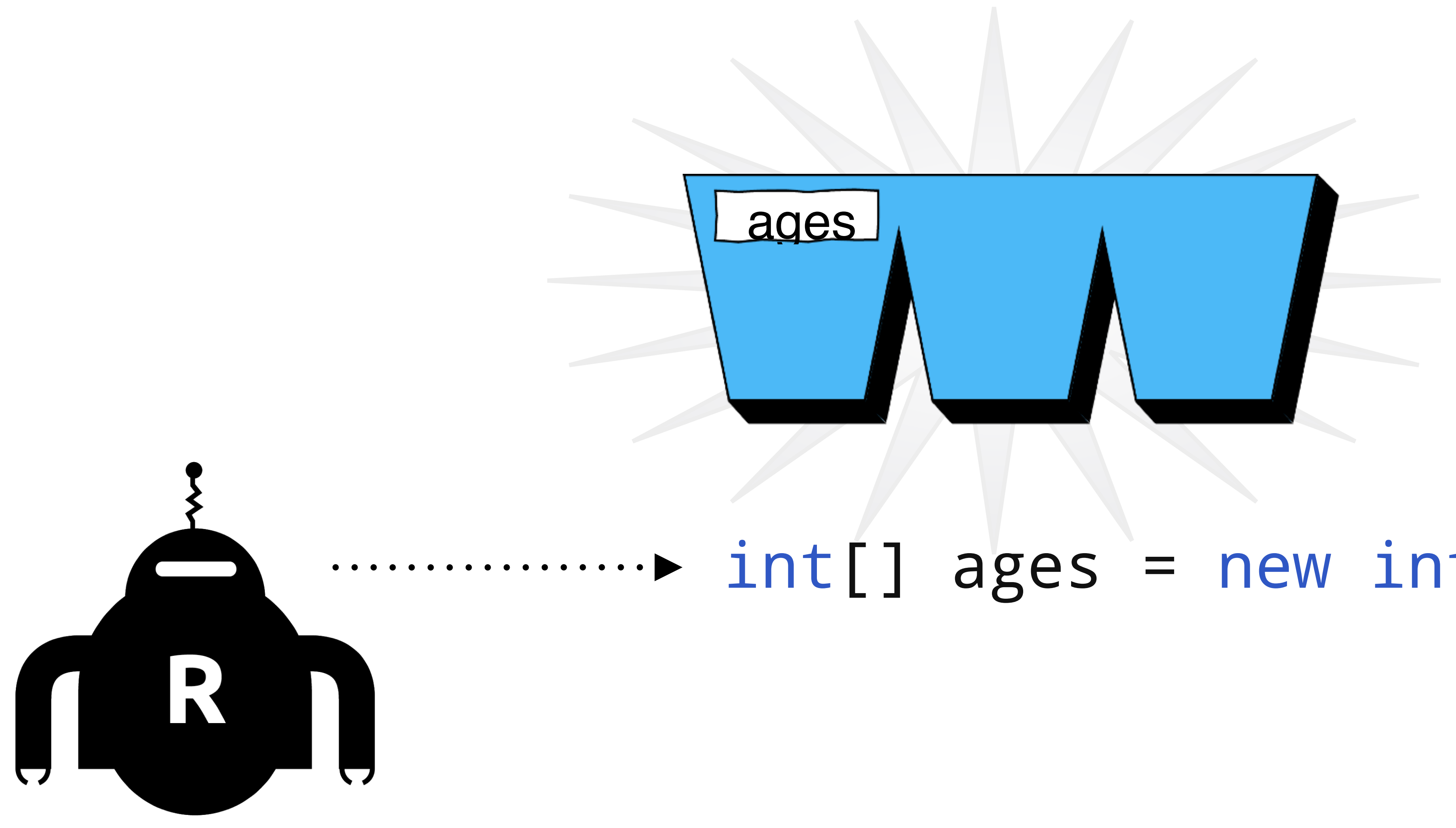
defining an array



```
creating an array
named ‘ages’ with
space for three
values
```

```
int[] ages = new int[ 3 ];
```

defining an array



```
int[] ages = new int[ 3 ];
```

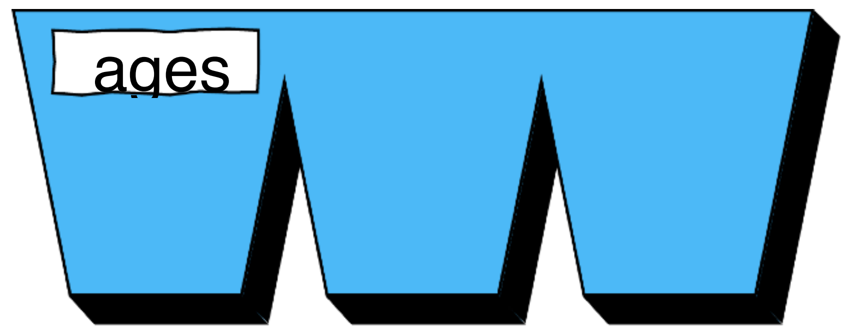
defining an array

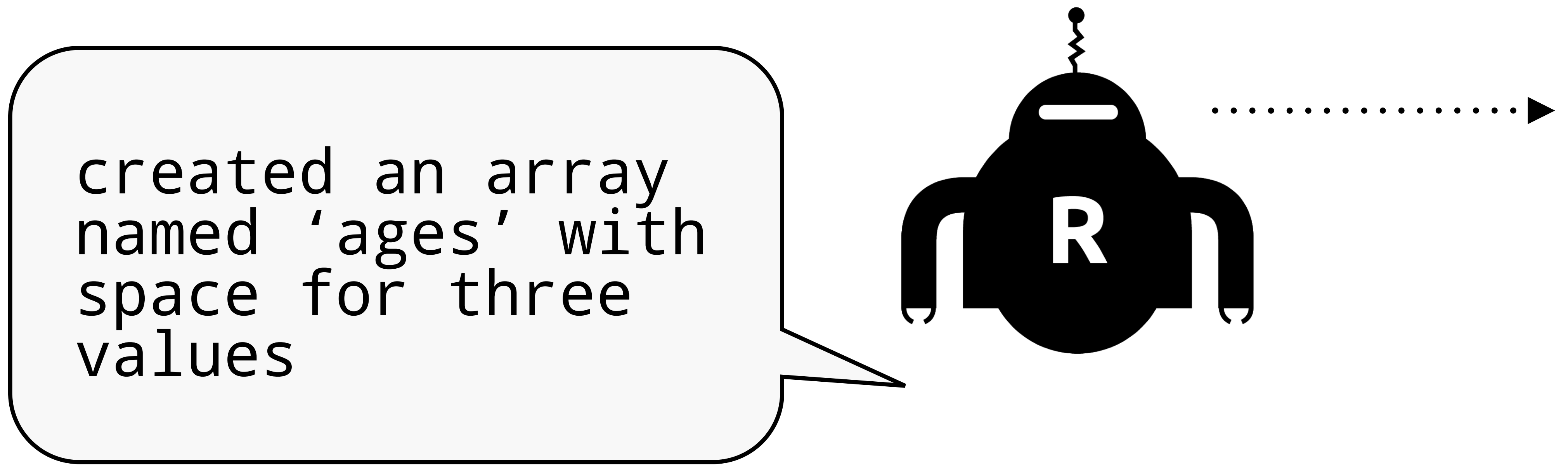
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

setting values in an array

```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

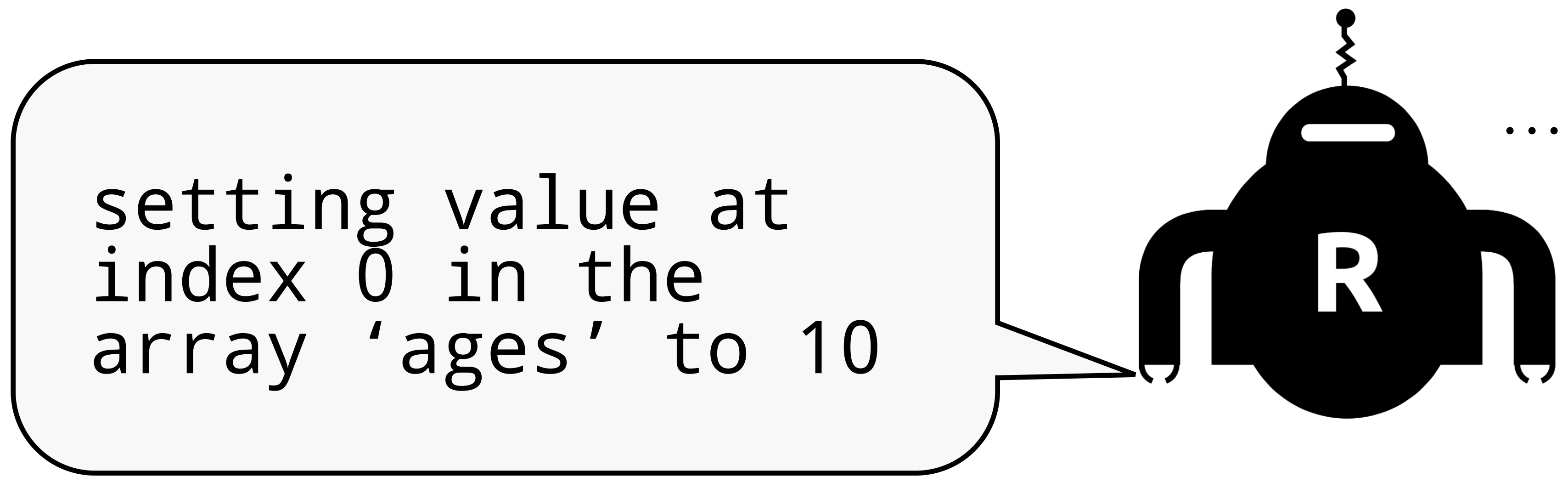
setting values in an array

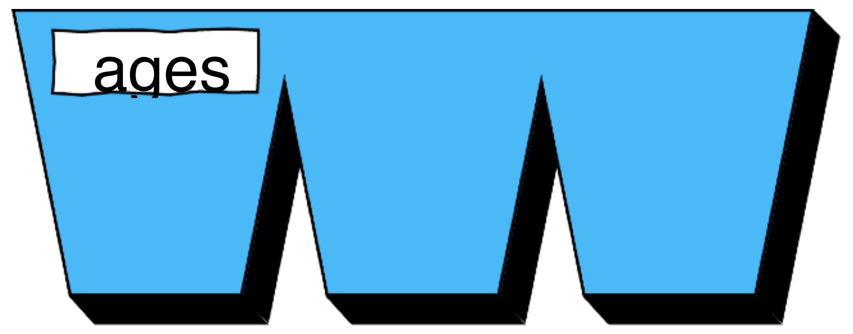




```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

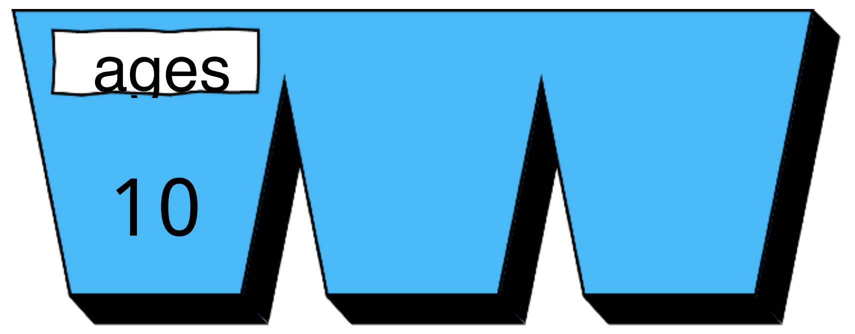
setting values in an array

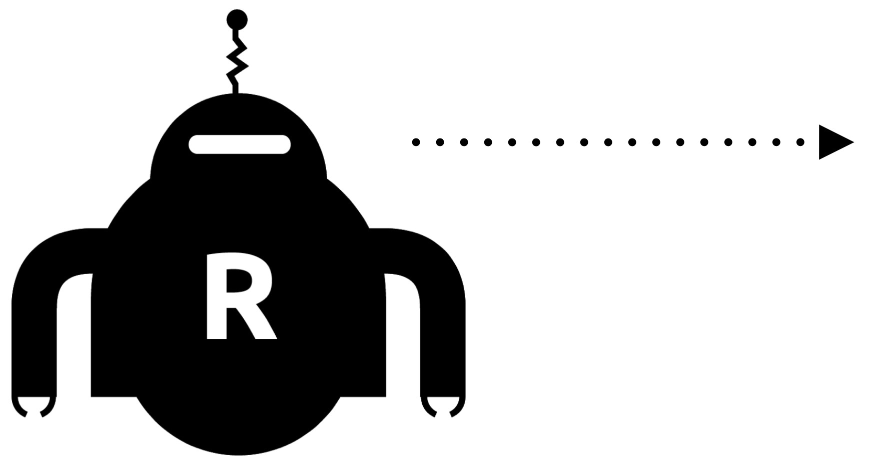




```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

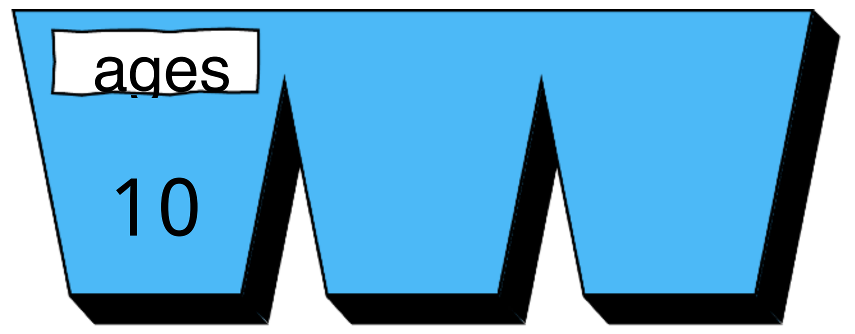
setting values in an array



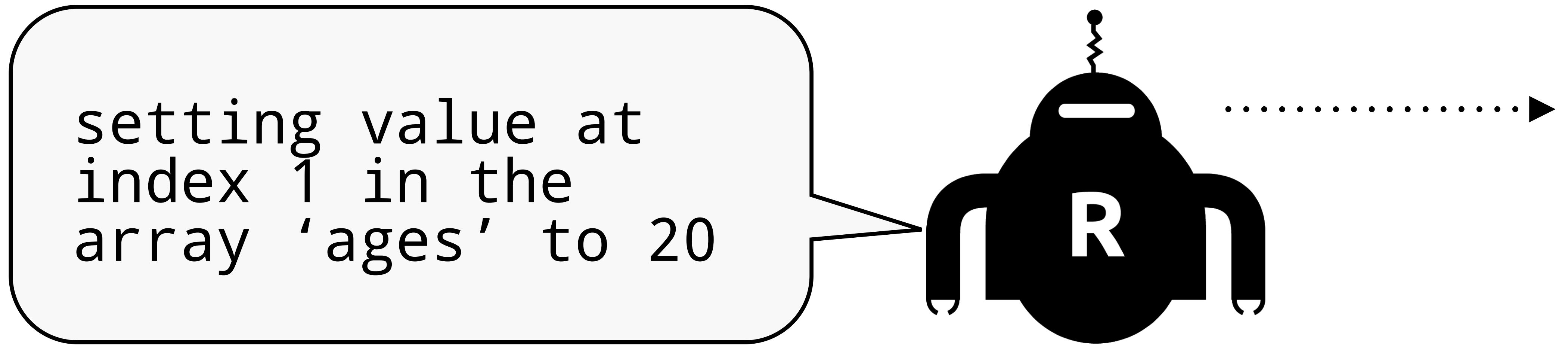


```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

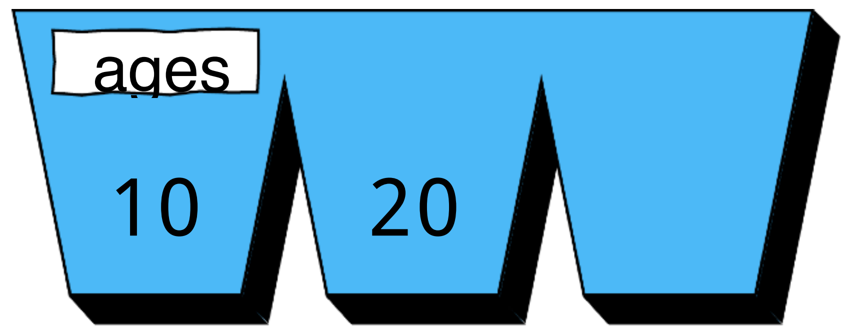
setting values in an array

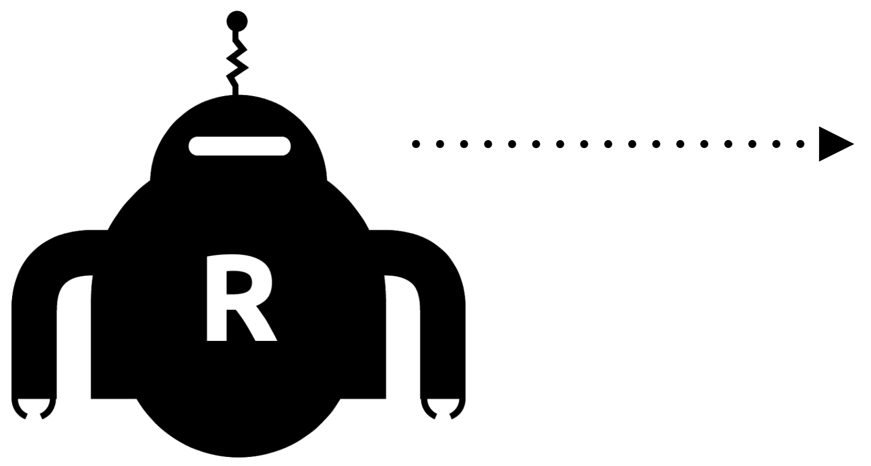


```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```



setting values in an array





```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
```

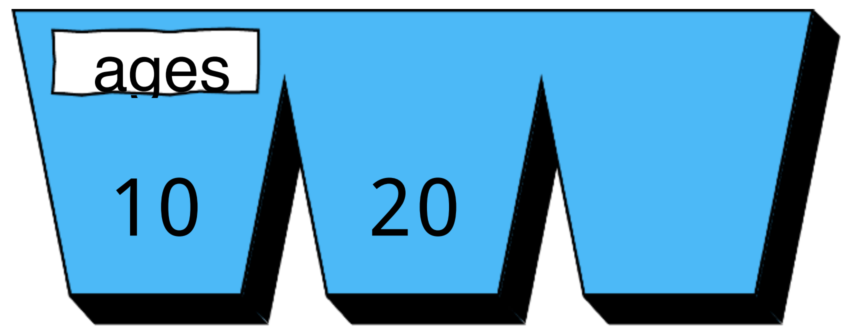
setting values in an array

```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = ages[ 0 ] + ages[ 1 ];
```

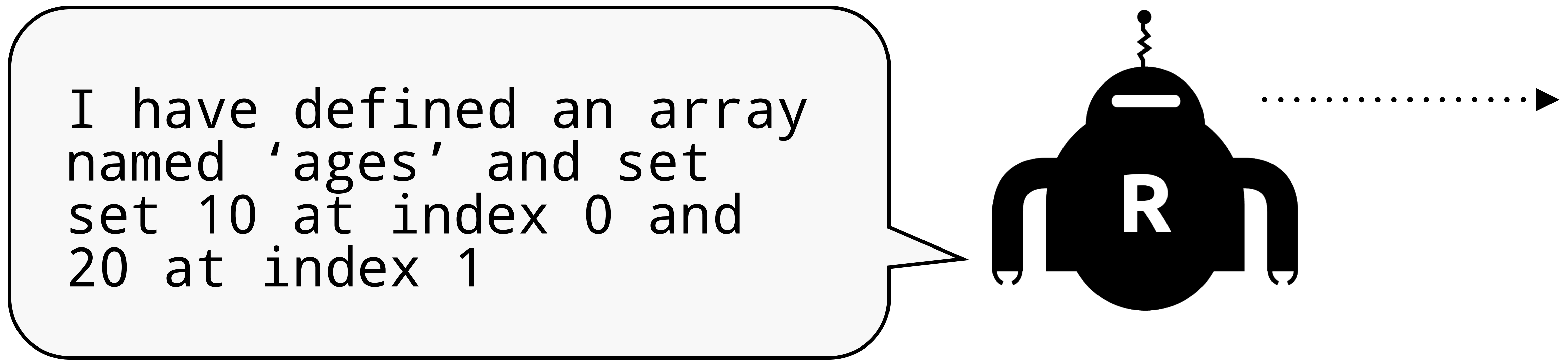
getting values from an array

```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = ages[ 0 ] + ages[ 1 ];
```

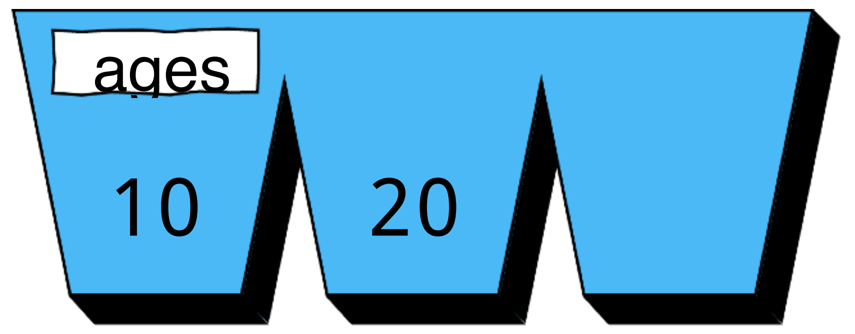
getting values from an array



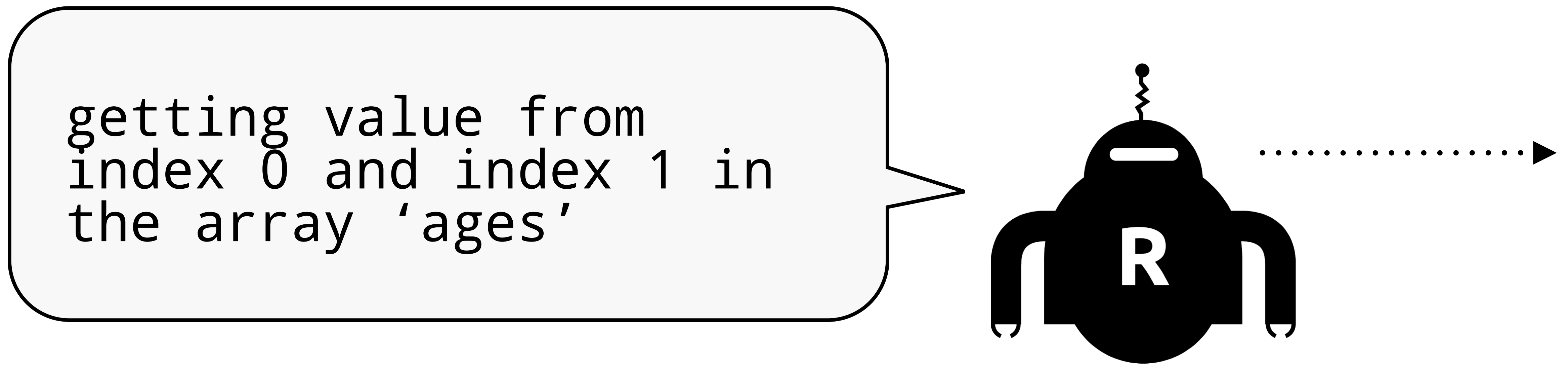
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = ages[ 0 ] + ages[ 1 ];
```


I have defined an array named ‘ages’ and set set 10 at index 0 and 20 at index 1
R

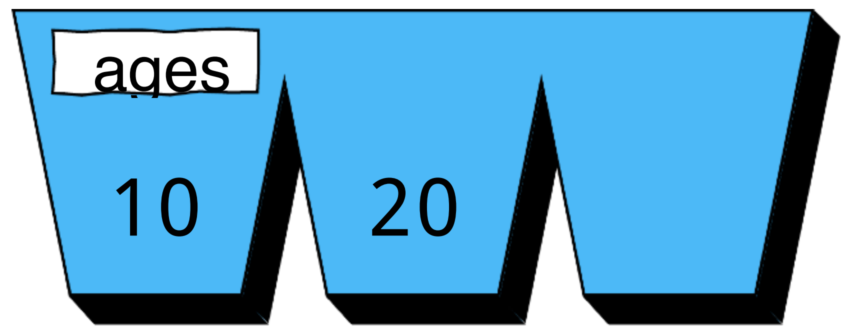
getting values from an array



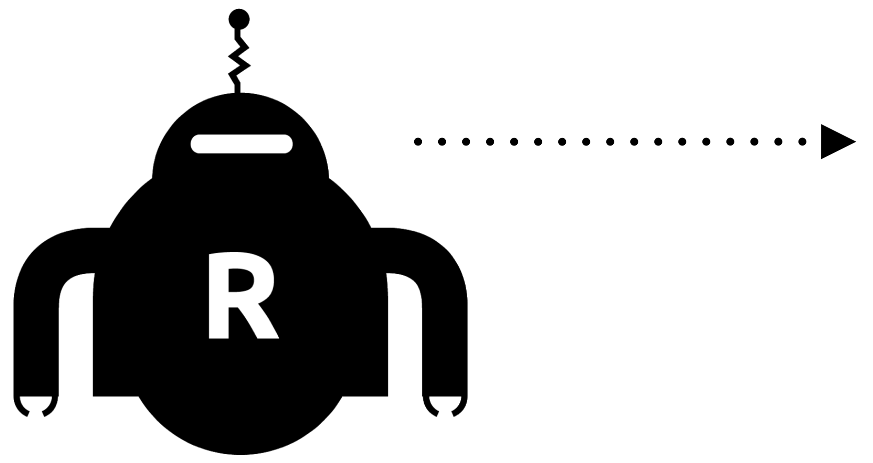
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = ages[ 0 ] + ages[ 1 ];
```



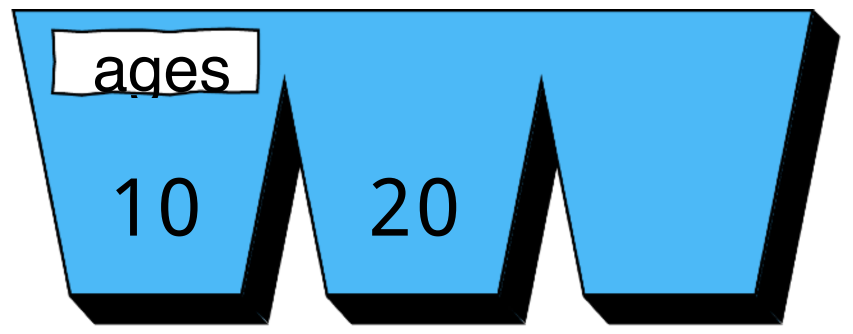
getting values from an array



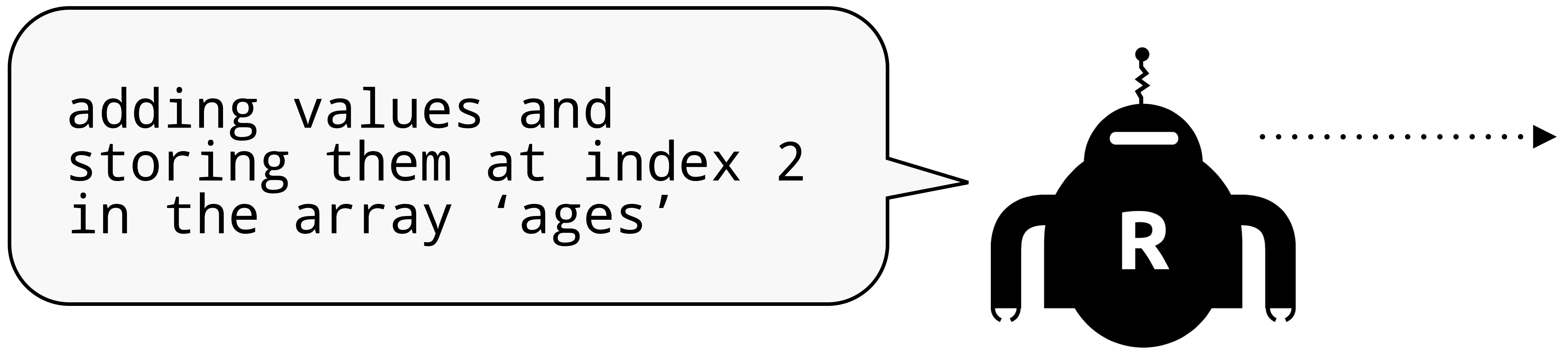
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = 10 + 20;
```



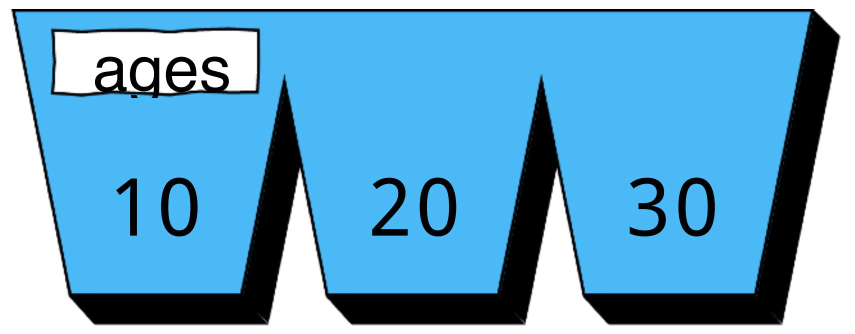
getting values from an array



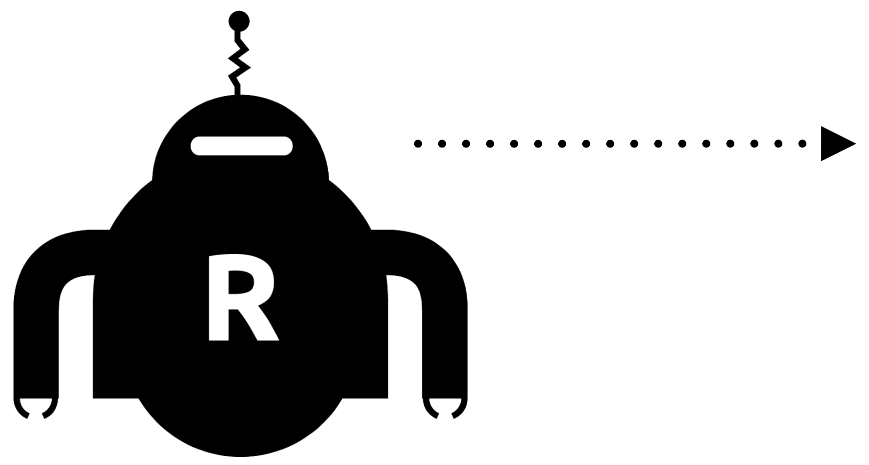
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = 10 + 20;
```


adding values and storing them at index 2 in the array ‘ages’
R

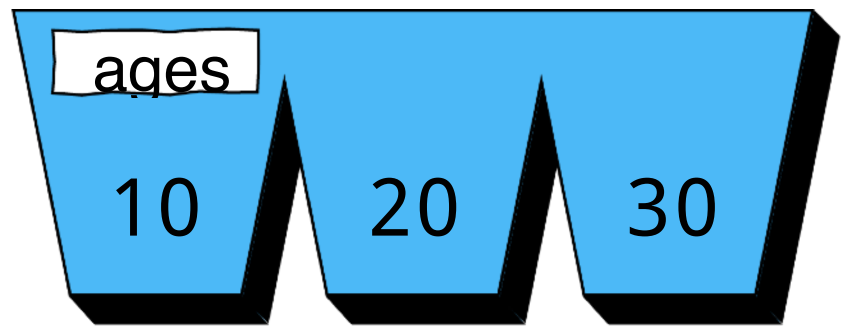
getting values from an array



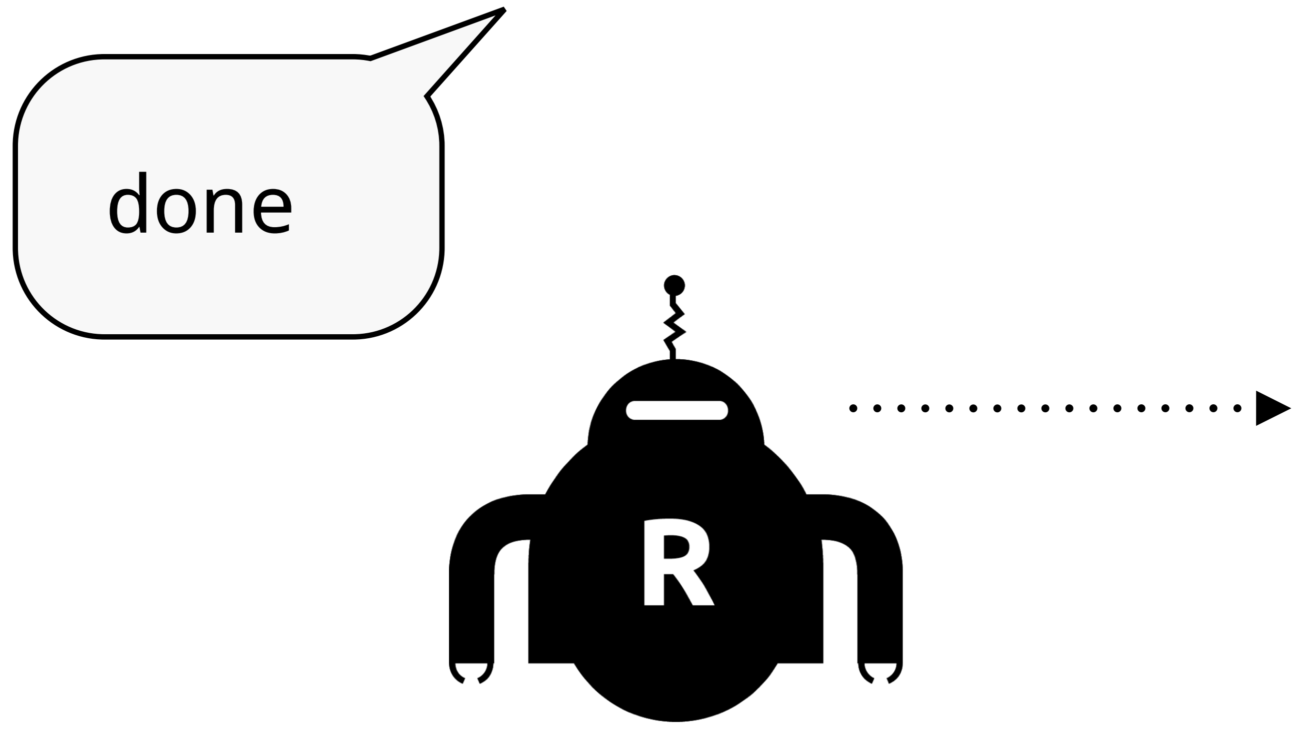
```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = 30;
```



getting values from an array



```
int[] ages = new int[ 3 ];
ages[ 0 ] = 10;
ages[ 1 ] = 20;
ages[ 2 ] = ages[ 0 ] + ages[ 1 ];
```

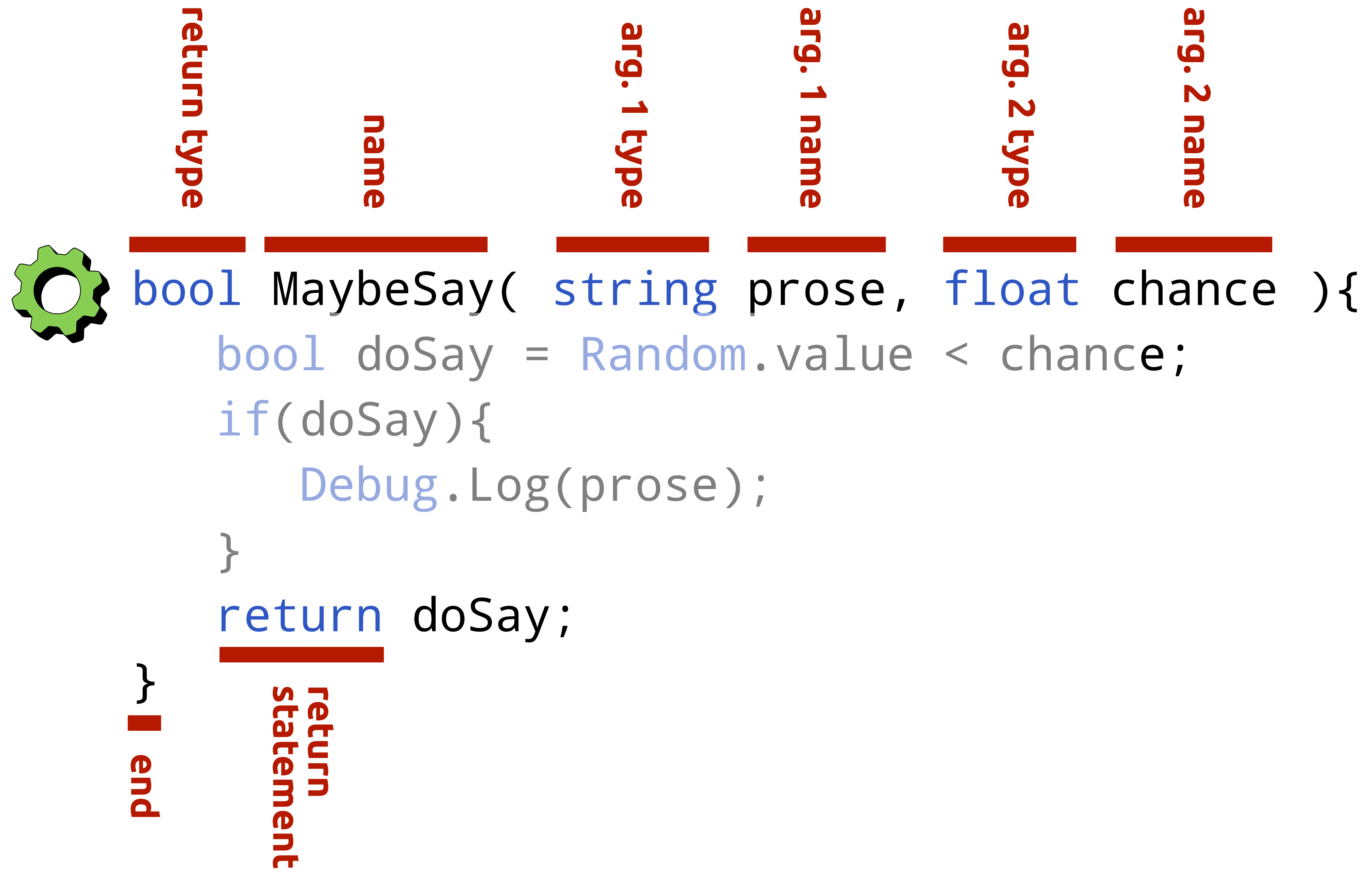


getting values from an array

defining a function with arguments and return value

```
bool MaybeSay( string prose, float chance ){
   bool doSay = Random.value < chance;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

defining a function with
arguments and return value



```
bool MaybeSay( string prose, float chance ){
   bool doSay = Random.value < chance;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

defining a function with arguments and return value

```
void Start(){
   bool didSay = MaybeSay( “hurrah”, 0.5f );
   Debug.Log( “did say hurrah: ” + didSay );
}
```

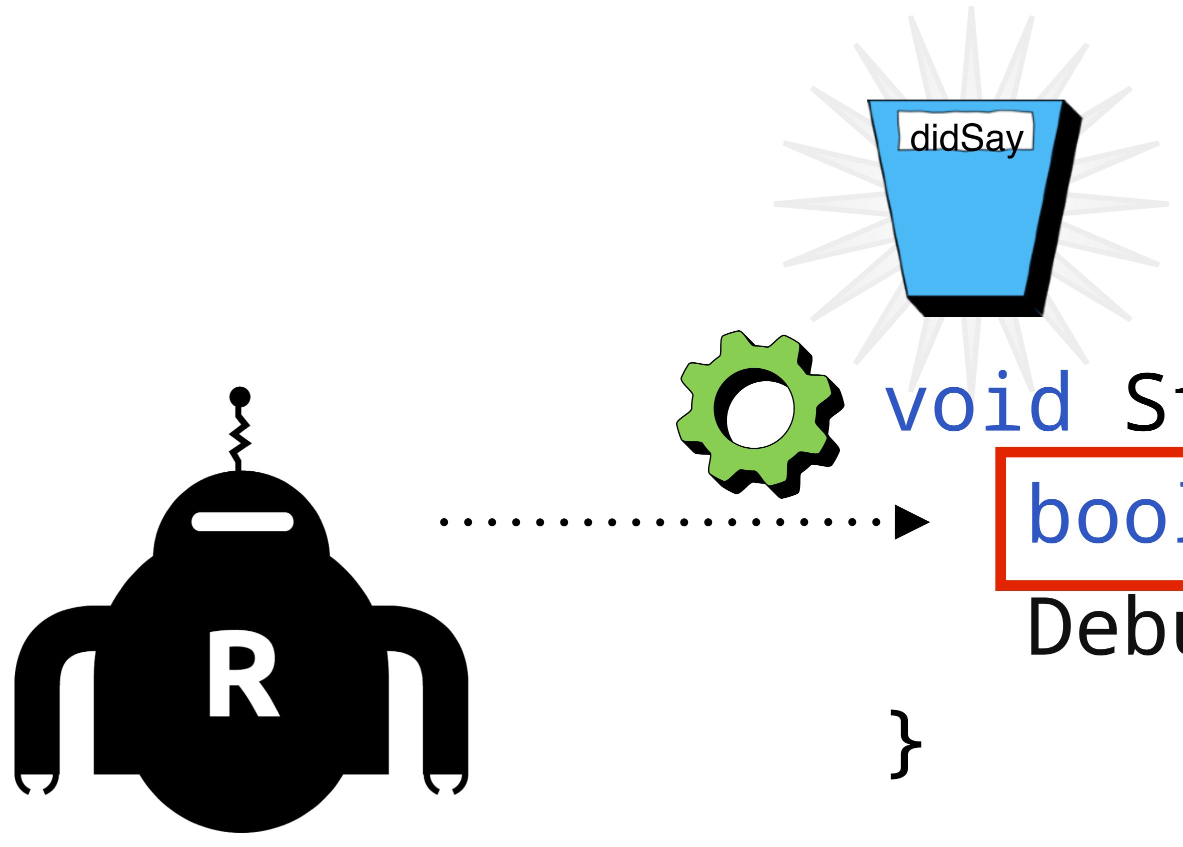
```
bool MaybeSay( string prose, float chance ){
   bool doSay = Random.value < chance;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

defining a function with
arguments and return value

```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value

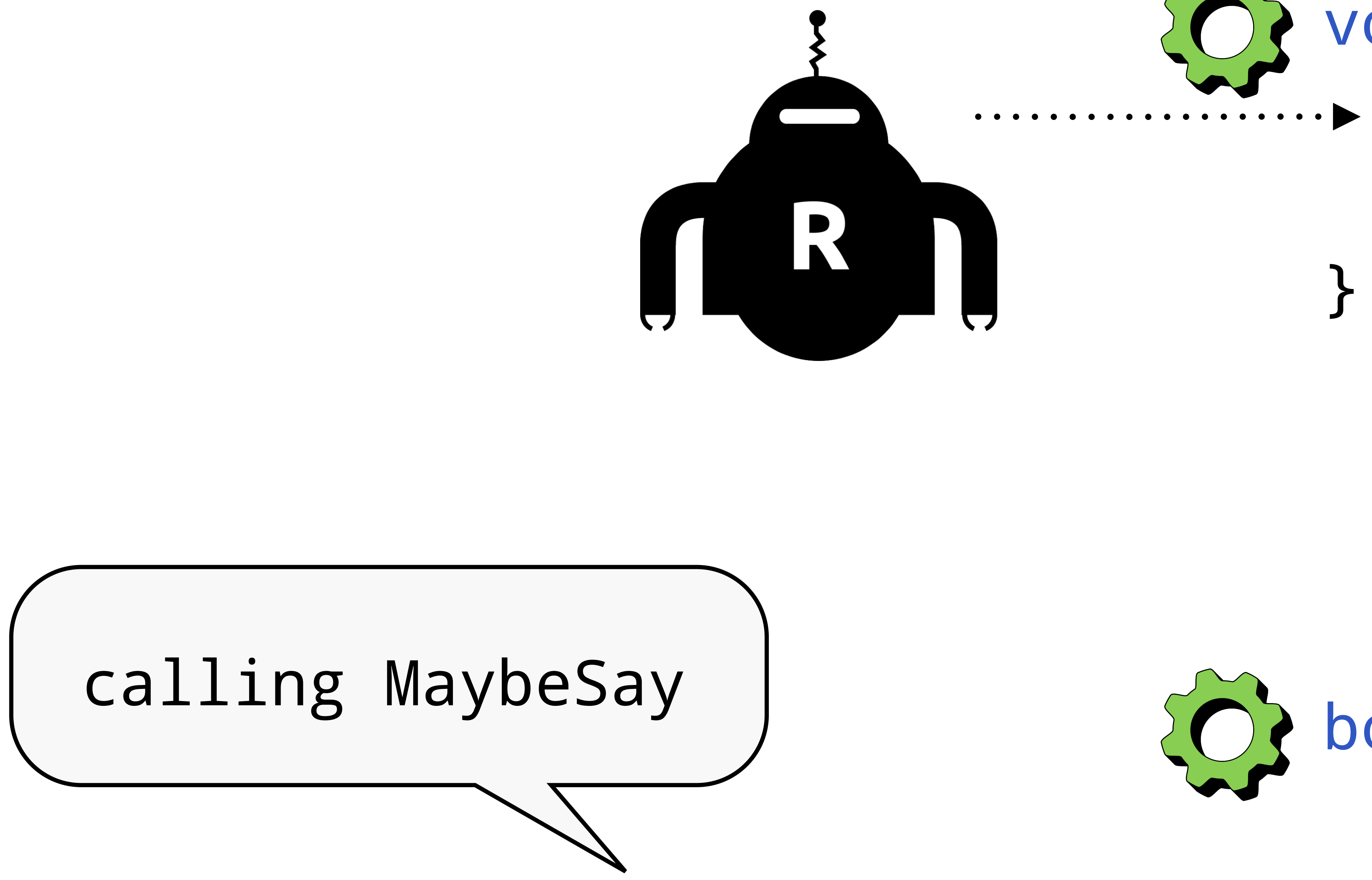


```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

creating a
local variable

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

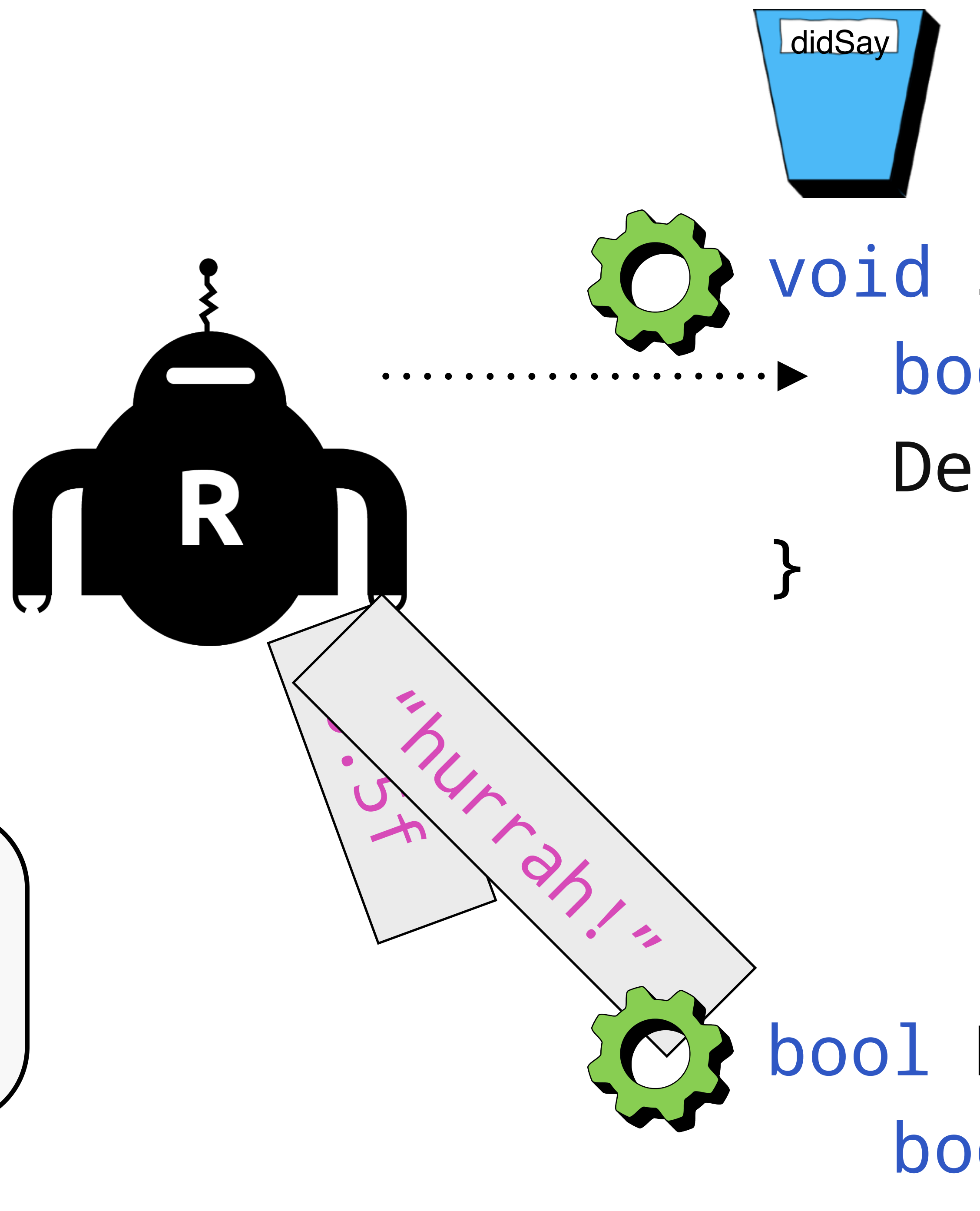
defining a function with arguments and return value



```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

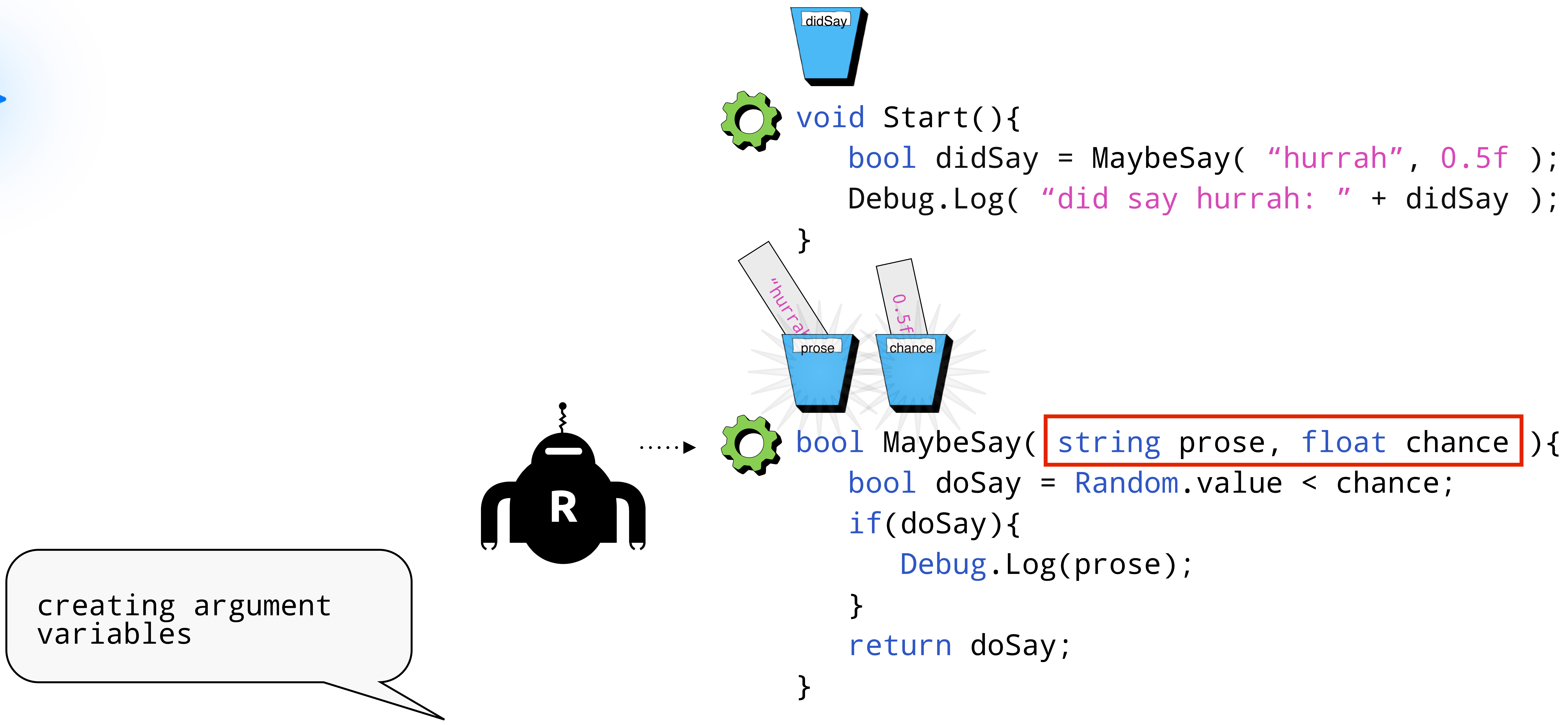
defining a function with arguments and return value



```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}

bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

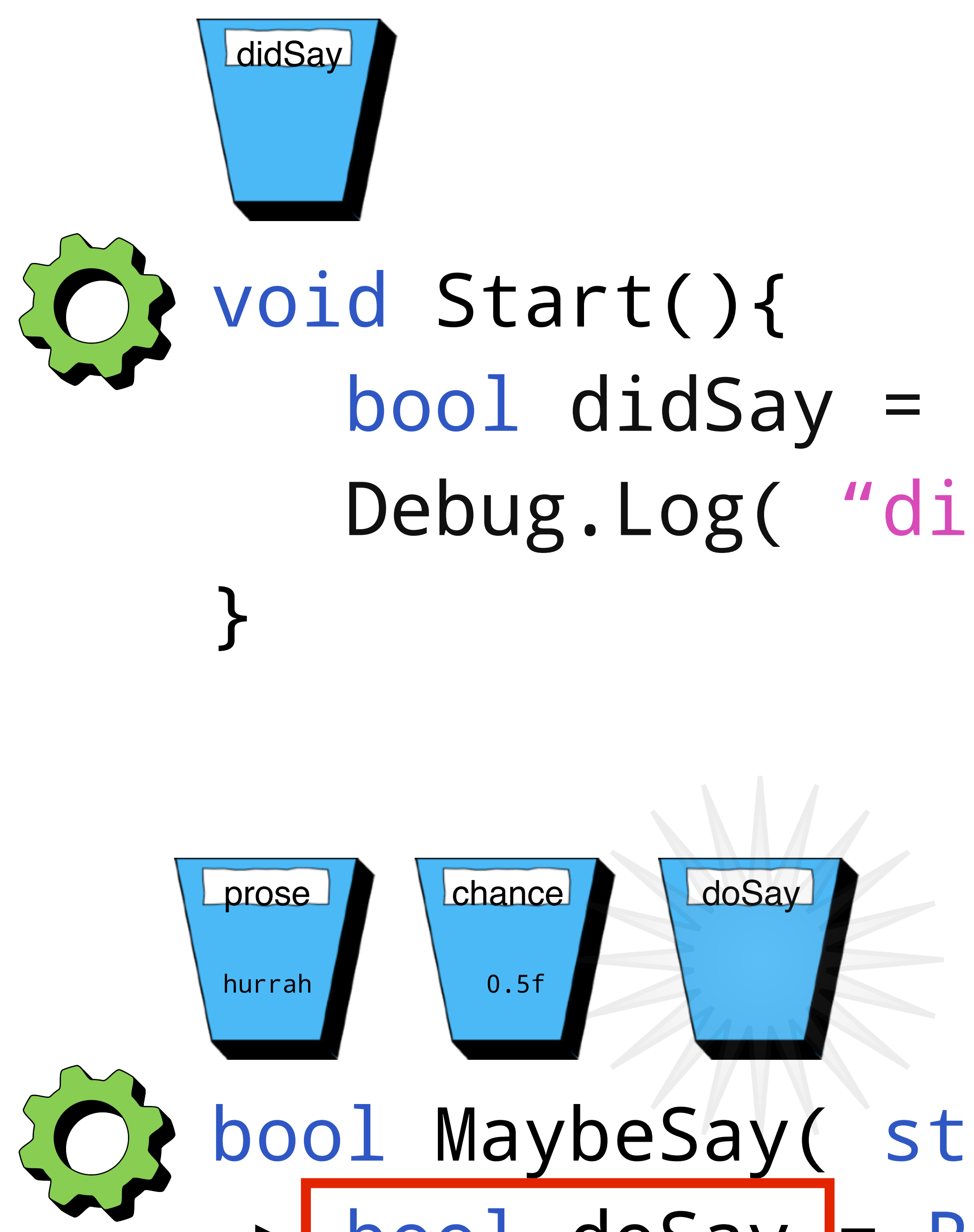
defining a function with arguments and return value



```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}

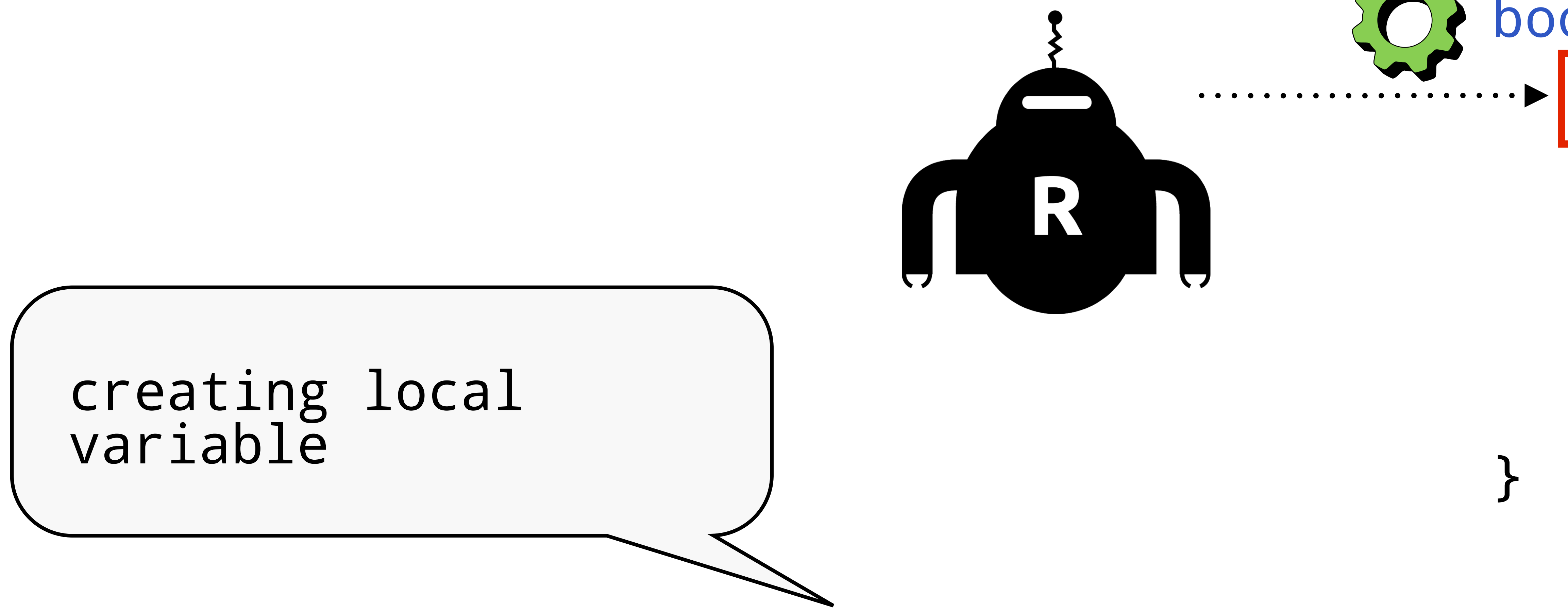
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



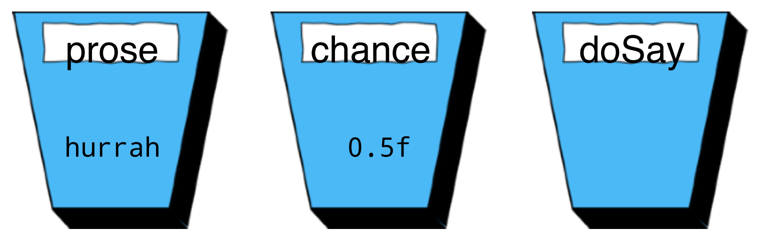
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}

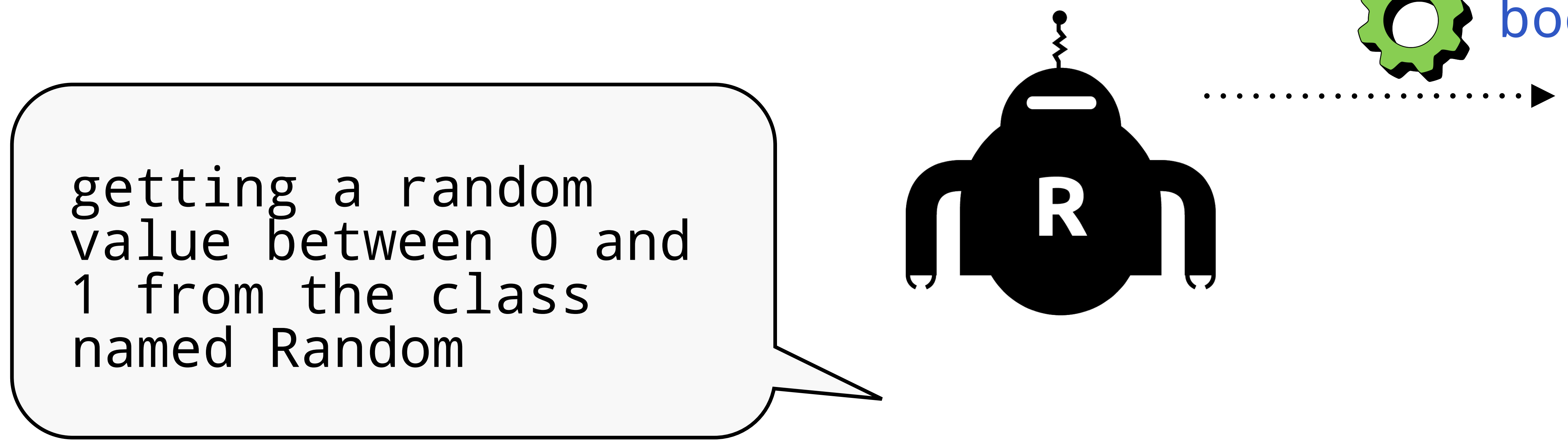
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```



defining a function with arguments and return value

```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

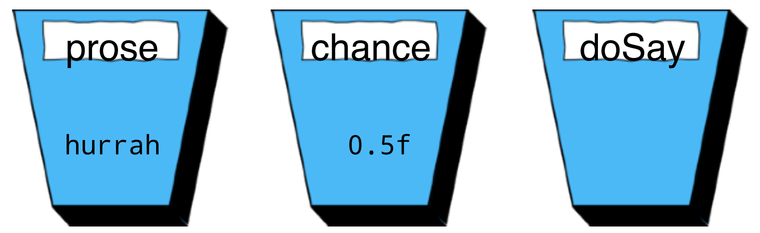


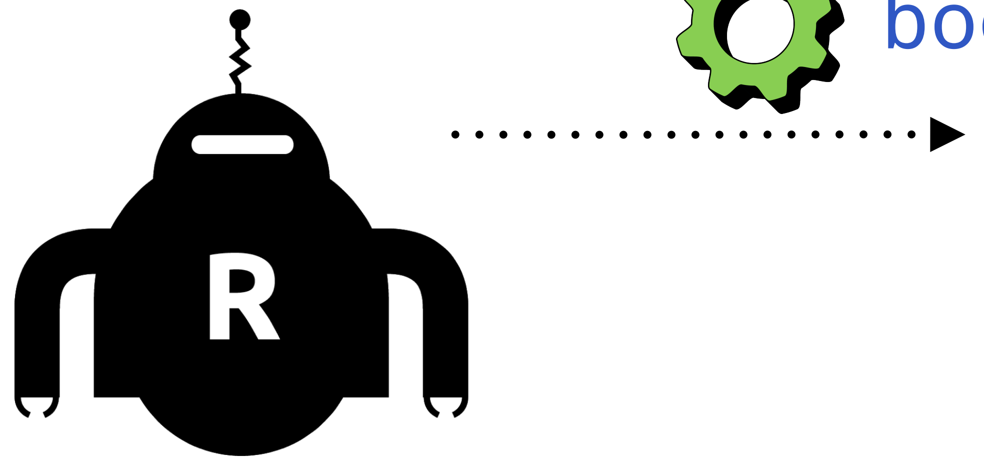

getting a random value between 0 and 1 from the class named Random
R

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value

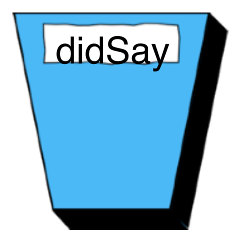
```
void Start(){
   bool didSay = MaybeSay( “hurrah”, 0.5f );
   Debug.Log( “did say hurrah: ” + didSay );
}
```



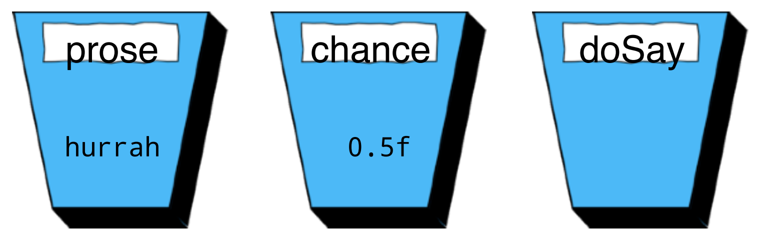


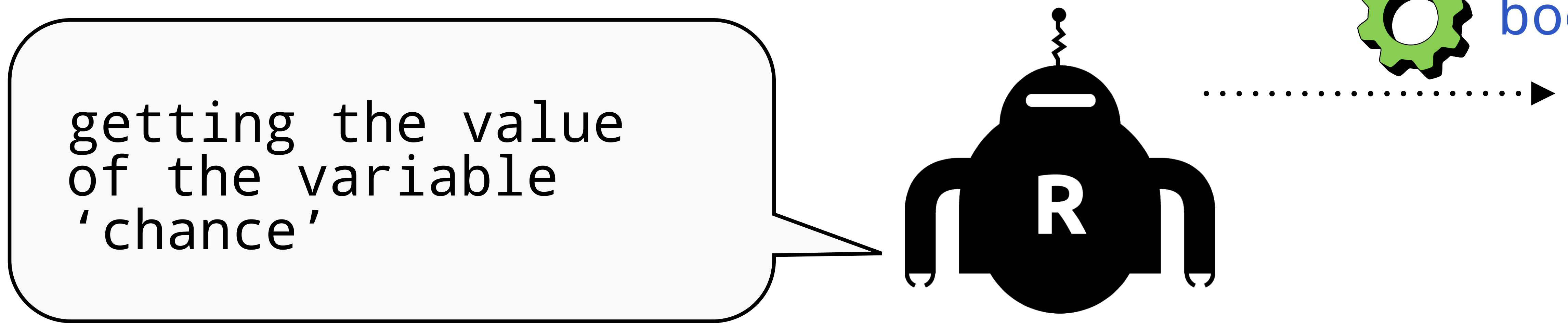
```
bool MaybeSay( string prose, float chance ){
   bool doSay = 0.243254315f < chance;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

defining a function with
arguments and return value



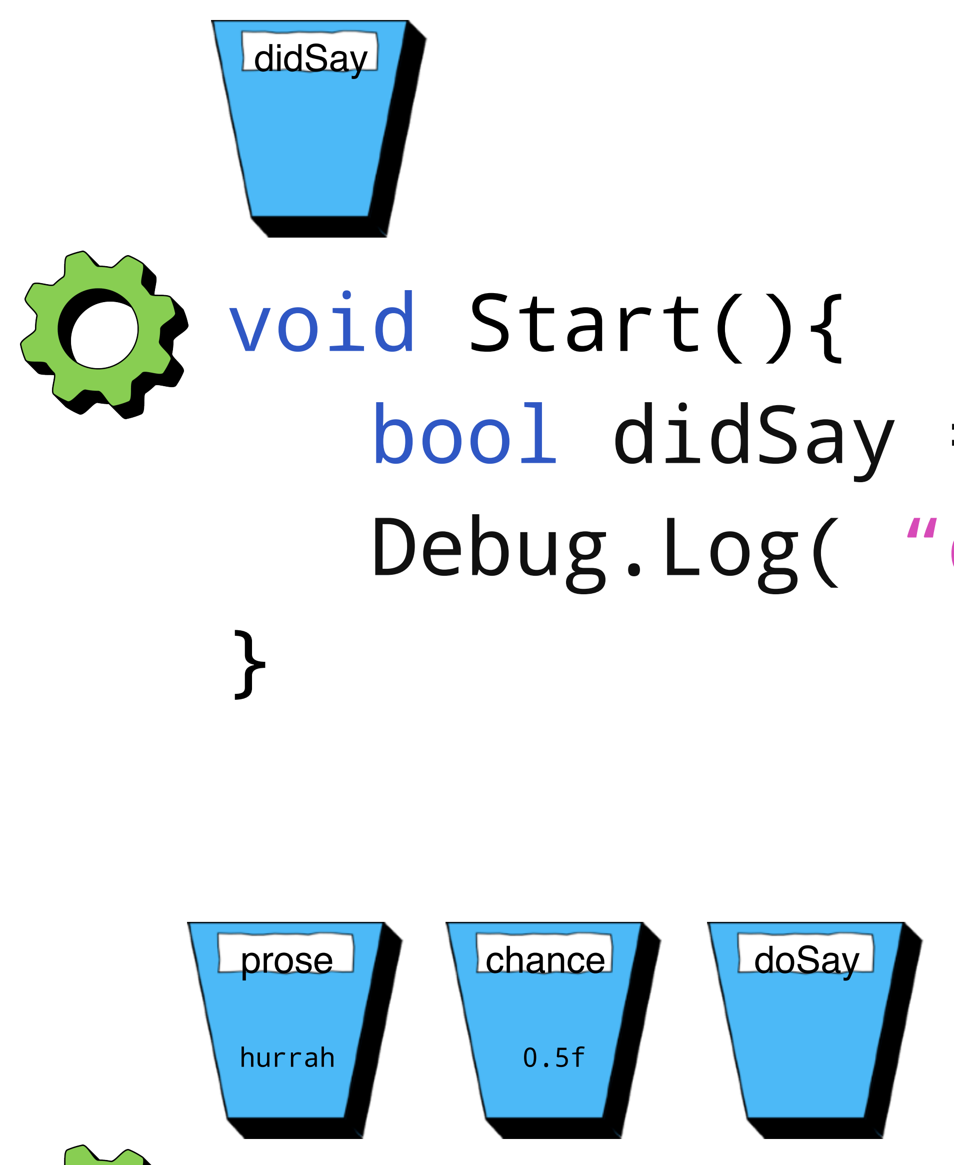
```
void Start(){
   bool didSay = MaybeSay( “hurrah”, 0.5f );
   Debug.Log( “did say hurrah: ” + didSay );
}
```





```
bool MaybeSay( string prose, float chance ){
   bool doSay = 0.243254315f < chance;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

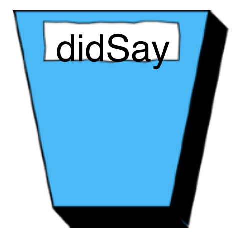
defining a function with arguments and return value



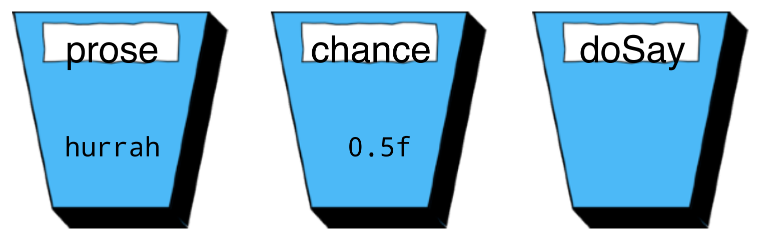
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

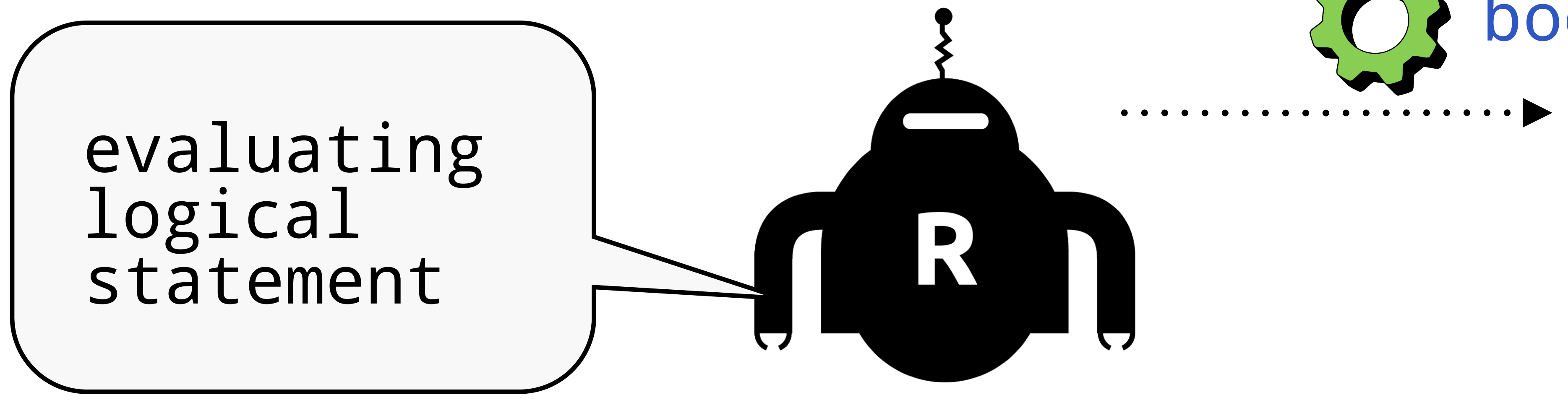
```
bool MaybeSay( string prose, float chance ){
    bool doSay = 0.243254315f < 0.5f;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



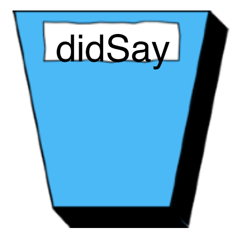
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



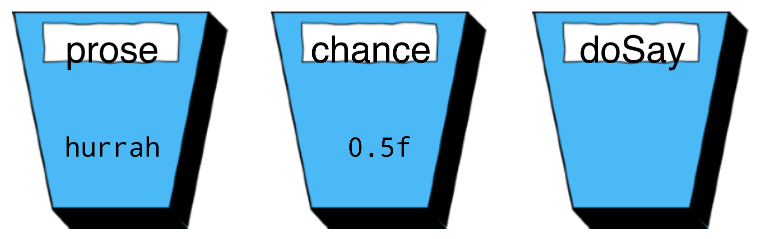


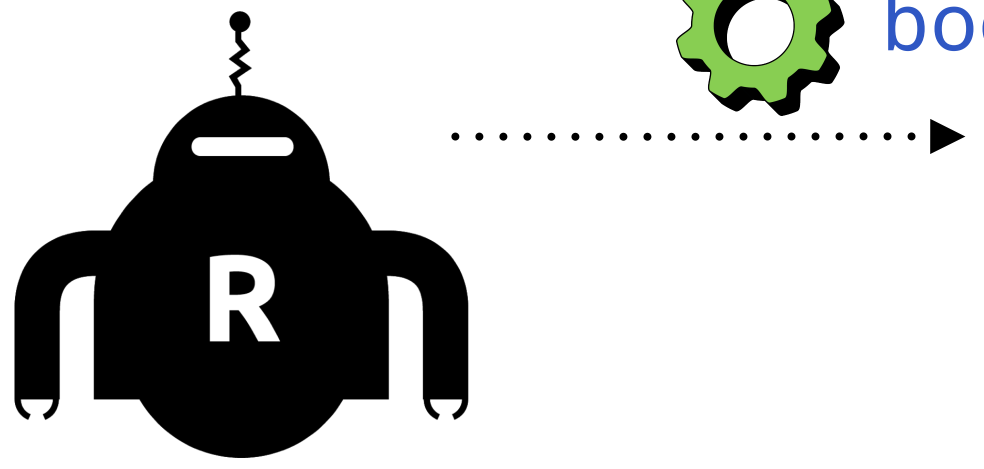
```
bool MaybeSay( string prose, float chance ){
    bool doSay = 0.243254315f < 0.5f;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



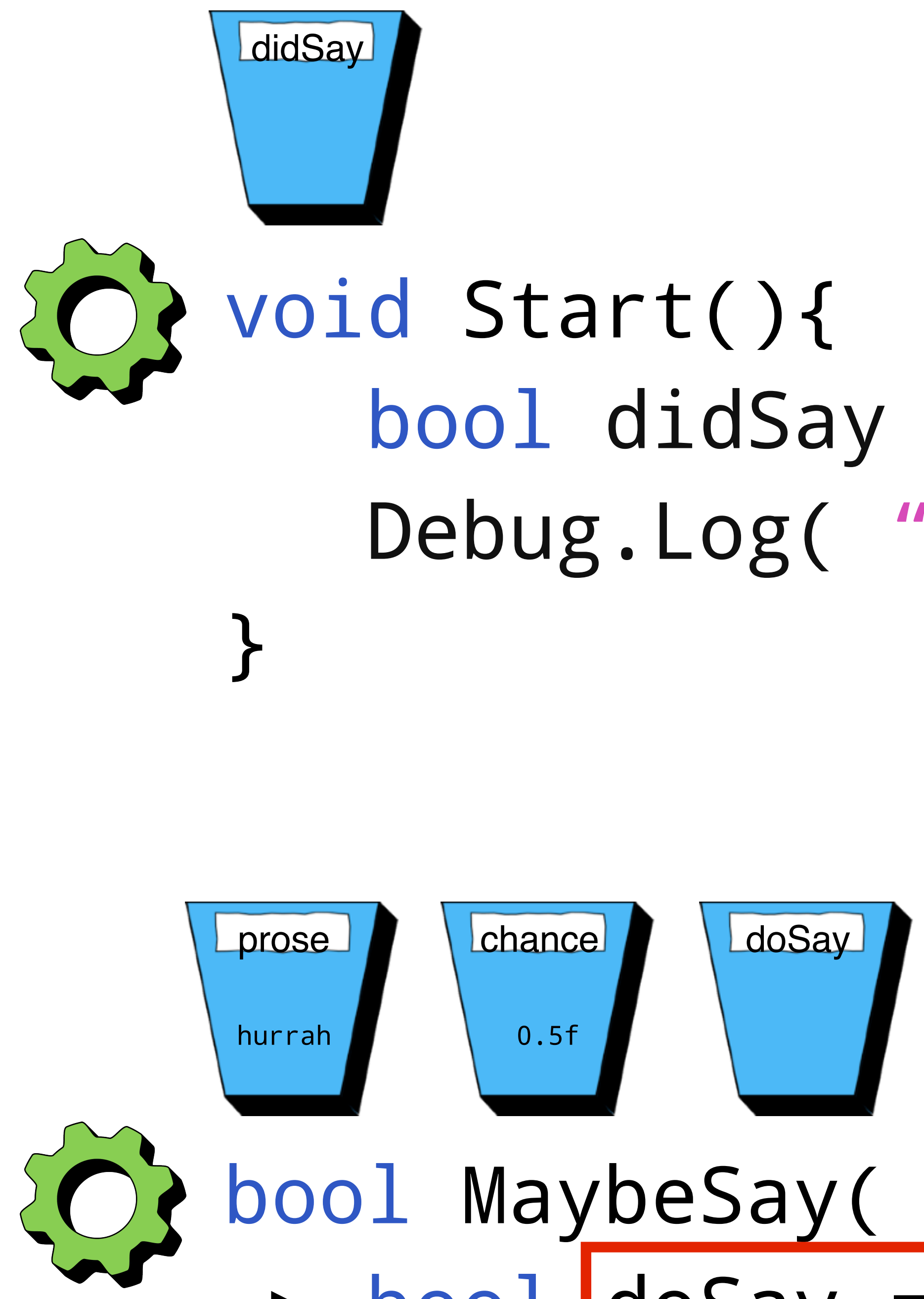
```
void Start(){
   bool didSay = MaybeSay( “hurrah”, 0.5f );
   Debug.Log( “did say hurrah: ” + didSay );
}
```





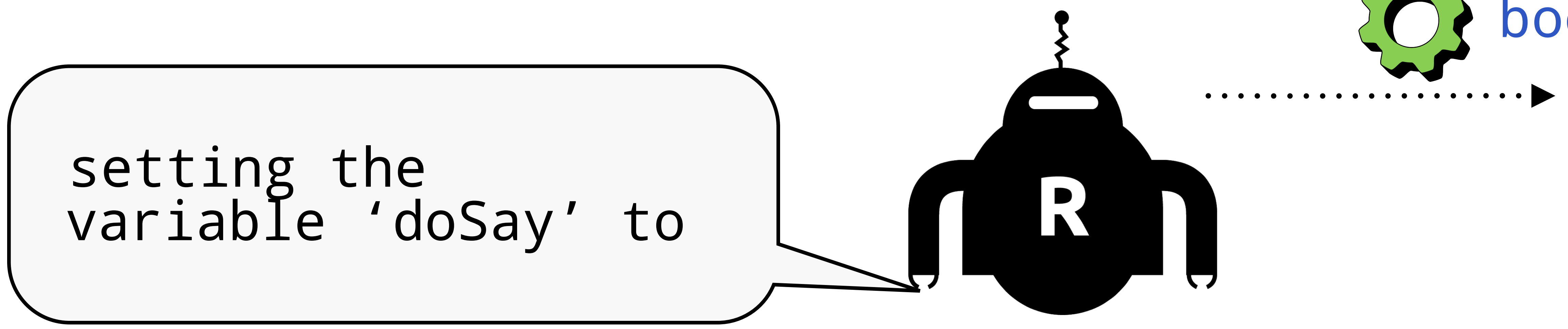
```
bool MaybeSay( string prose, float chance ){
   bool doSay = true;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

defining a function with arguments and return value

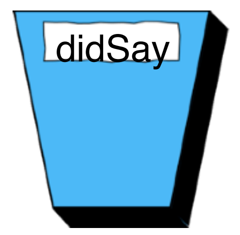


```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}

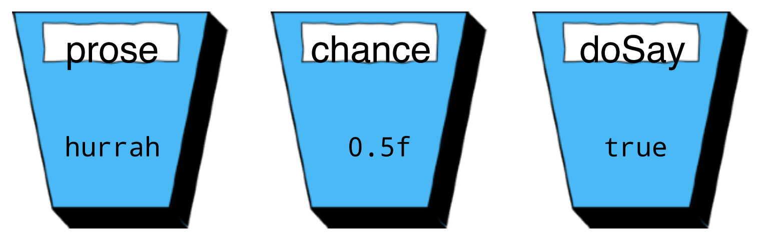
bool MaybeSay( string prose, float chance ){
    bool doSay = true;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

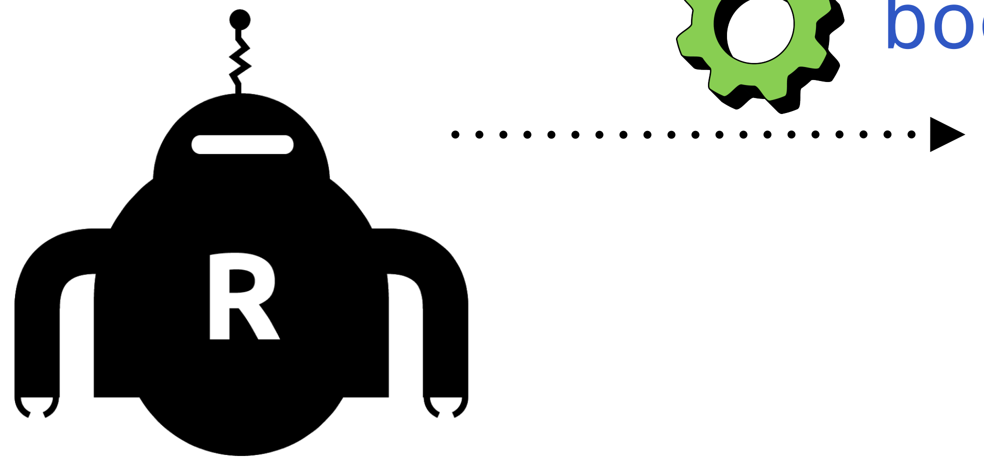


defining a function with arguments and return value



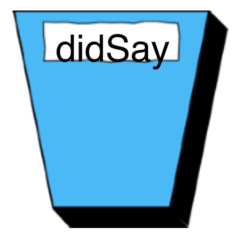
```
void Start(){
   bool didSay = MaybeSay( “hurrah”, 0.5f );
   Debug.Log( “did say hurrah: ” + didSay );
}
```



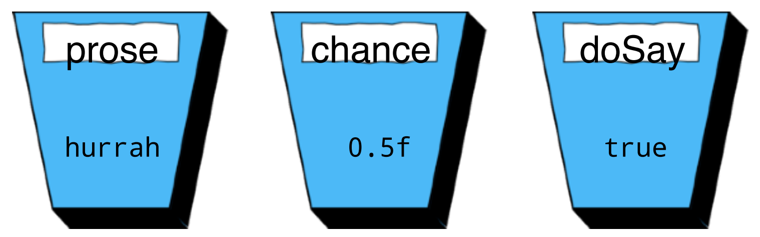


```
bool MaybeSay( string prose, float chance ){
   bool doSay = true;
   if(doSay){
      Debug.Log(prose);
   }
   return doSay;
}
```

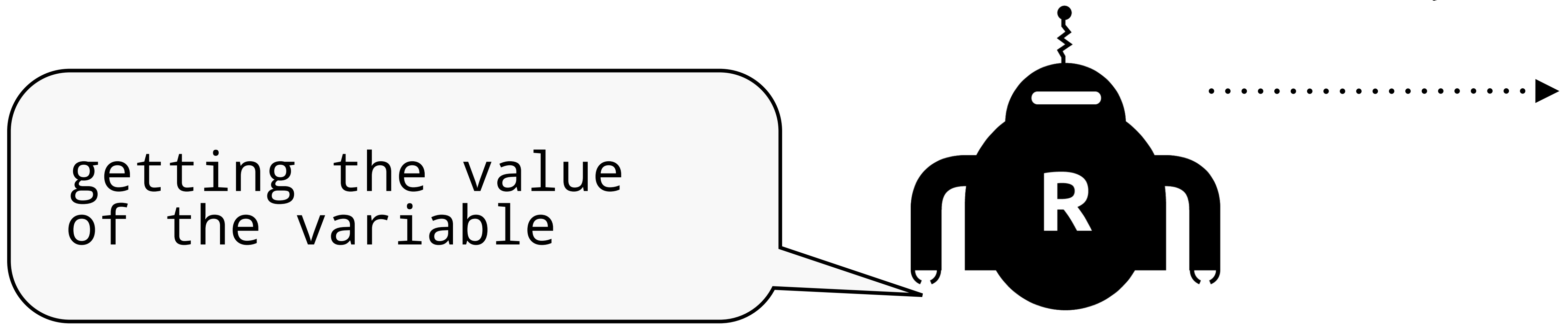
defining a function with arguments and return value



```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

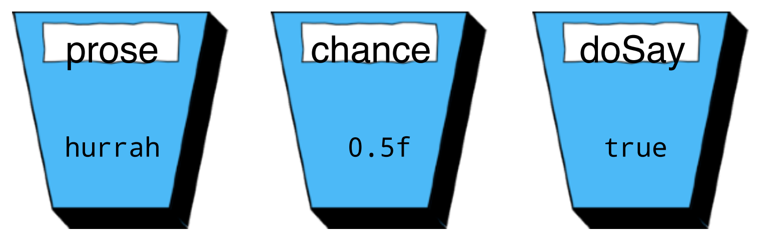


```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```



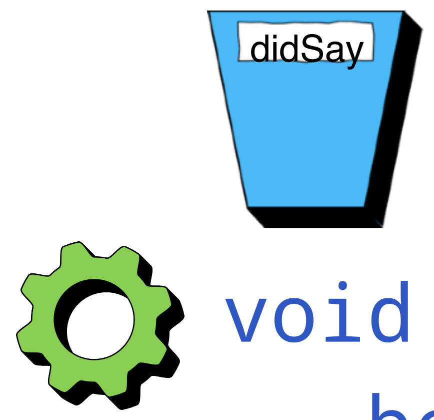
defining a function with arguments and return value

```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

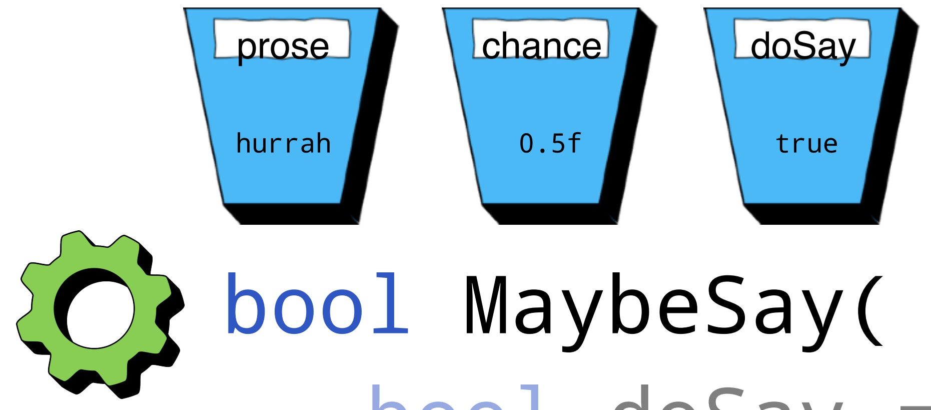


```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(true){
        Debug.Log(prose);
    }
    return doSay;
}
```

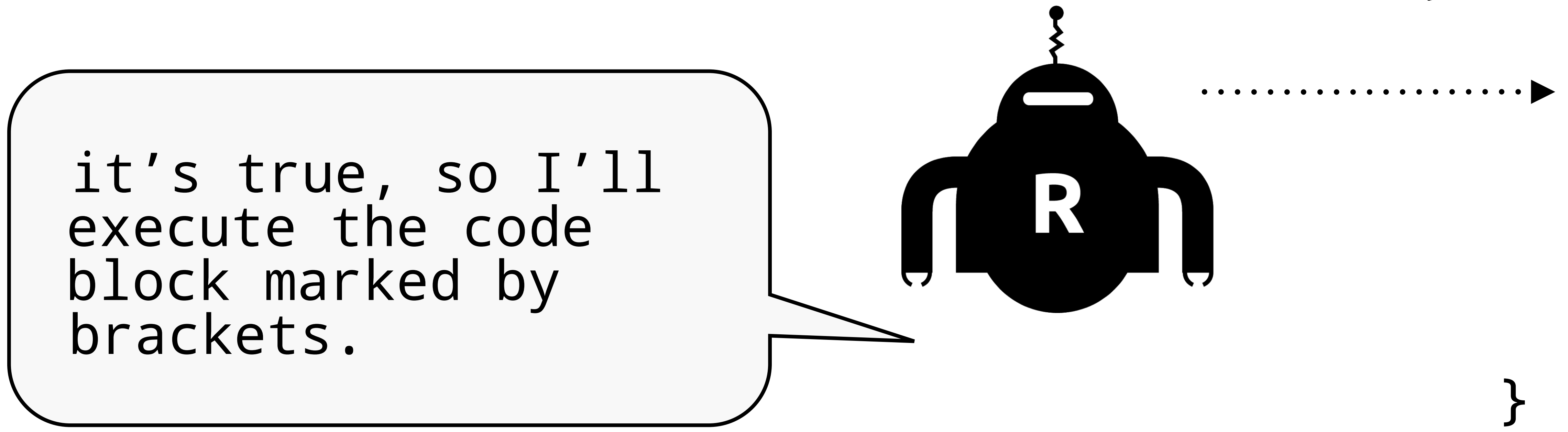
defining a function with arguments and return value



```
void Start(){
    bool didSay = MaybeSay( "hurrah", 0.5f );
    Debug.Log( "did say hurrah: " + didSay );
}
```

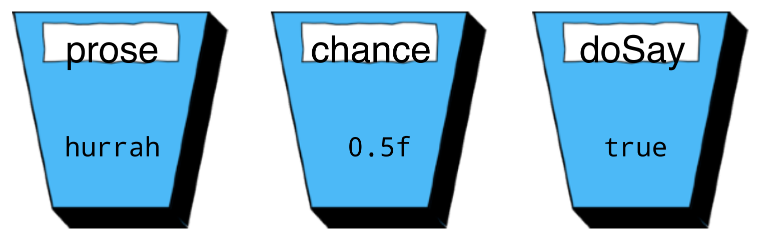


```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(true){
        Debug.Log(prose);
    }
    return doSay;
}
```

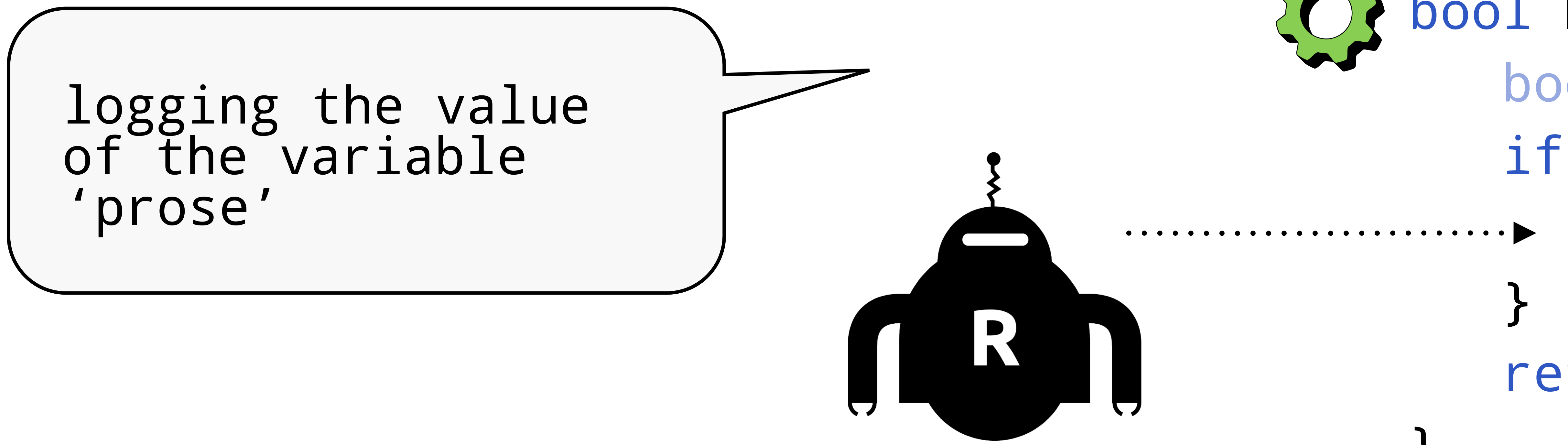

it's true, so I'll execute the code block marked by brackets.
R

defining a function with arguments and return value

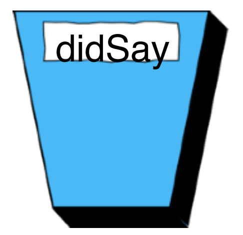
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



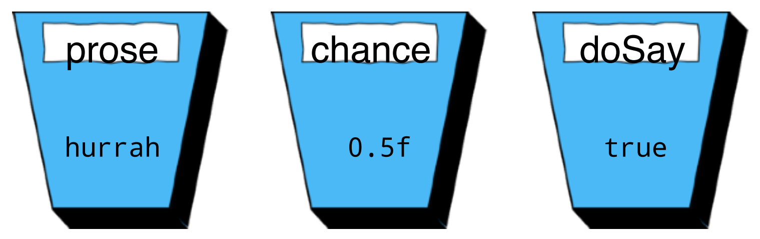
```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(true){
      Debug.Log(prose);
    }
    return doSay;
}
```



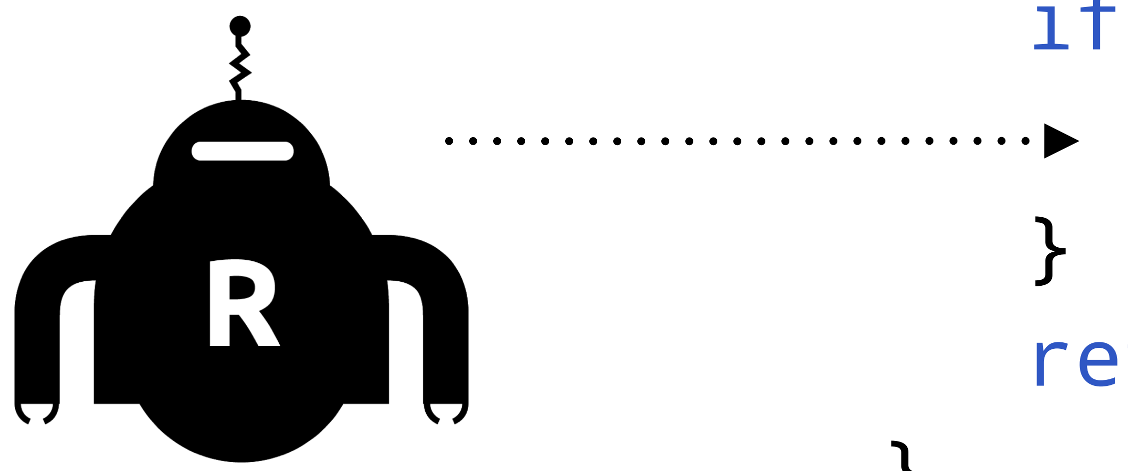
defining a function with arguments and return value



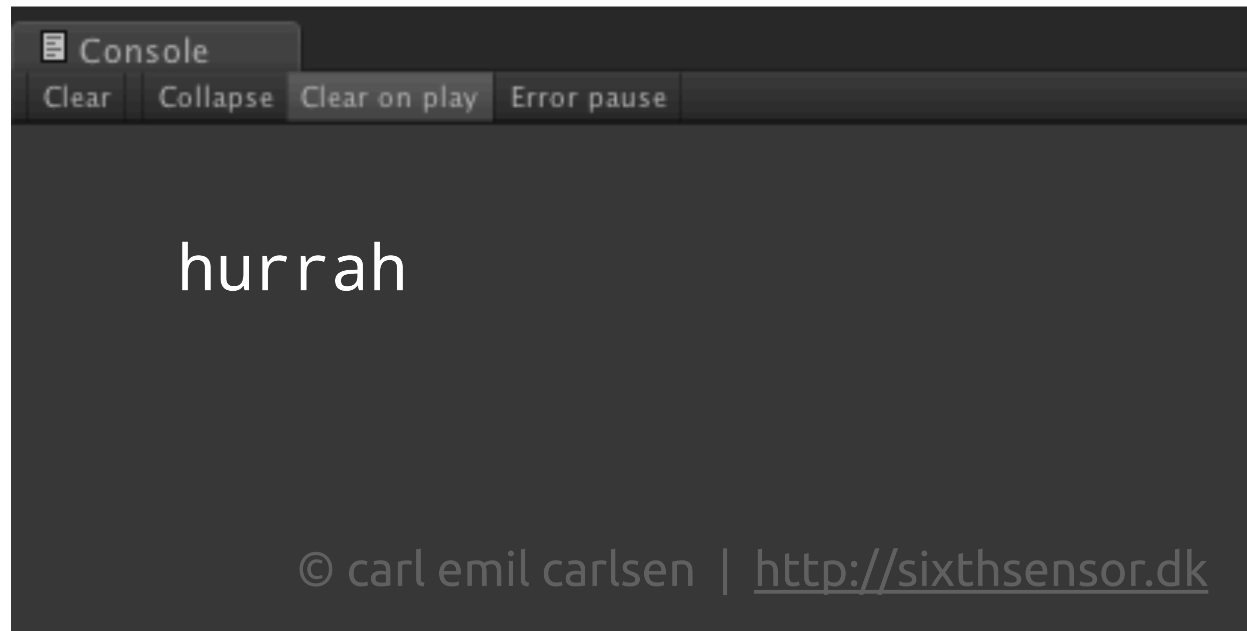
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(true){
      Debug.Log(prose);
    }
    return doSay;
}
```

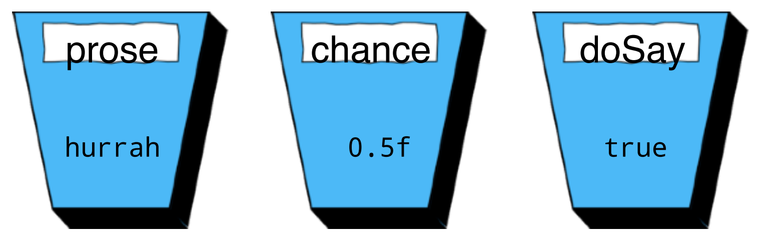


defining a function with arguments and return value

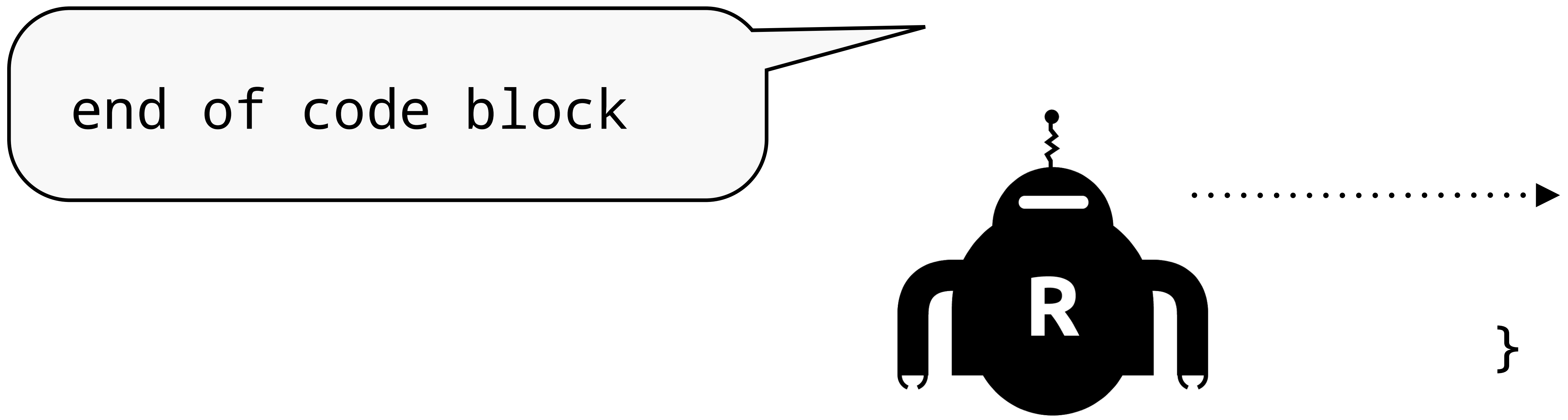


```
hurrah
```

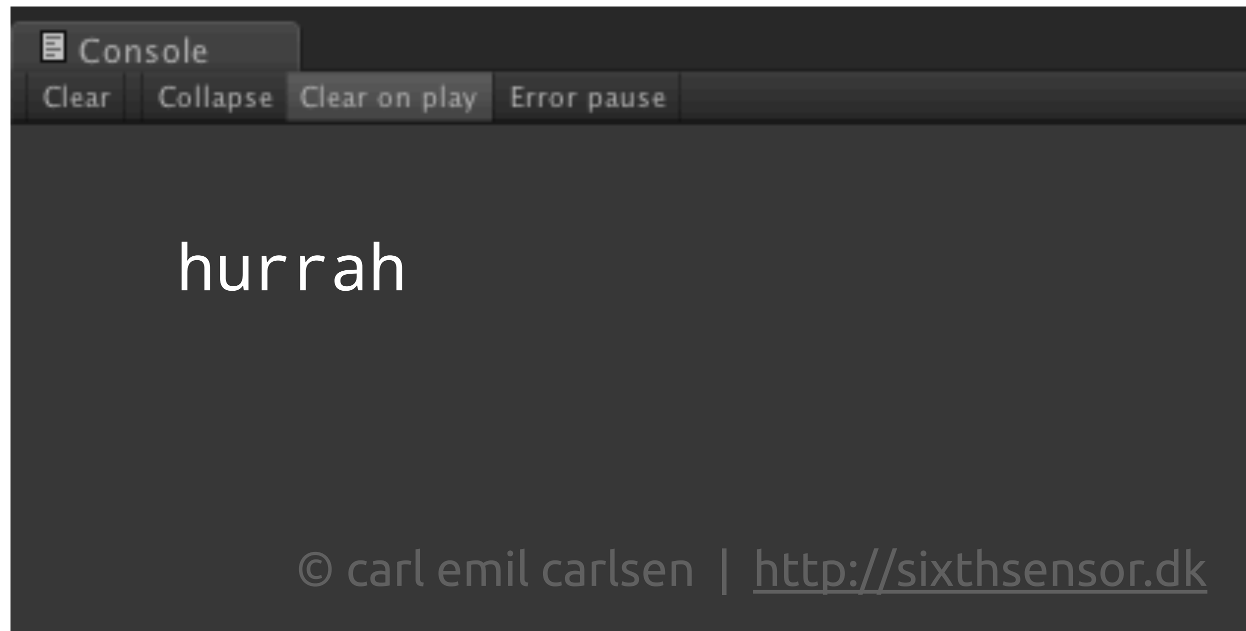
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



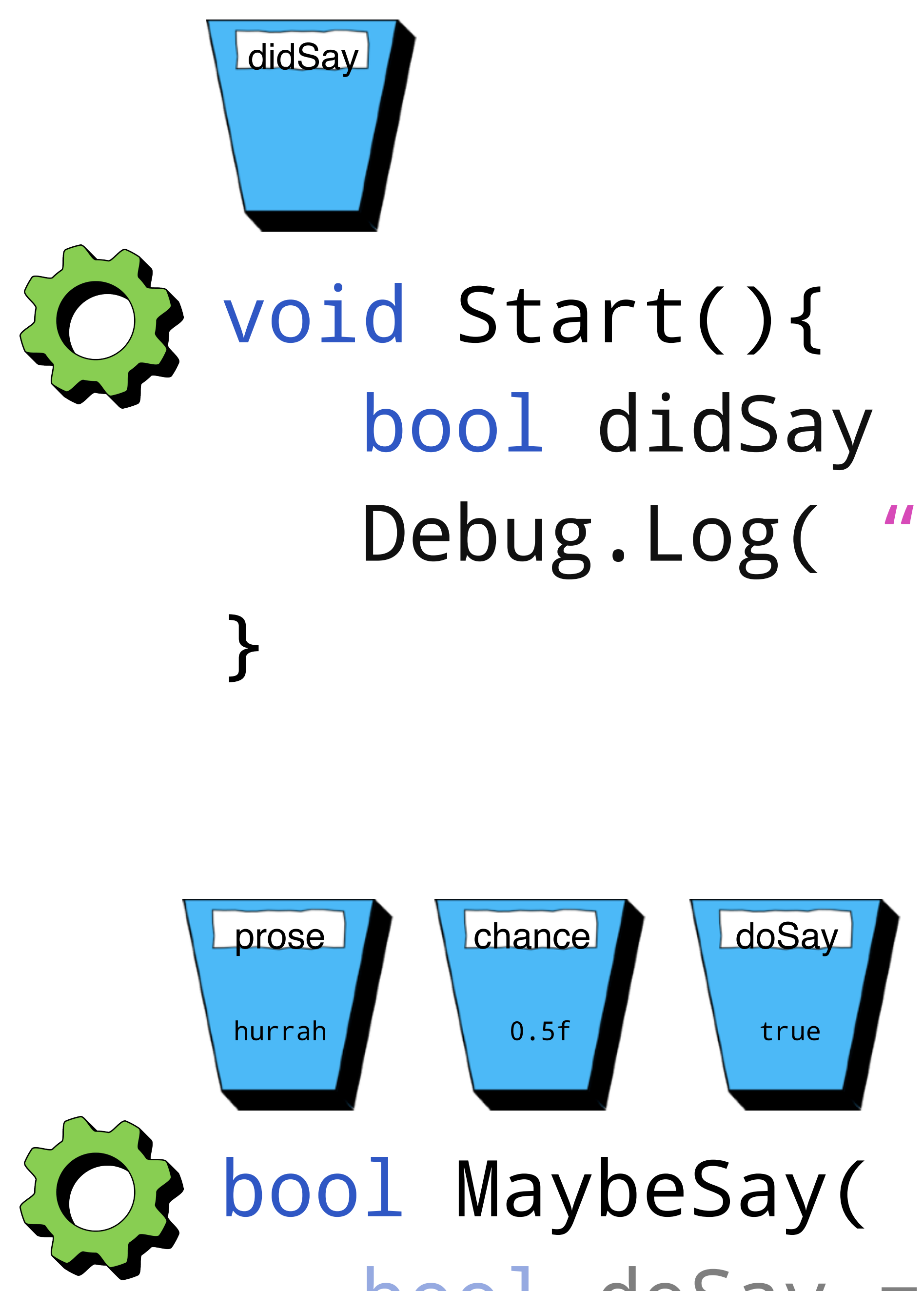
```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(true){
        Debug.Log(prose);
    }
    return doSay;
}
```



defining a function with arguments and return value

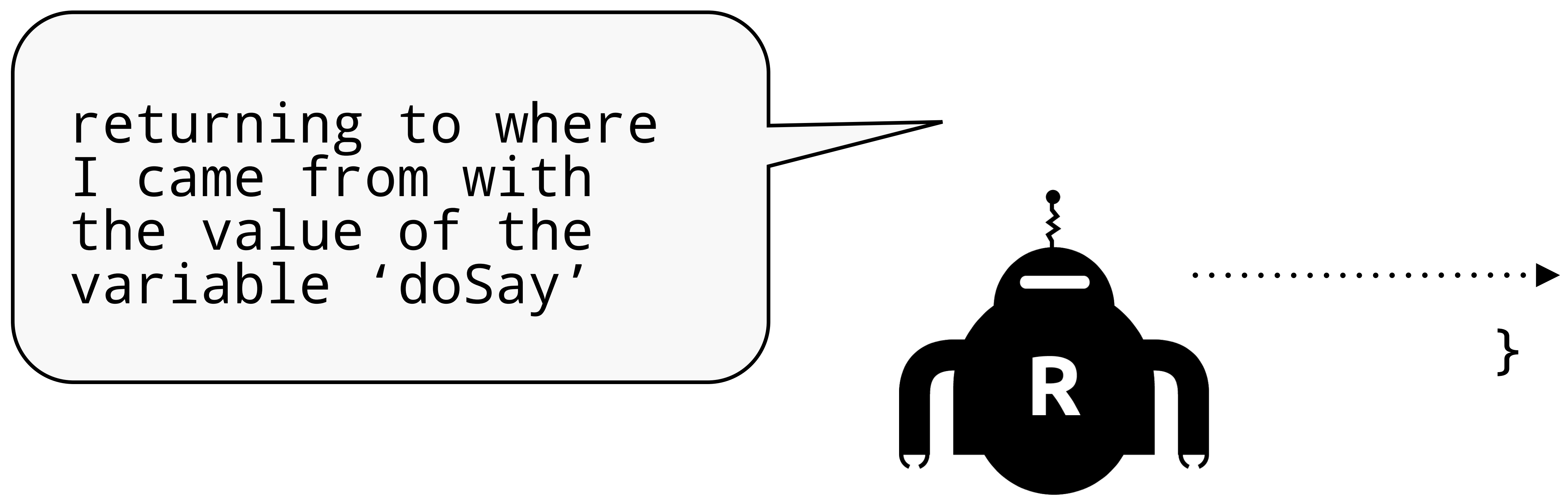


```
hurrah
```

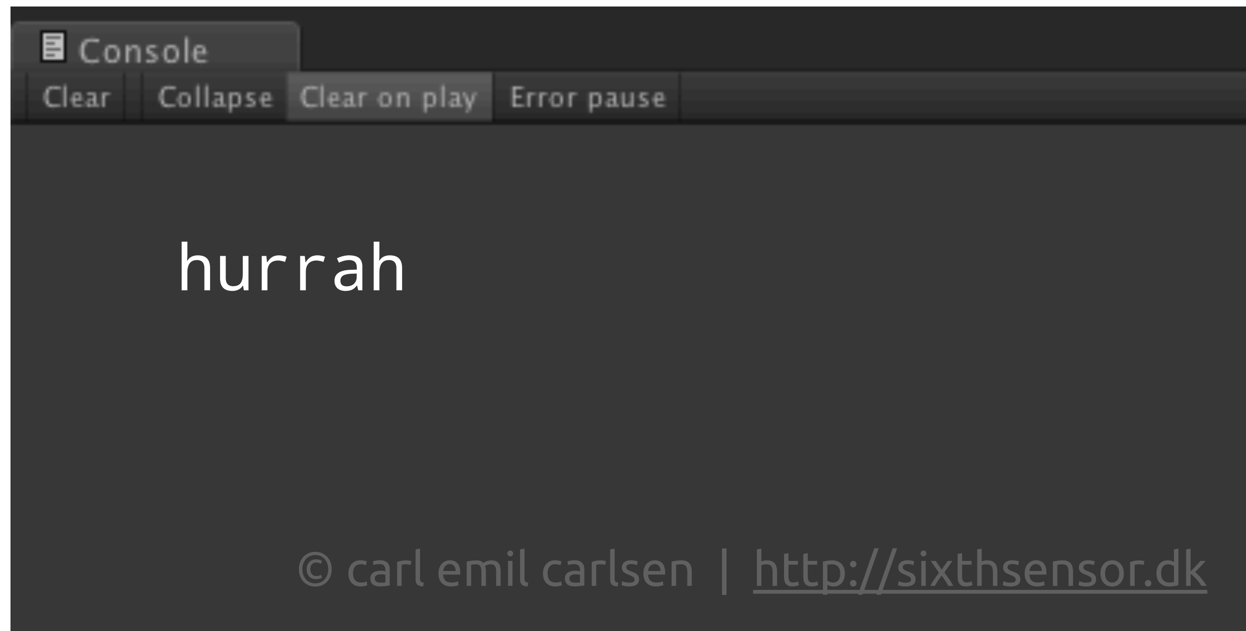


```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

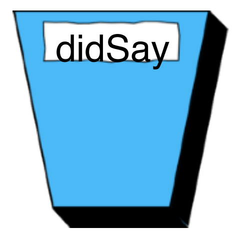
```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```


returning to where I came from with the value of the variable ‘doSay’
R

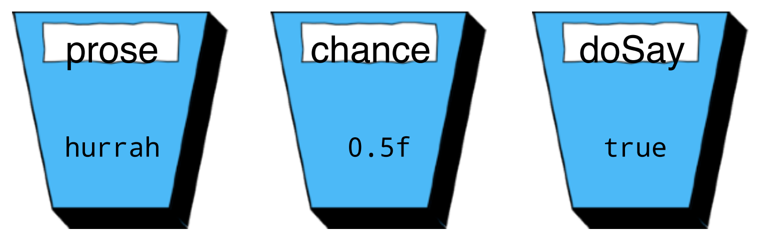
defining a function with arguments and return value



```
hurrah
```



```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



```
bool MaybeSay( string prose, float chance ){
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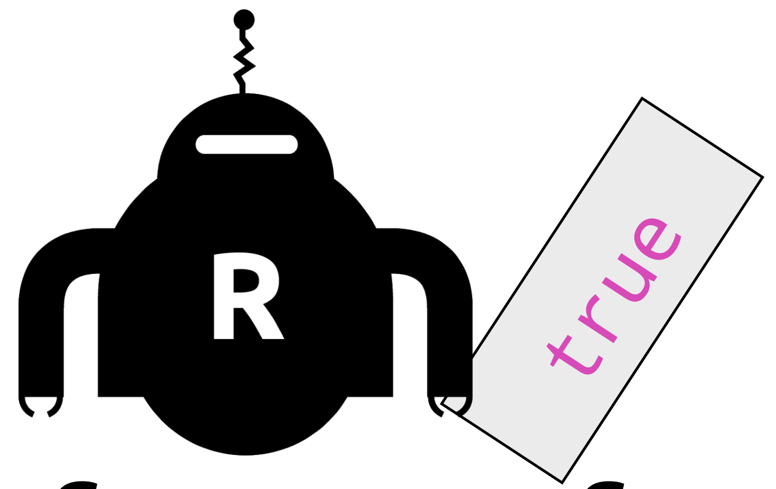
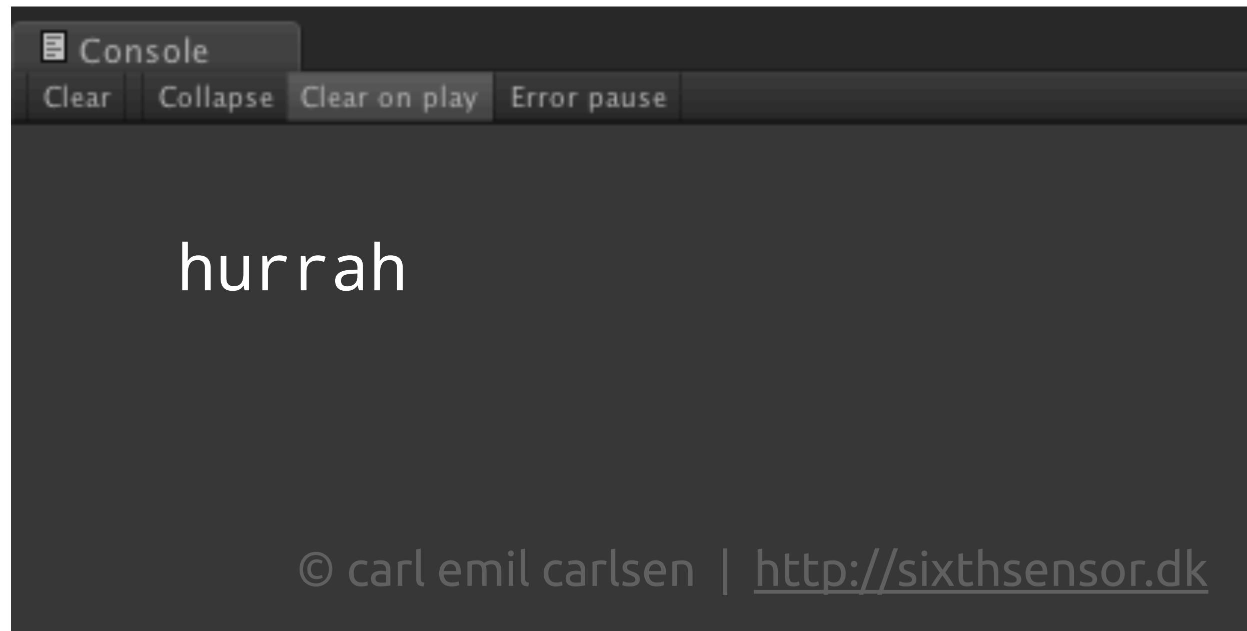
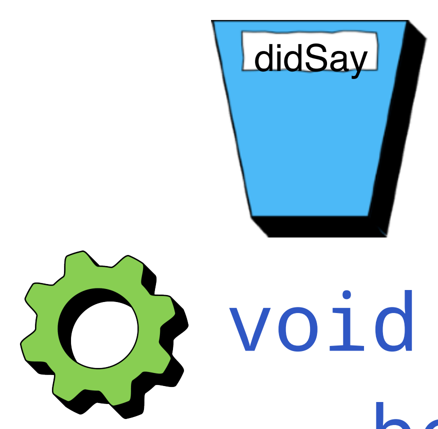
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```



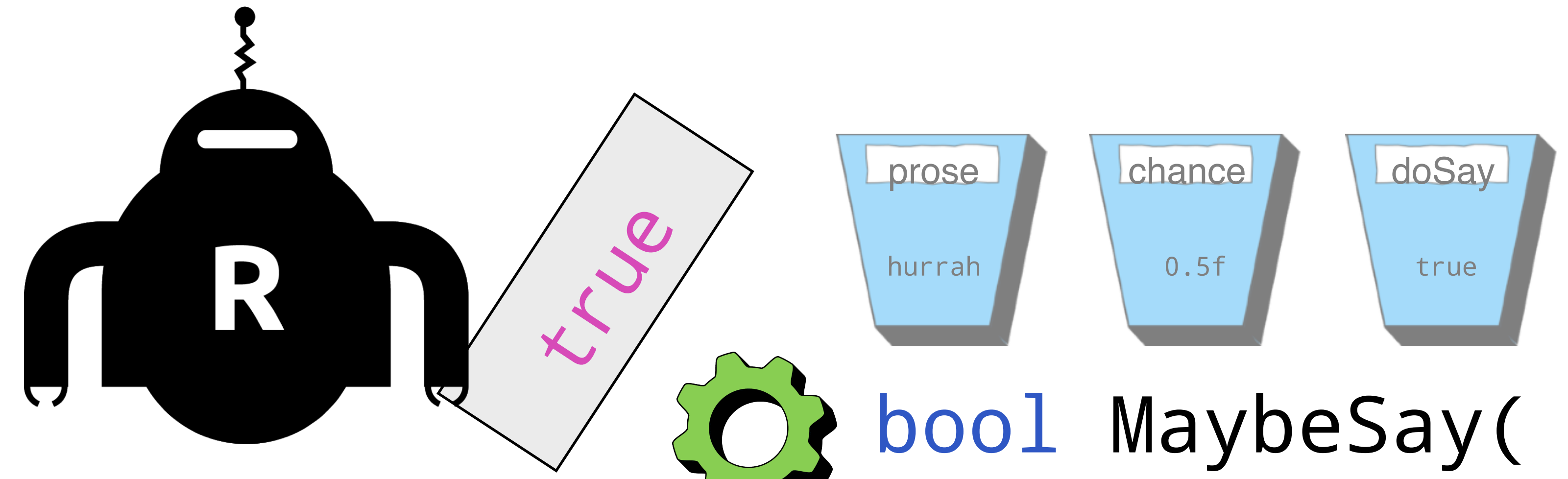
defining a function with arguments and return value



```
hurrah
```



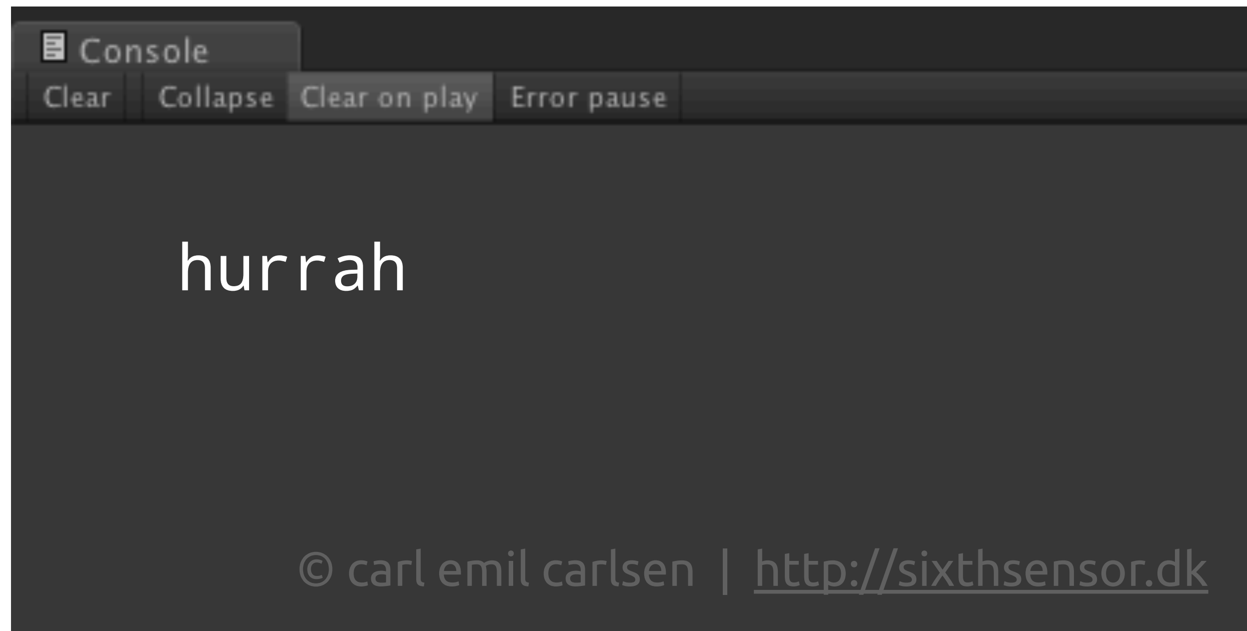
```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```



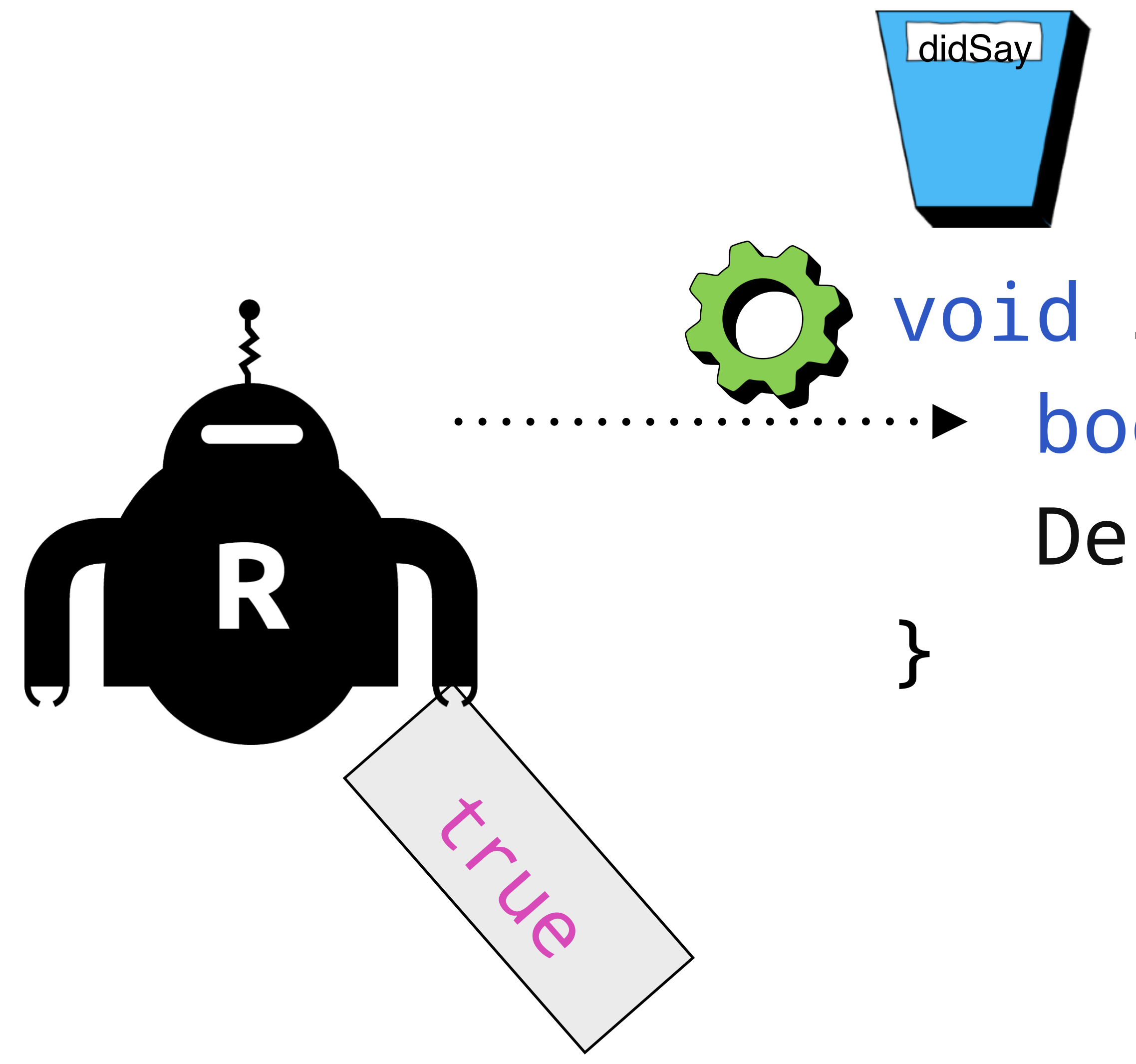
forgetting the
local variables in
the function
MaybeSay

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

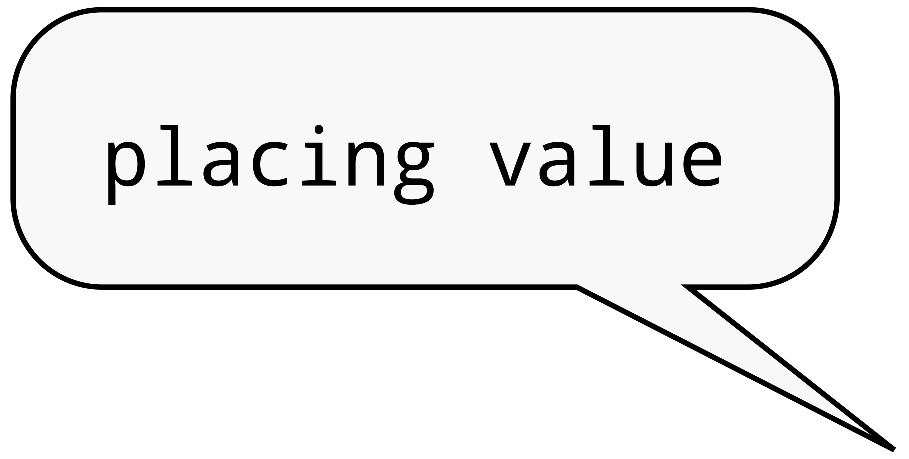
defining a function with arguments and return value



```
hurrah
```

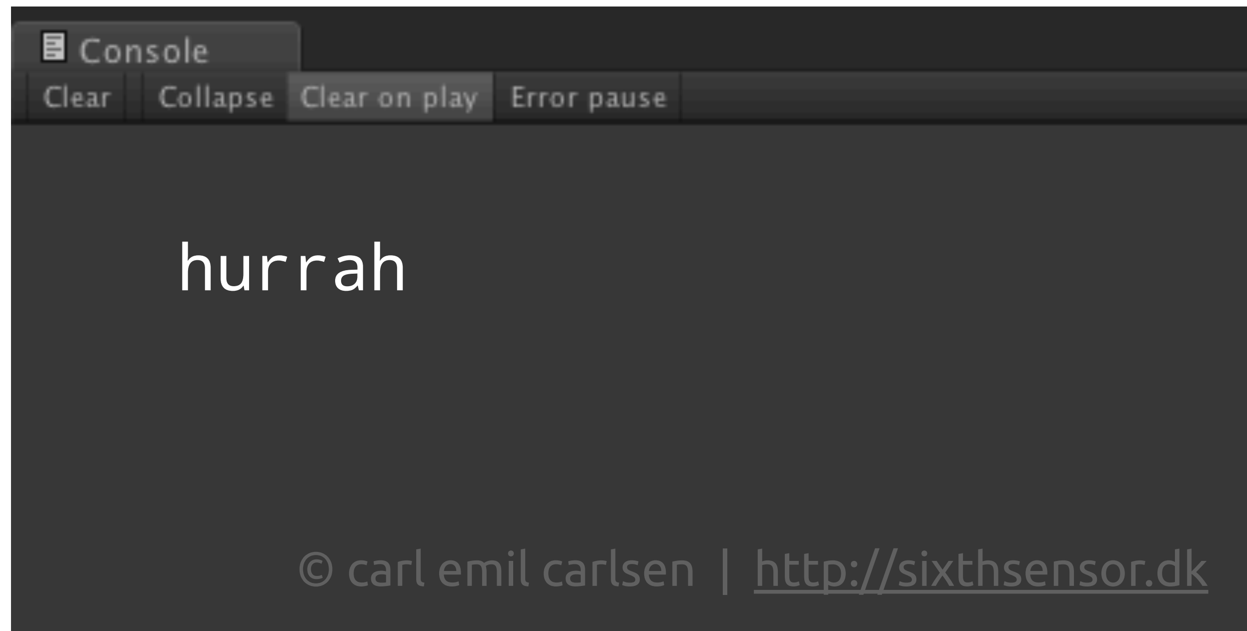


```
void Start(){
    bool didSay = MaybeSay( “hurrah”, 0.5f );
    Debug.Log( “did say hurrah: ” + didSay );
}
```

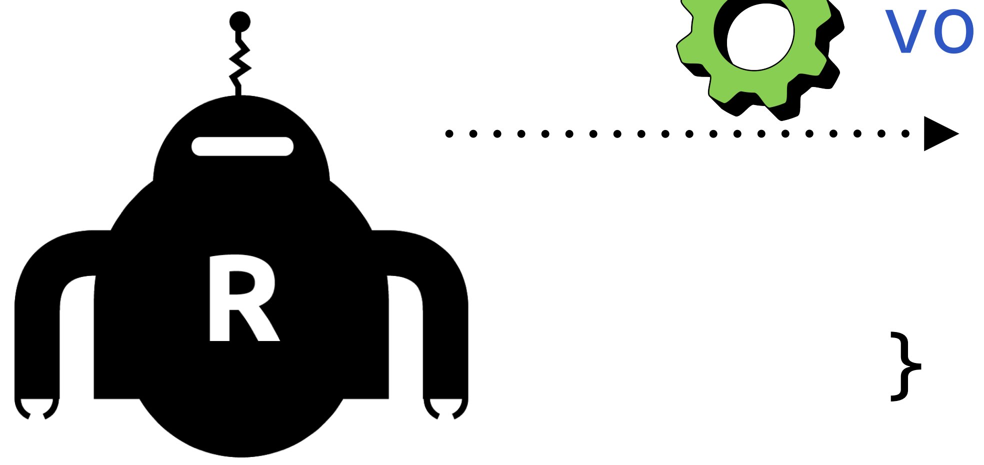


```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



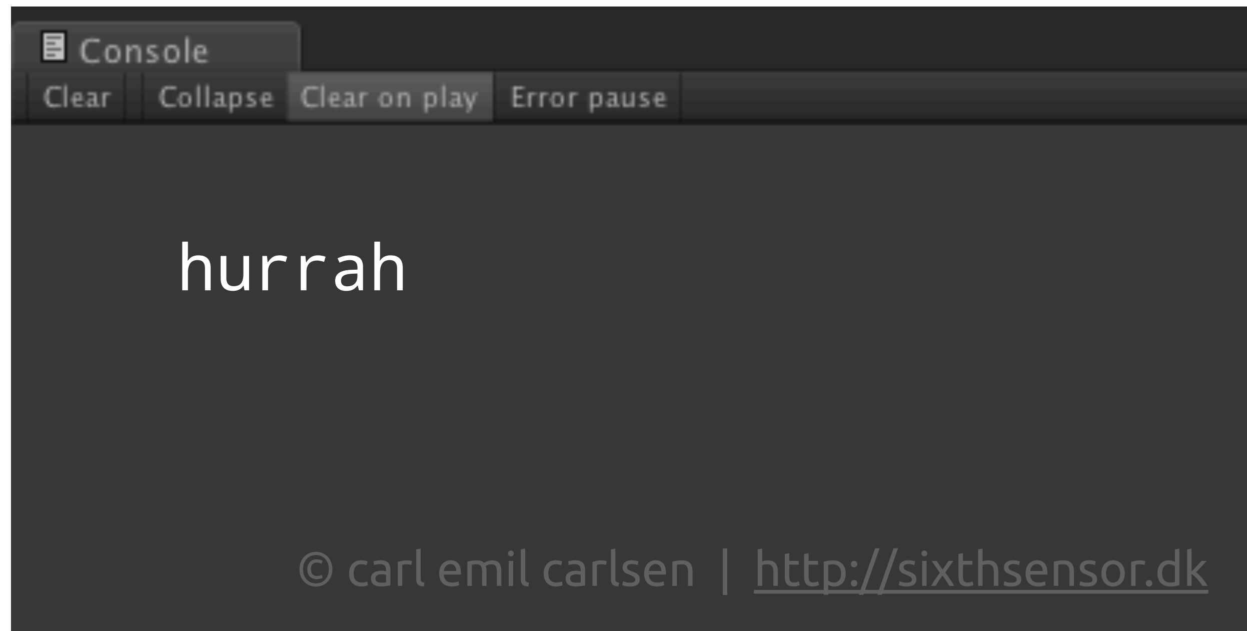
```
hurrah
```



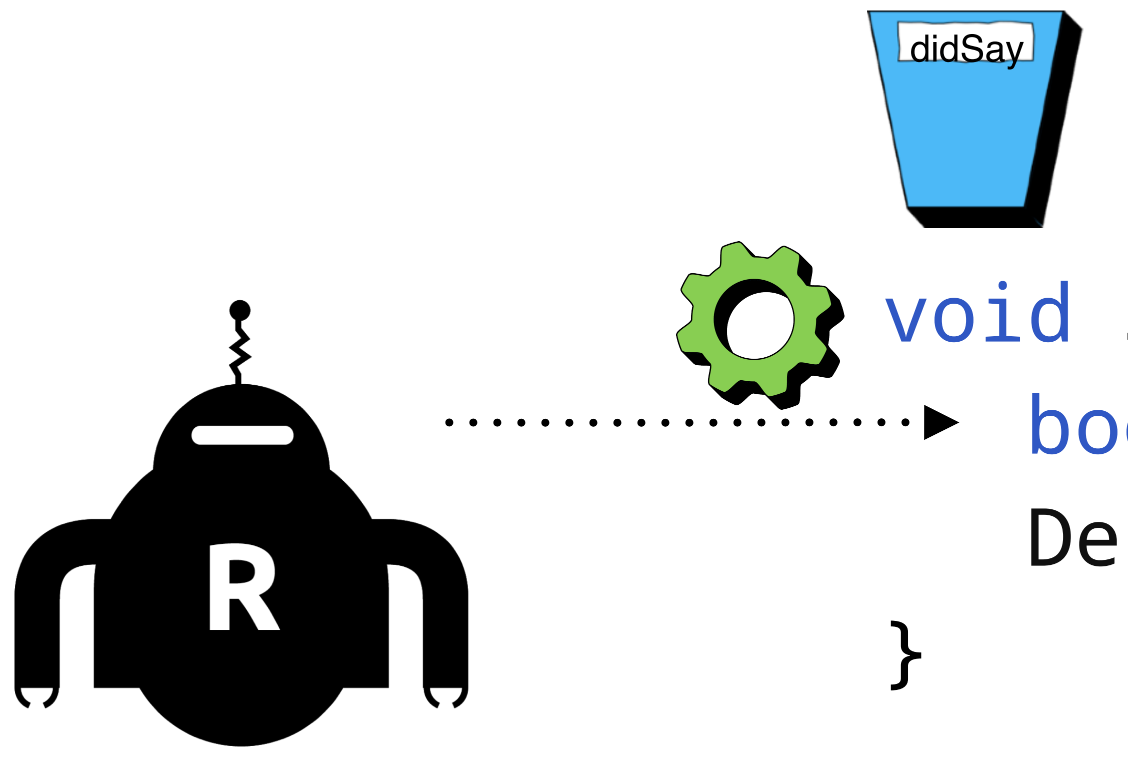
```
void Start(){
    bool didSay = true;
    Debug.Log( “did say hurrah: ” + didSay );
}
```

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



```
hurrah
```

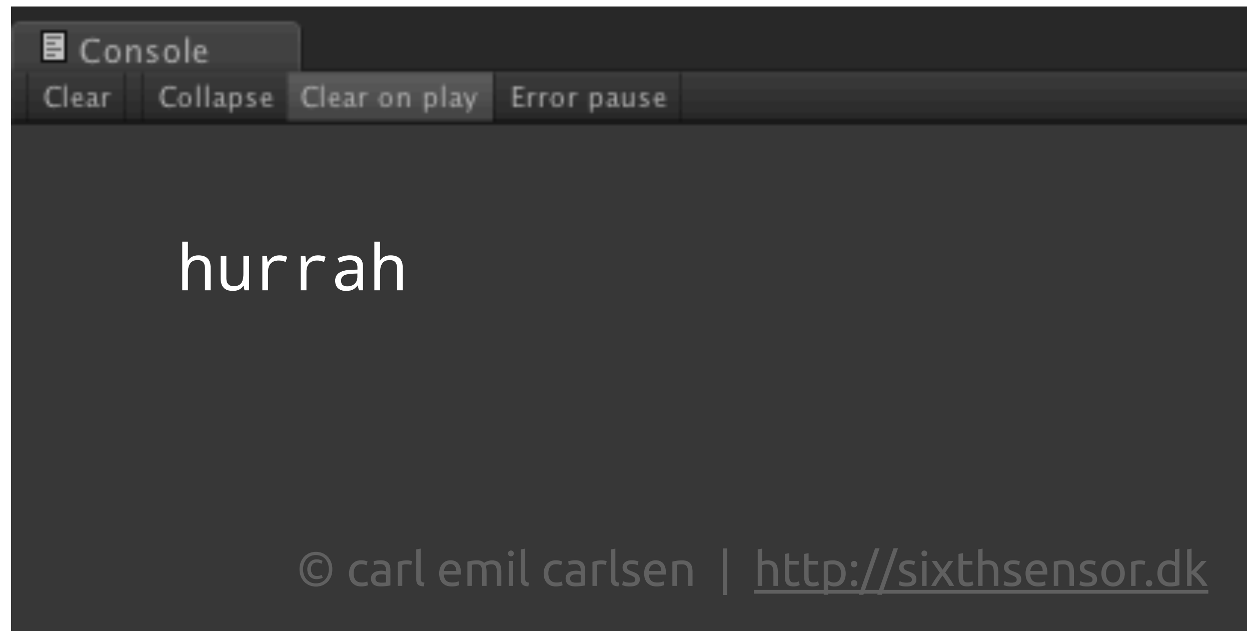


```
void Start(){
    bool didSay = true;
    Debug.Log( "did say hurrah: " + didSay );
}
```

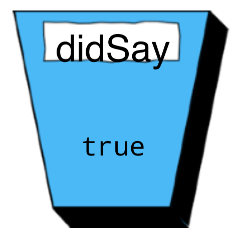
setting the variable
'didSay' to true

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



```
hurrah
```



```
void Start(){
    bool didSay = true;
    Debug.Log( “did say hurrah: ” + didSay );
}
```

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
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    }
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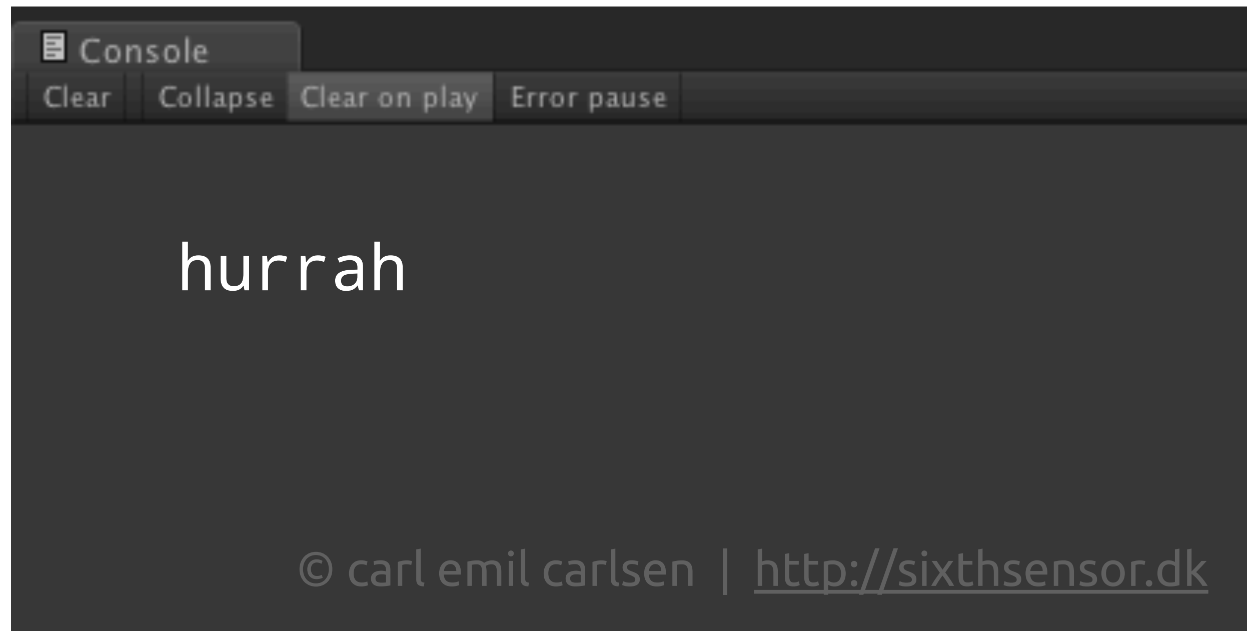
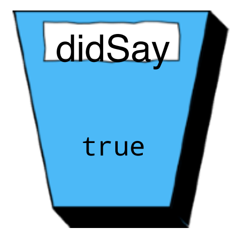
```

defining a function with arguments and return value



```
hurrah
```



```
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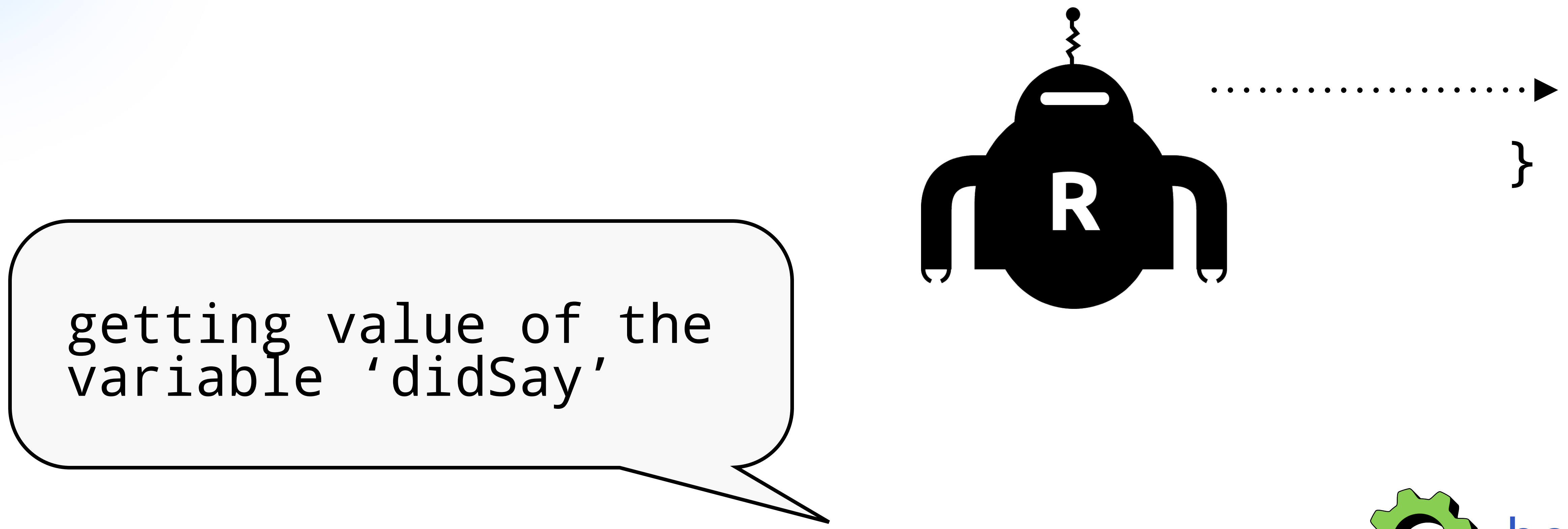
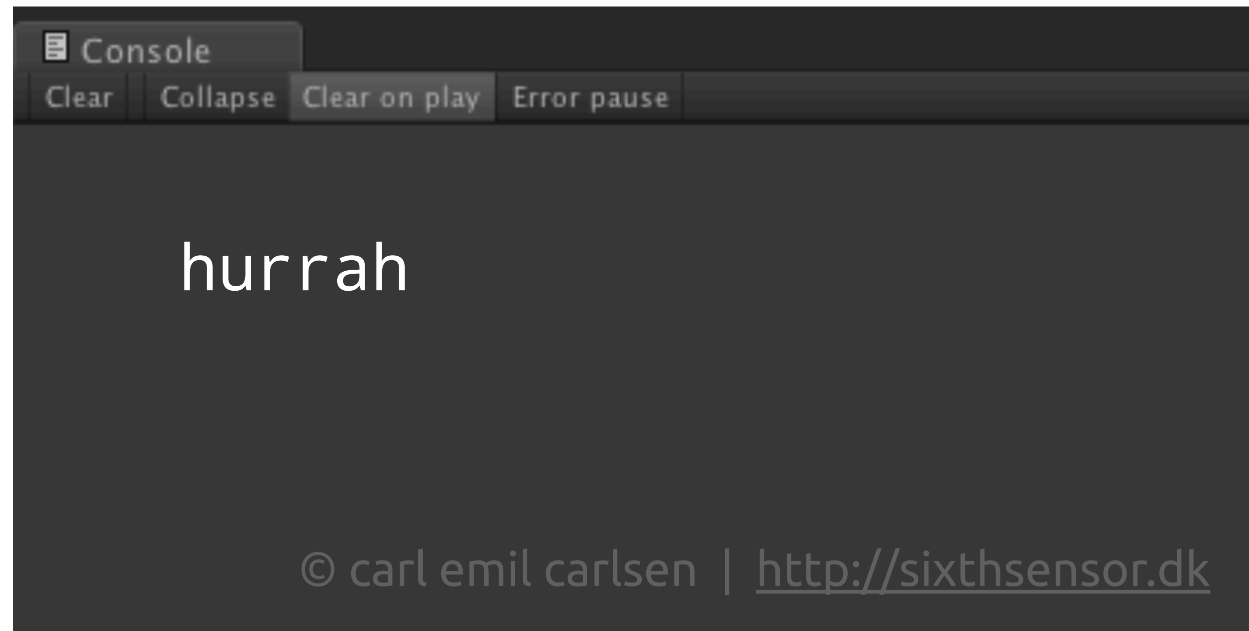
    Debug.Log( "did say hurrah: " + didSay );
}
```

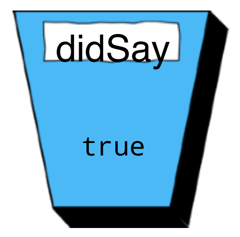


```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

defining a function with arguments and return value



```
hurrah
```

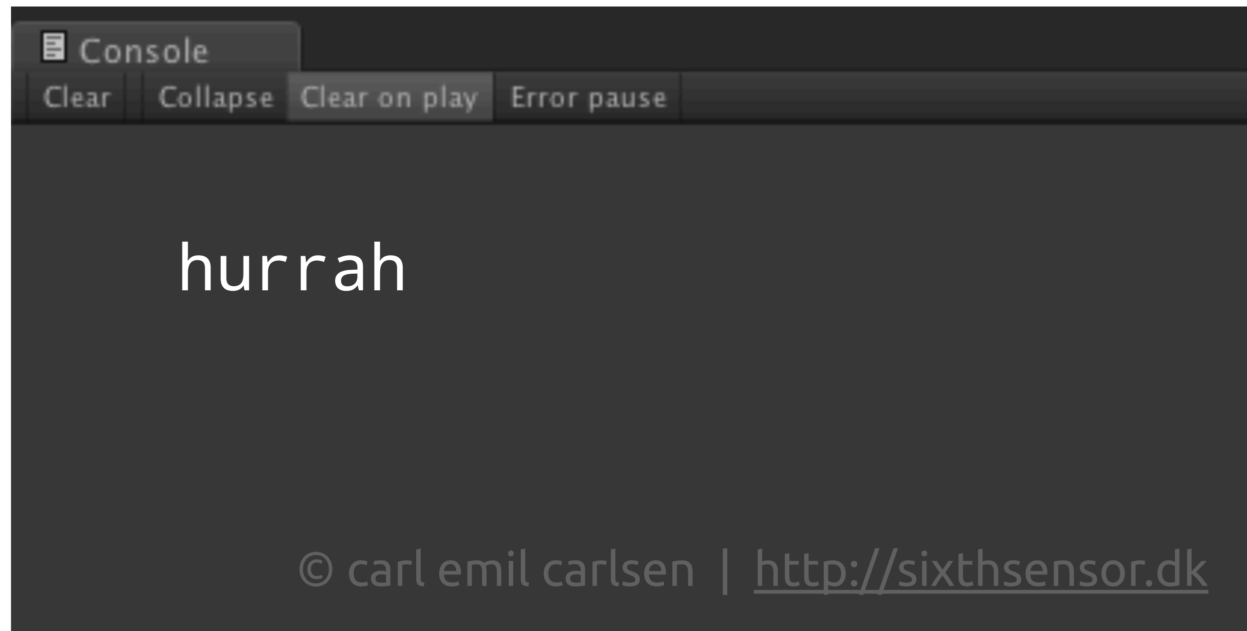


```
void Start(){
    bool didSay = true;
    Debug.Log( "did say hurrah: " + true );
}
```

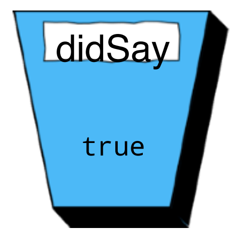
converting
boolean value
to string value

```
bool MaybeSay( string prose, float chance ){
    bool doSay = Random.value < chance;
    if(doSay){
        Debug.Log(prose);
    }
    return doSay;
}
```

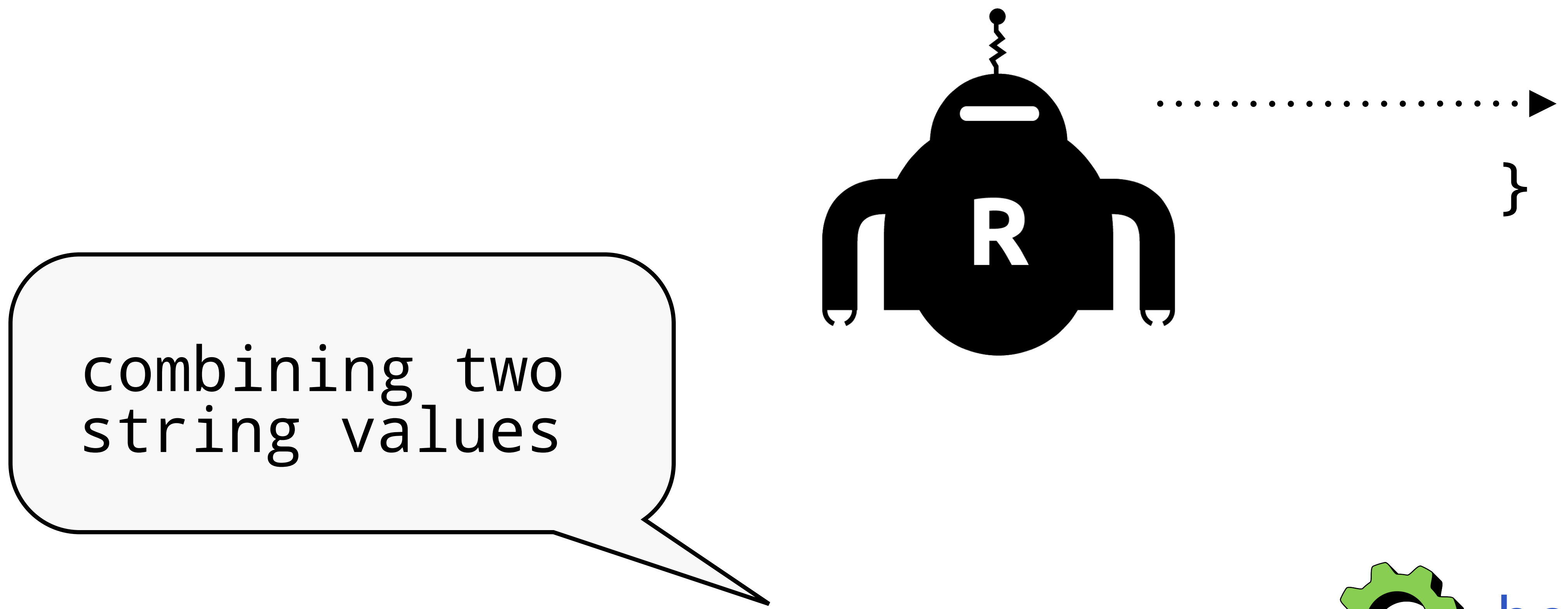
defining a function with arguments and return value



```
hurrah
```



```
void Start(){
    bool didSay = true;
    Debug.Log( "did say hurrah: " + "true" );
}
```



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bool MaybeSay( string prose, float chance ){
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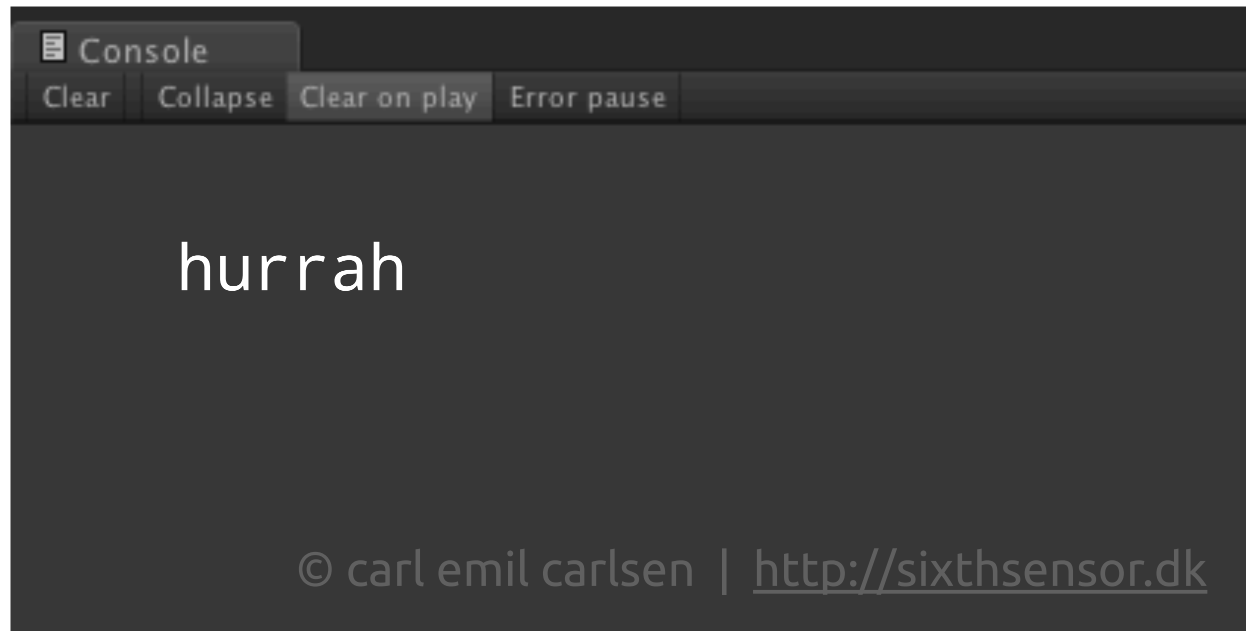
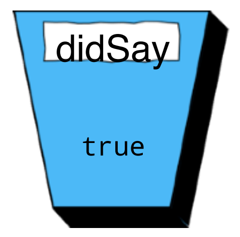
defining a function with
arguments and return value



```
hurrah
```



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void Start(){
   bool didSay = true;
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```

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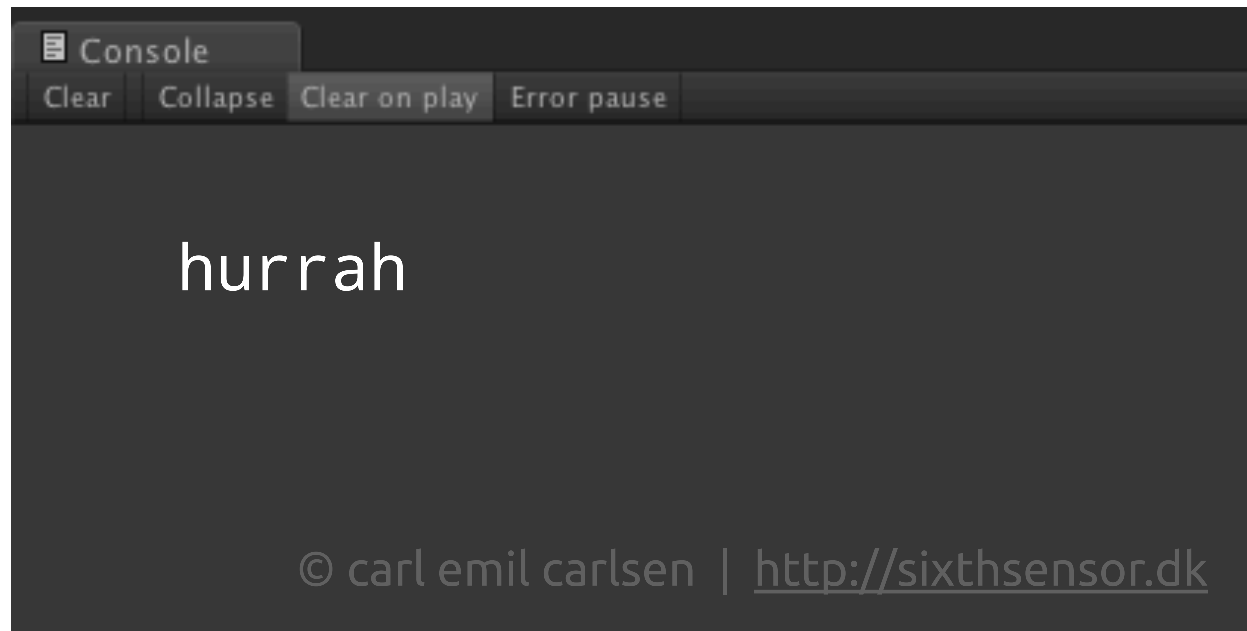
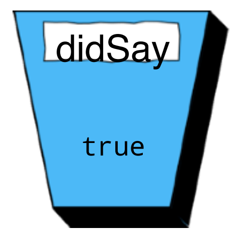
defining a function with arguments and return value



```
hurrah
```



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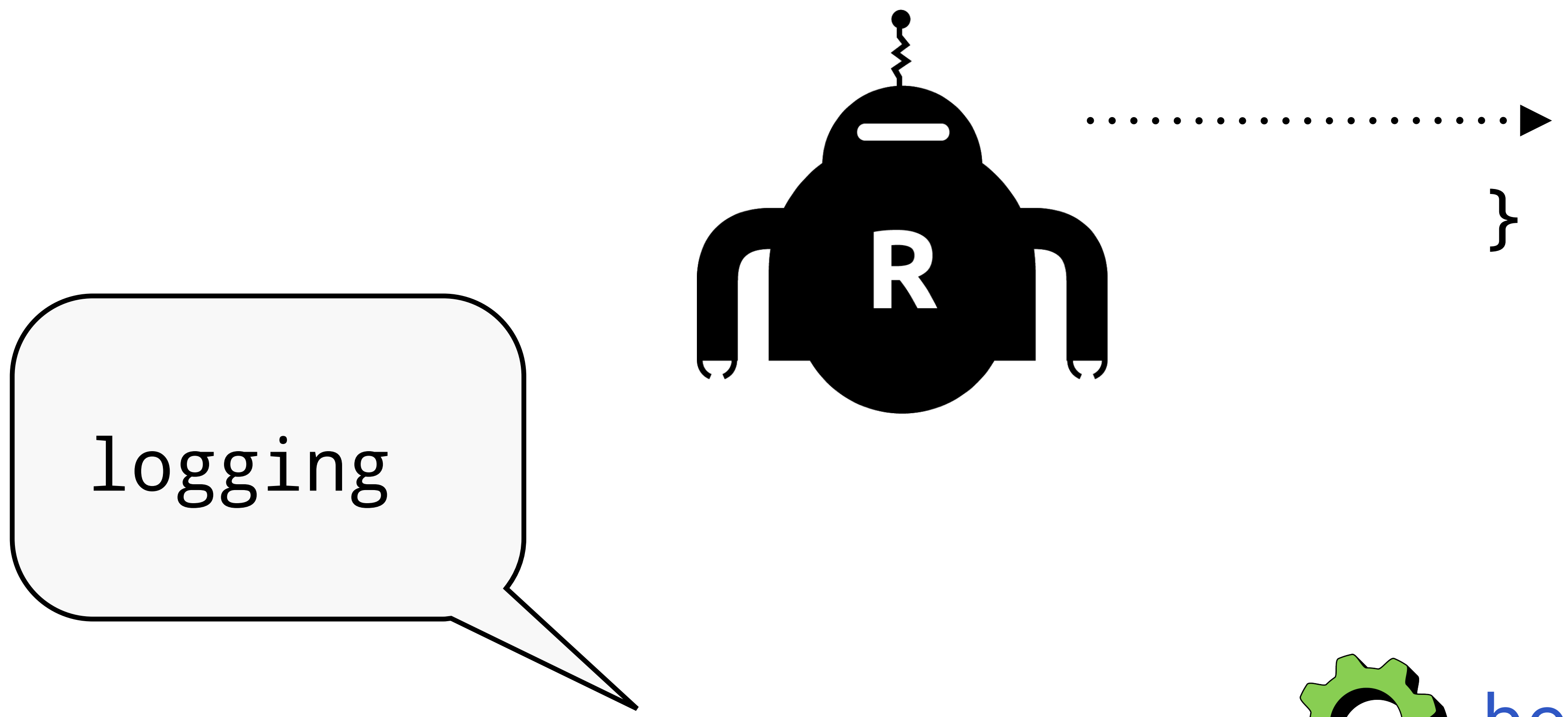

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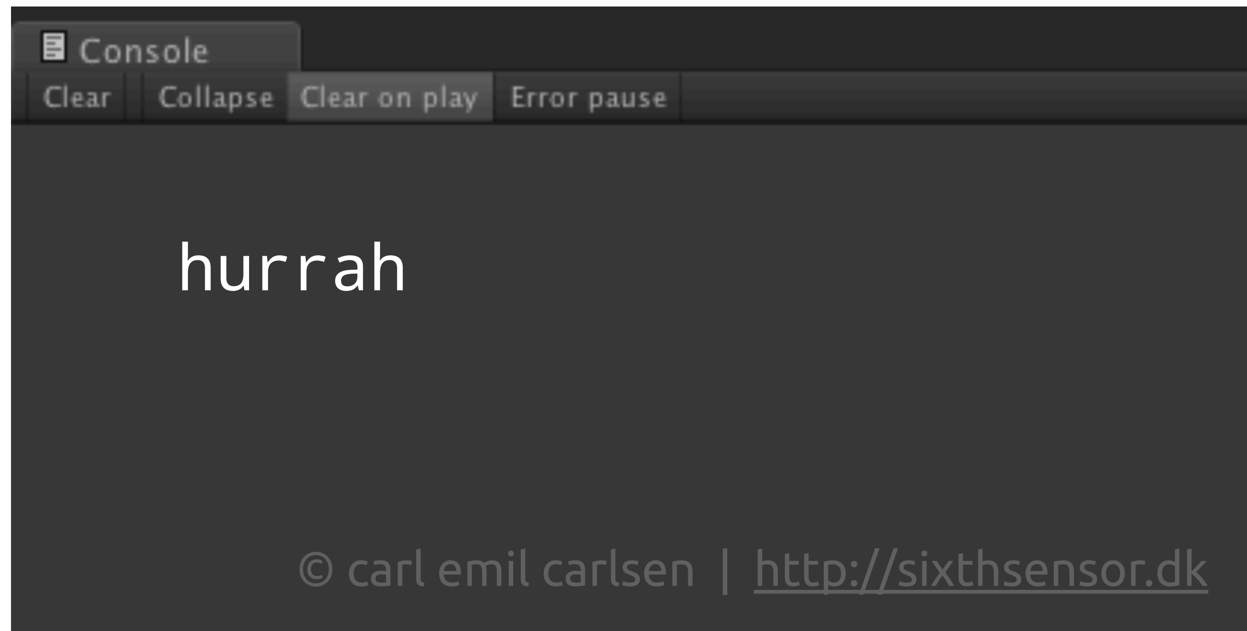
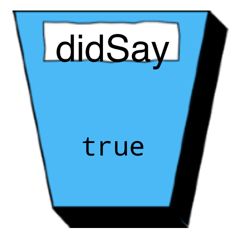
defining a function with arguments and return value



```
hurrah
```



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void Start(){
    bool didSay = true;
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}
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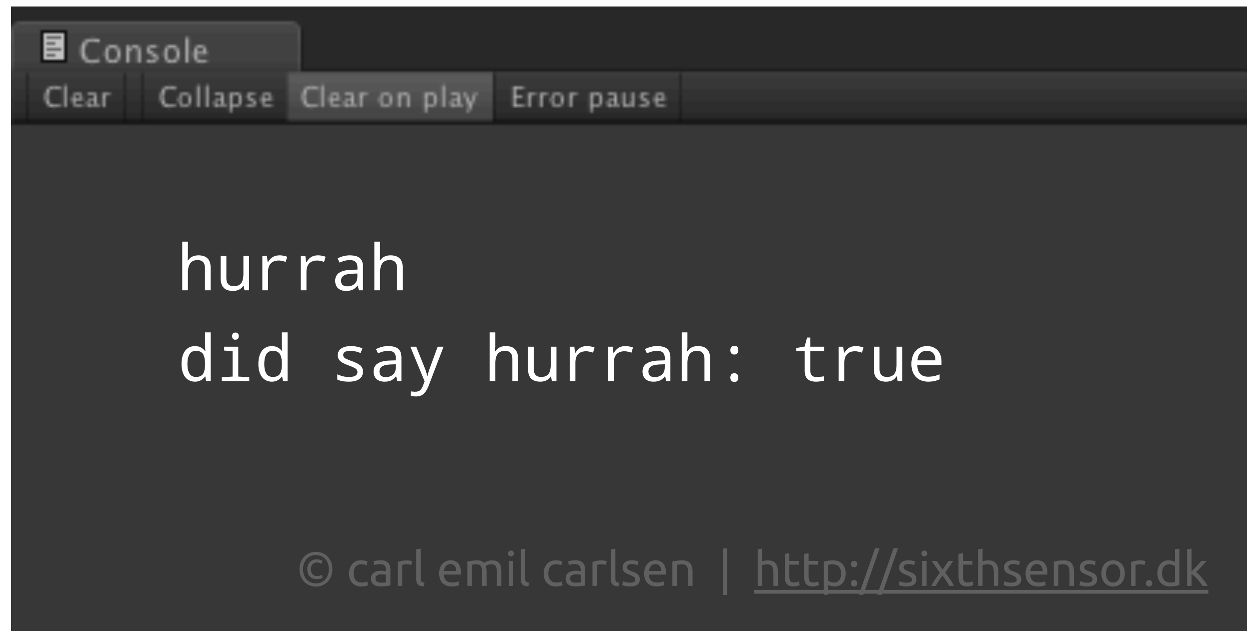
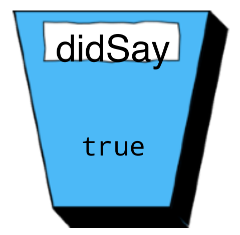
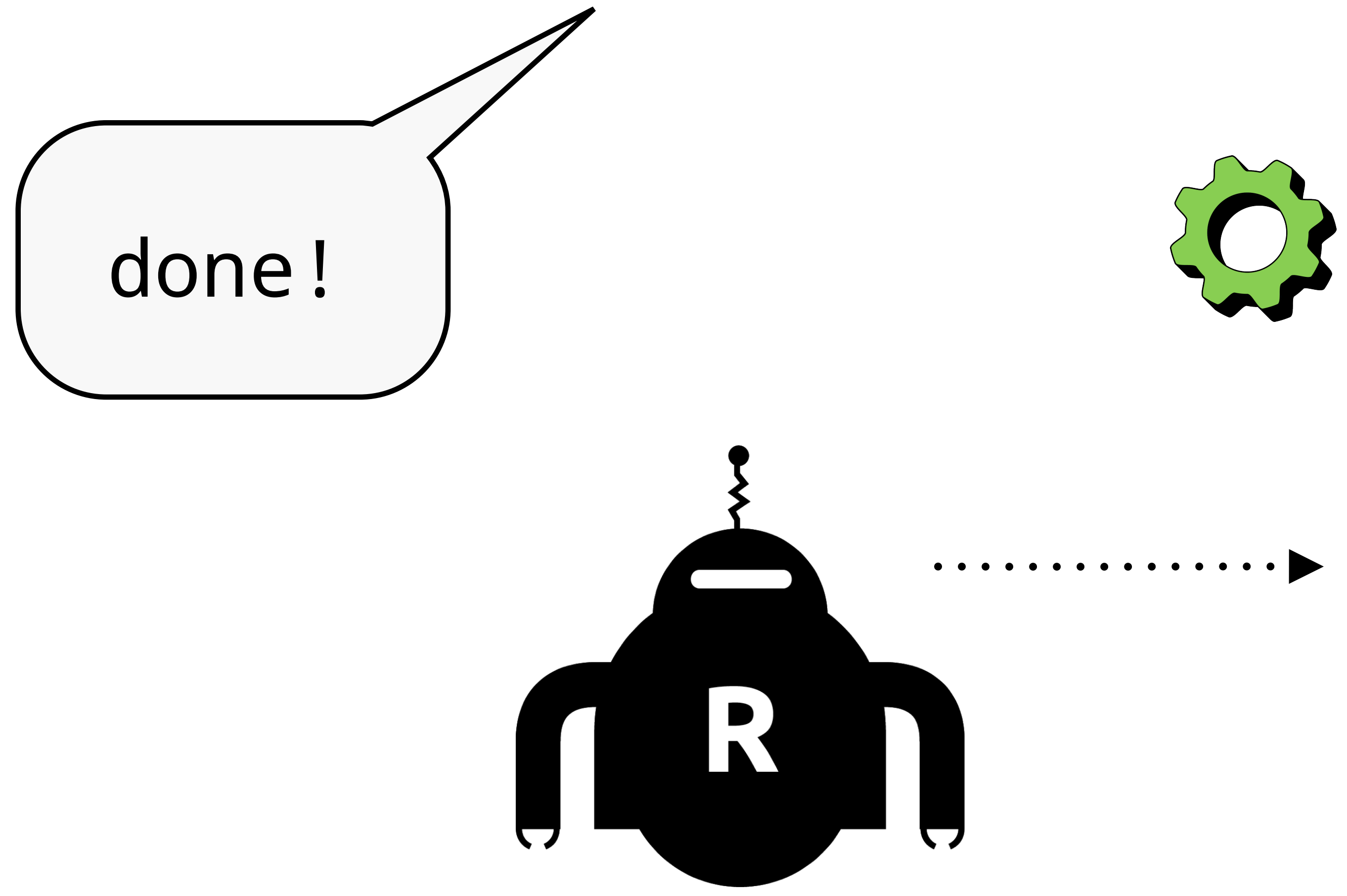
defining a function with arguments and return value



```
hurrah
did say hurrah: true
```





```
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    bool didSay = true;
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}
```

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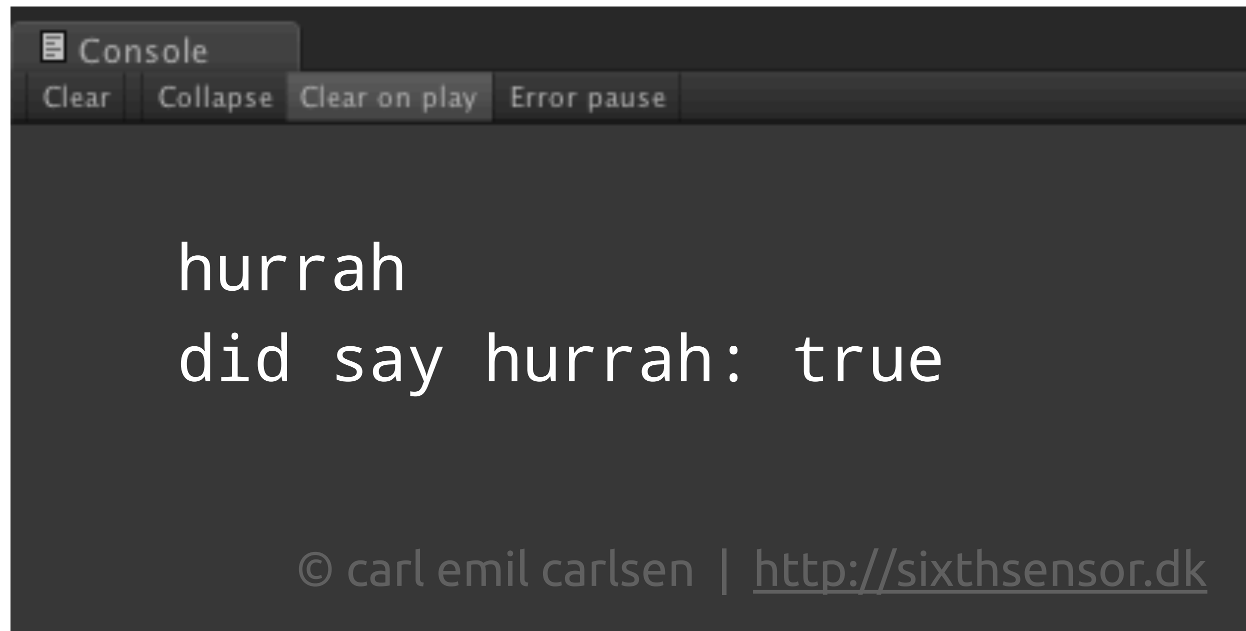
defining a function with arguments and return value



```
hurrah
did say hurrah: true
```