

This is CS 50.



Harvard College's Introduction to Computer Science I

COMPUTER SCIENCE 50

WEEK 0

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Algorithms

```
1  let socks_on_feet = 0
2  while socks_on_feet != 2
3      open sock drawer
4      look for sock
5      if you find a sock then
6          put on sock
7          socks_on_feet++
8          look for matching sock
9          if you find a matching sock then
10             put on matching sock
11             socks_on_feet++
12             close sock drawer
13         else
14             remove first sock from foot
15             socks_on_feet--
16     else
17         do laundry and replenish sock drawer
```

0 hai, C!

hai.c

```
#include <stdio.h>

int
main(int argc, char *argv[])
{
    printf("0 hai, world!\n");
}
```

0 hai, C!

```
#include <stdio.h>
```

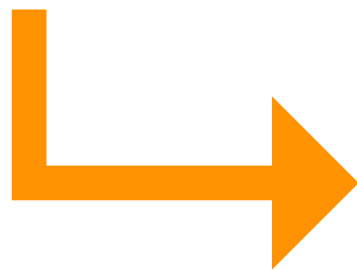
```
int
```

```
main(int argc, char *argv[])
```

```
{
```

```
    printf("0 hai, world!\n");
```

```
}
```



```
10000011 00000001 00010001 00000000 00111101 11111100 01110100 00111101
00000000 01000000 00000000 00000000 00000000 00000000 00000000 00000000
10010000 00000000 00000000 00000000 01010000 00000000 00000111 00110000
00001011 00000001 00001011 00000011 00001010 00000000 00000000 00000000
00000000 00100000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00100000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01110000 00010000 00000000 00100000 00000001 00000000 00000000 00000000
00000000 00000000 00000000 00100000 00000001 00000000 00000000 00000000
00000000 00000000 00000000 01000000 00000001 00000000 00000000 00000000
00000000 00100000 00000000 01000000 00000001 00000000 00000000 00000000
11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
10010000 10000000 00000000 01000000 00000001 00000000 00000000 00000000
00101110 01100100 01111001 01101110 01100001 01101101 01101001 01100011
10110000 00000100 00000000 00100000 00000001 00000000 00000000 00000000
10110000 00000100 00000000 00100000 00000001 00000000 00000000 00000000
10100000 00000001 00000000 00000000 00000000 00000000 00000000 00000000
10110000 00000100 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00100000 00000000 00000000
```

[...]

0 hai, Scratch!

Hai1.sb



Statements

say O hai, world!

wait 1 secs

play sound meow ▼

...

Statements

Hai{2,3}.sb

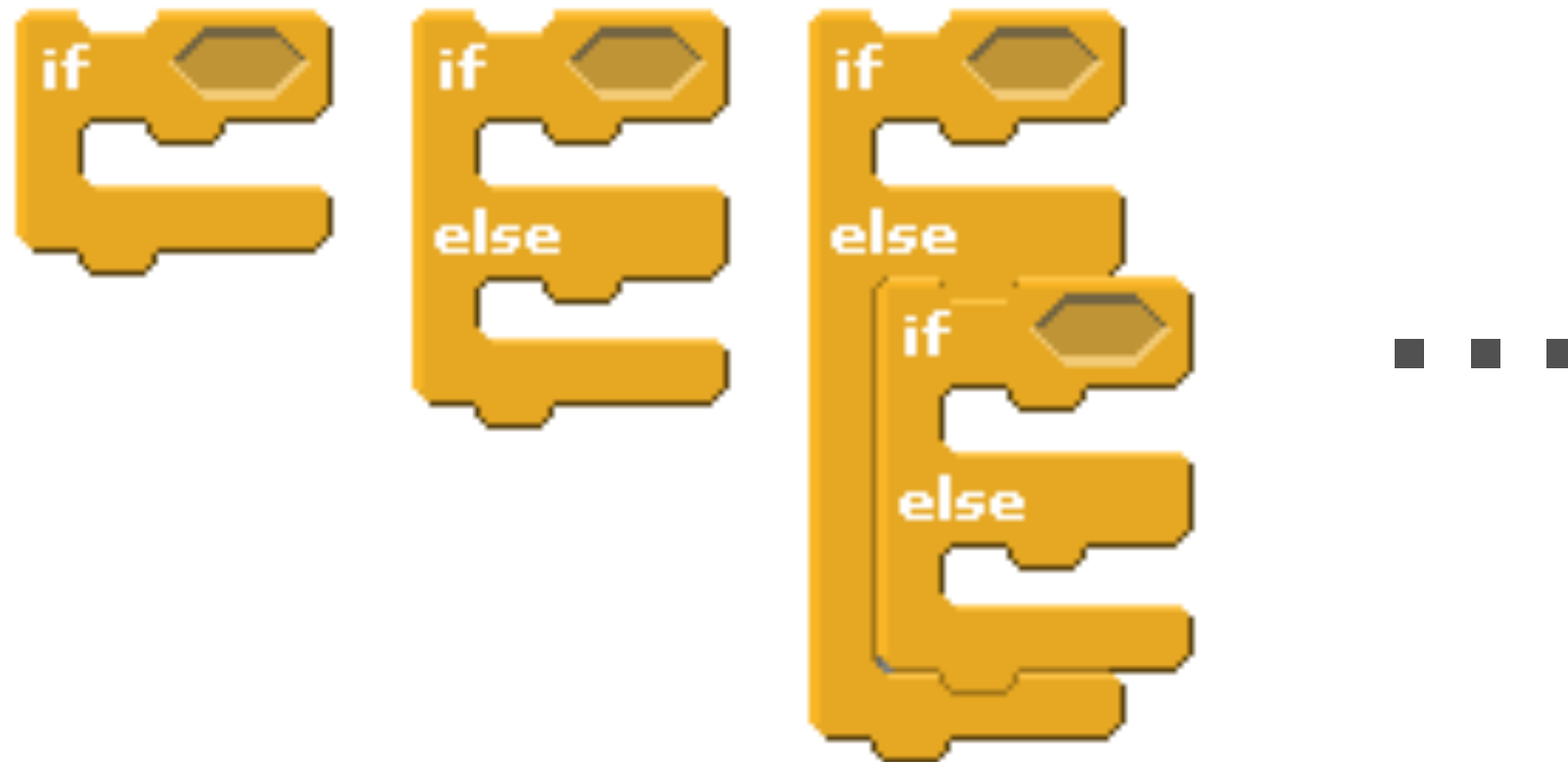


Boolean Expressions



■ ■ ■

Conditions



Conditions

Hai{4,5}.sb



Loops



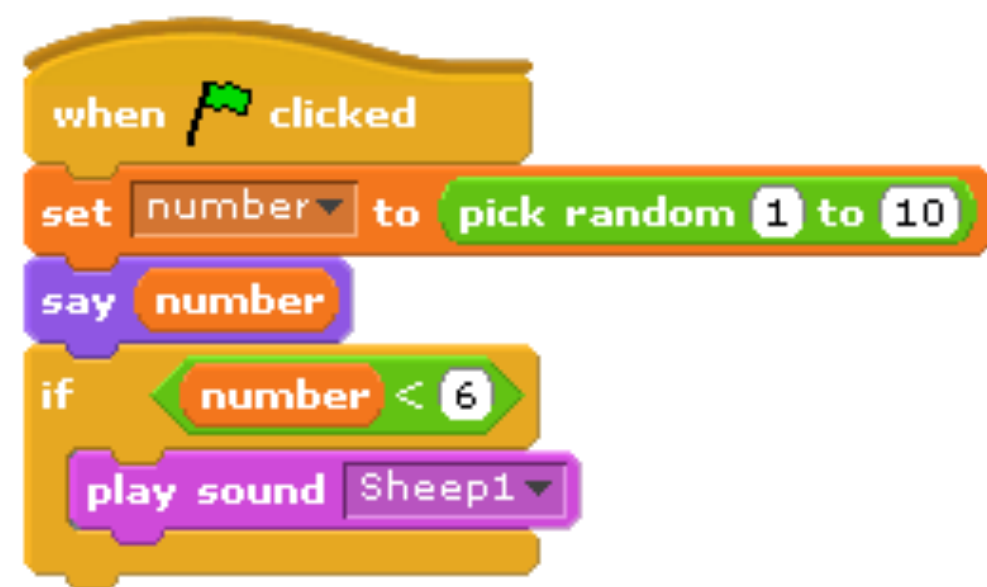
Loops

Hai{6,7,8}.sb



Variables

Count{1,2}.sb



Arrays

add thing to inventory ▼

delete 1 ▼ of inventory ▼

insert thing at 1 ▼ of inventory ▼

replace item 1 ▼ of inventory ▼ with thing

item 1 ▼ of inventory ▼

length of inventory ▼

Arrays

FruitcraftRPG.sb



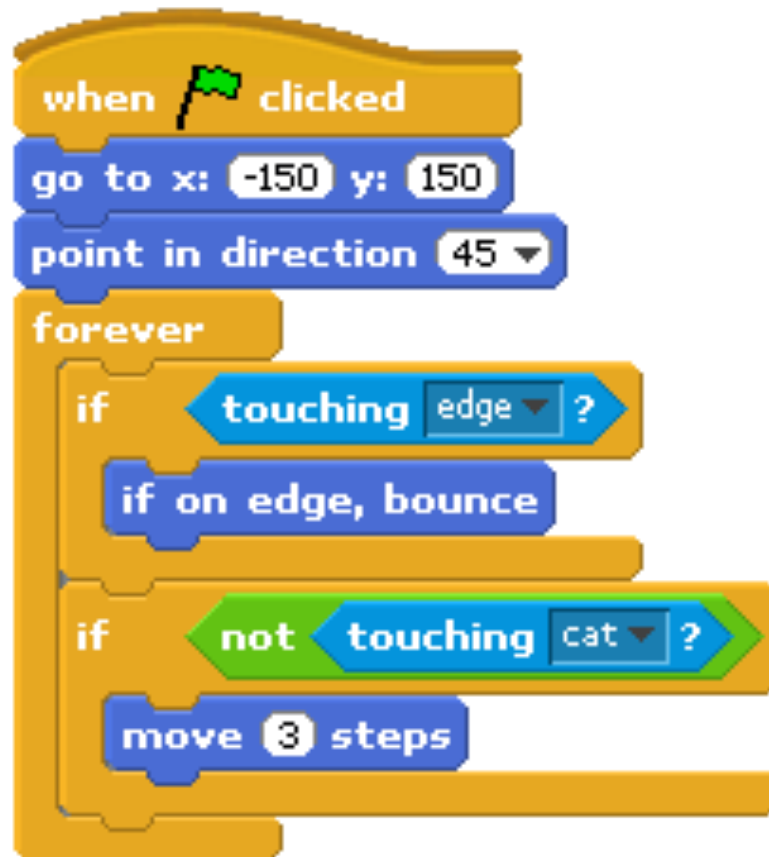
Threads

Move1.sb



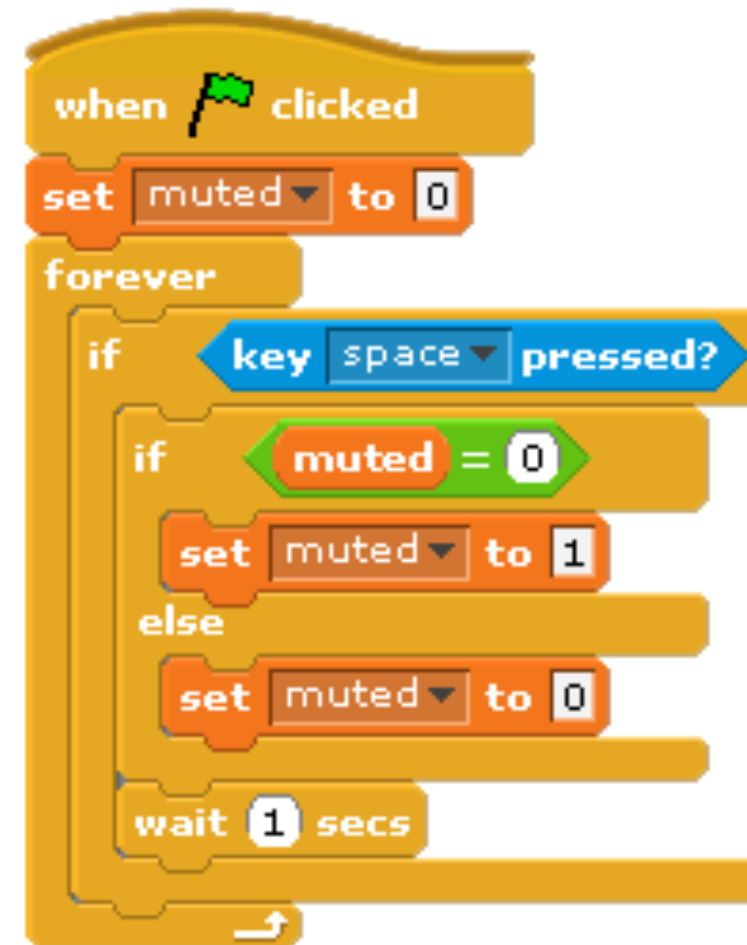
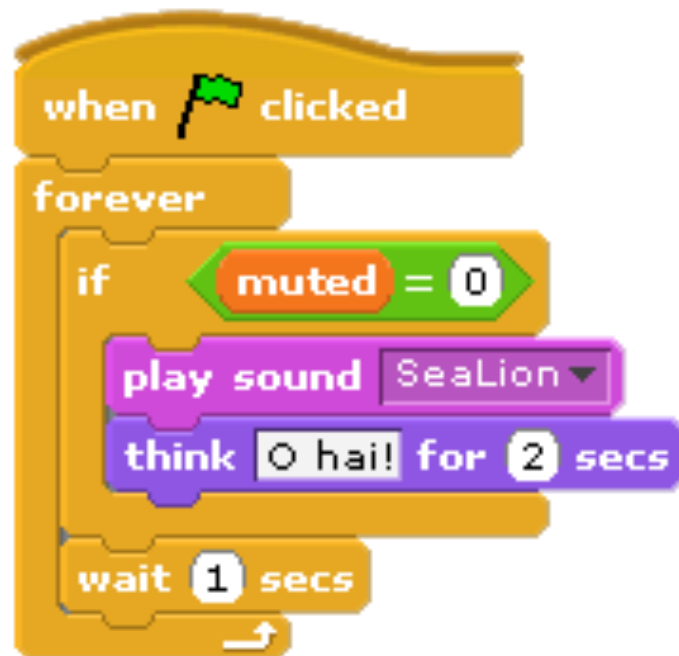
Threads

Move2.sb



Threads

Hai10.sb



Threads

David.sb



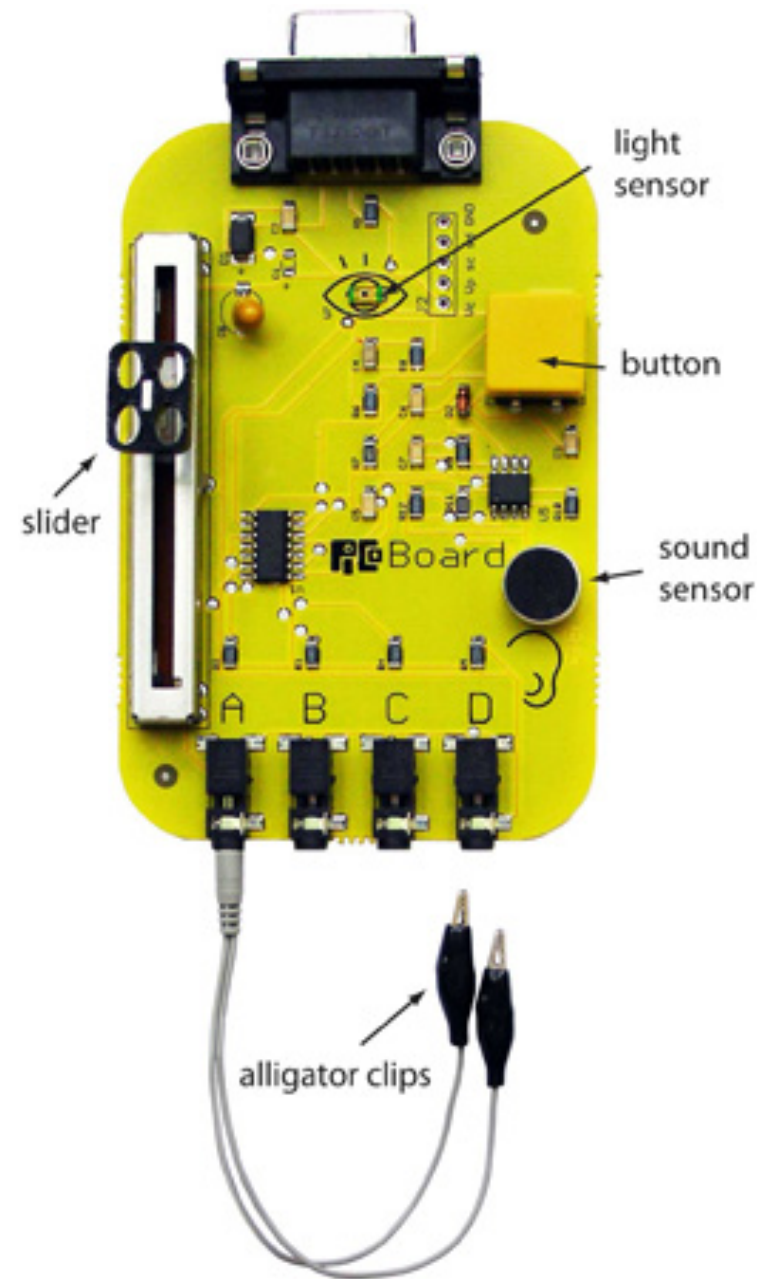
Events

Marco.sb



Sensors

singer.sb, Masquerade.sb, davidwu.sb



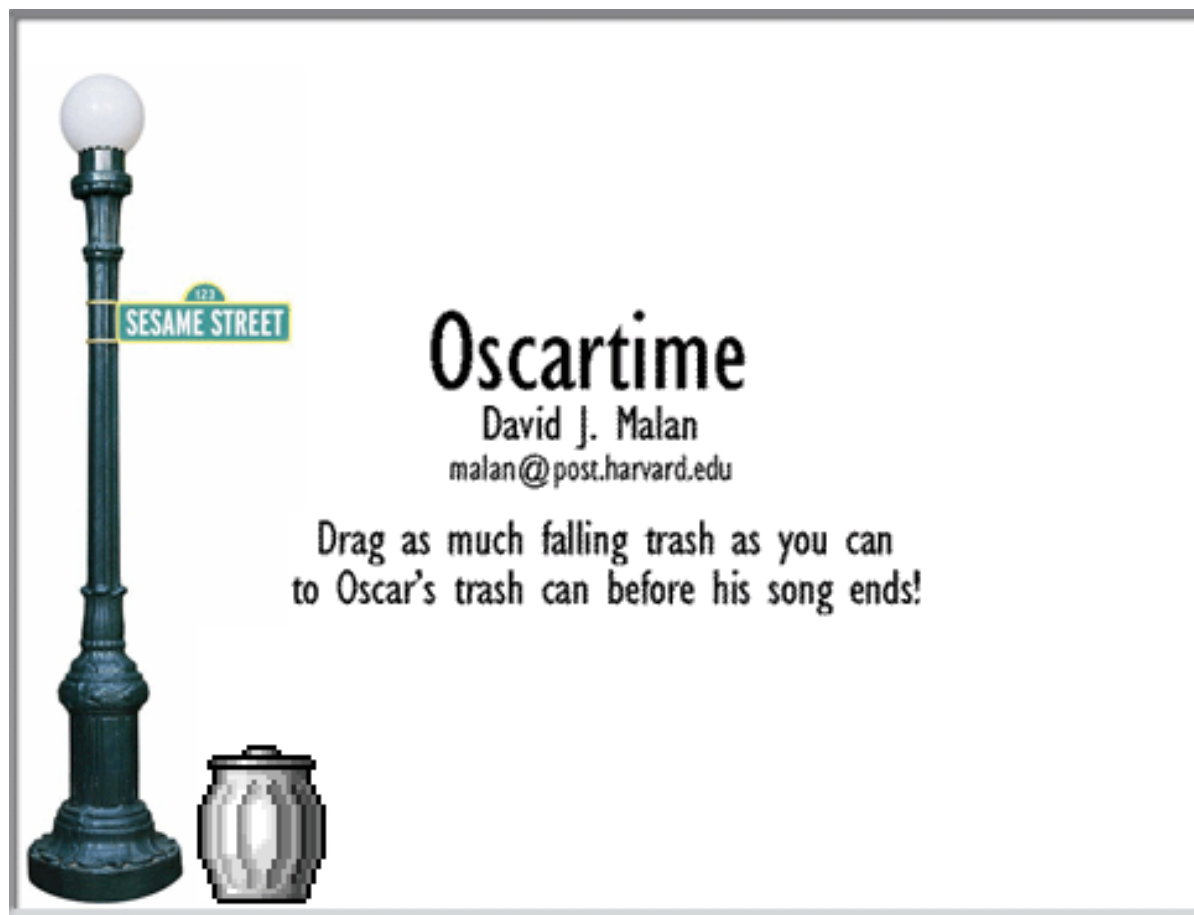
Oscartime

Oscartime.sb



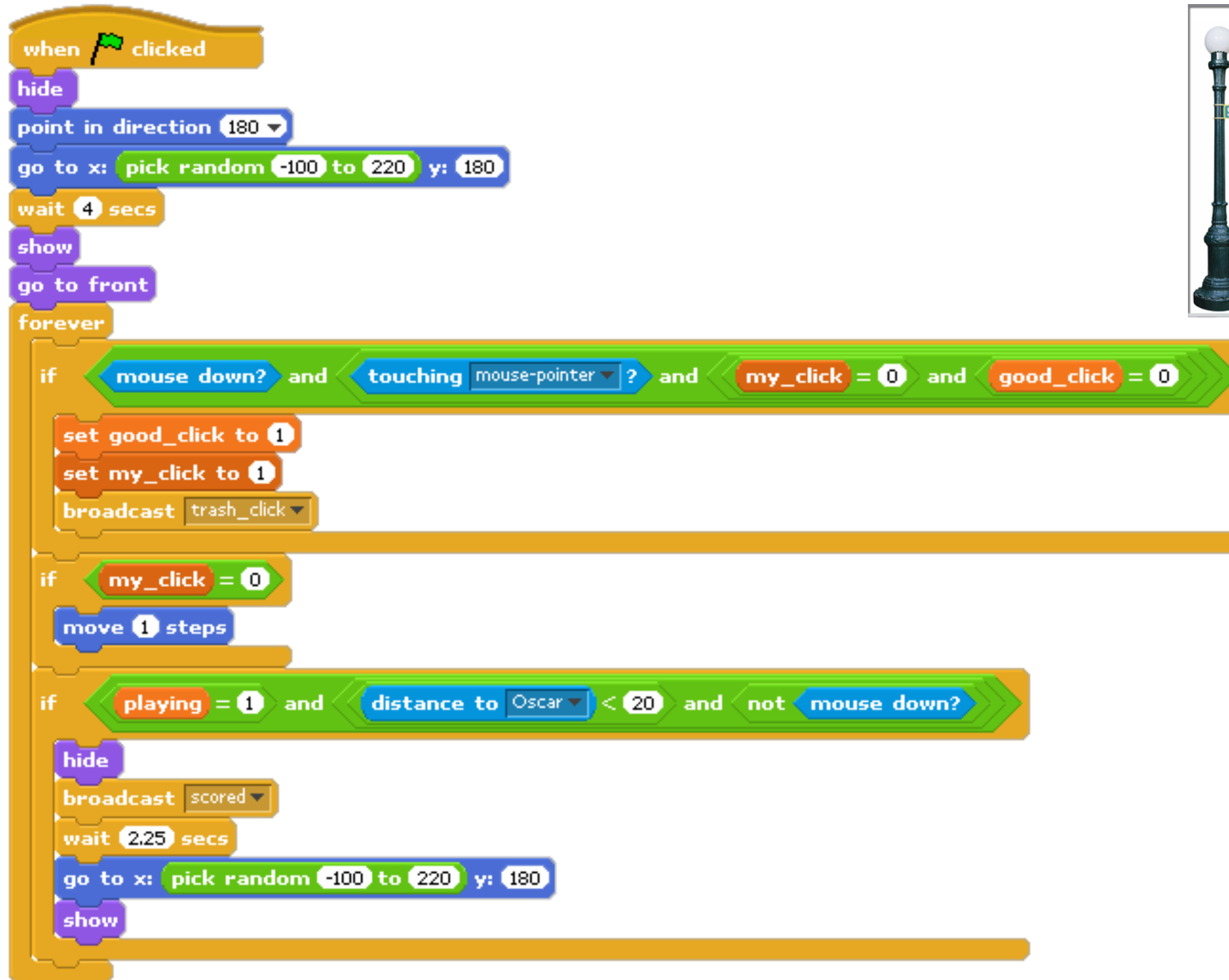
Oscartime

Displaying the instructions



Oscartime

Making trash fall



Oscartime

Implementing dragging



Oscartime

Imposing a time limit



```
when clicked
set costume to oscar1
go to x: -140 y: -122
show
set playing to 1
set score to 0
set scoring to 0
play sound soundtrack
wait 134 secs
set playing to 0
wait 2 secs
set costume to oscar1
wait 0.25 secs
set costume to oscar3
wait 0.1 secs
set costume to oscar4
wait 0.1 secs
set costume to oscar5
wait 0.1 secs
set costume to oscar6
wait 1 secs
say Your score is...
wait 3 secs
say score
wait 3 secs
say Thanks for all the trash!
wait 5 secs
stop all
```



Oscartime

Keeping score

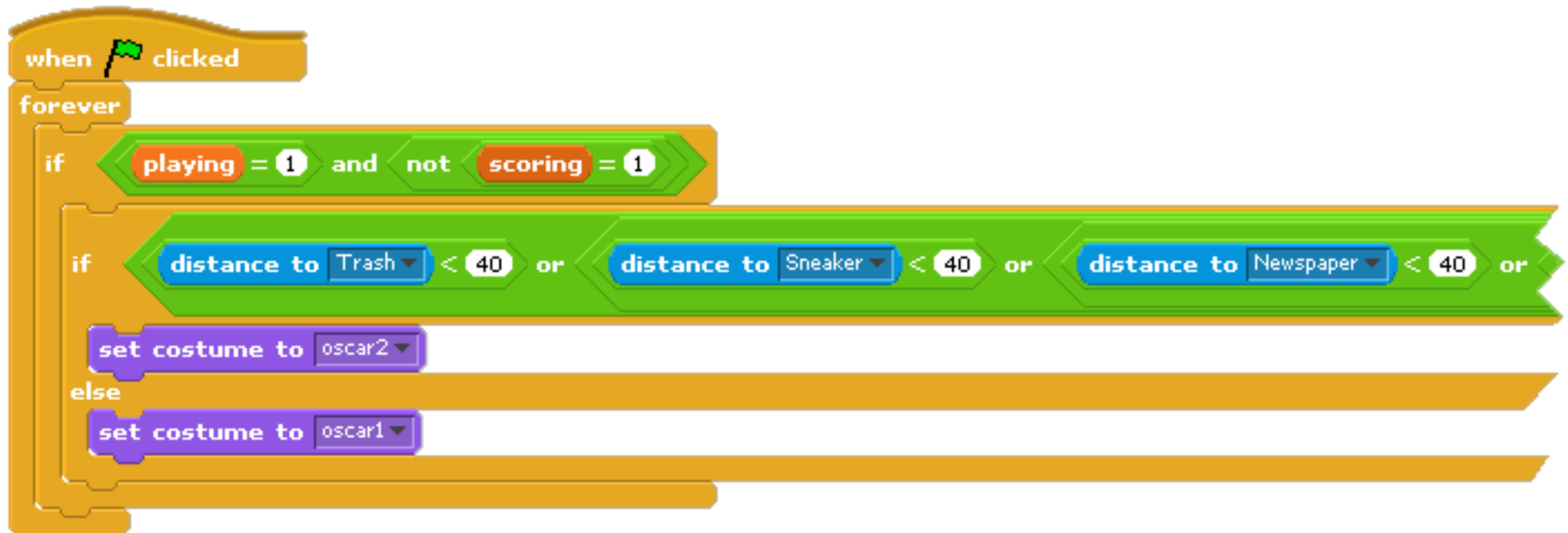


```
when I receive scored
if playing = 1
  set scoring to 1
  wait 0.5 secs
  set costume to oscar1
  wait 0.25 secs
  set costume to oscar3
  wait 0.1 secs
  set costume to oscar4
  wait 0.1 secs
  set costume to oscar5
  wait 0.1 secs
  set costume to oscar6
  change score by 1
  say score
  wait 1.5 secs
  say nothing
  set costume to oscar7
  wait 0.1 secs
  set costume to oscar8
  wait 0.1 secs
  set costume to oscar1
  wait 0.1 secs
  set scoring to 0
```

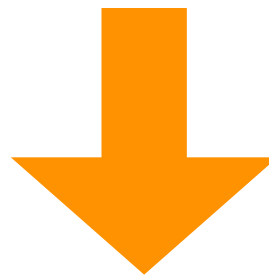


Oscartime

Raising Oscar's lid



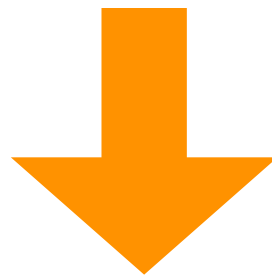
Scratch Meets C



```
int
main(int argc, char * argv[])
{
    printf("0 hai, world!\n");
}
```


Statements

Scratch v. C



```
printf("O hai, world!\n");
```

Boolean Expressions

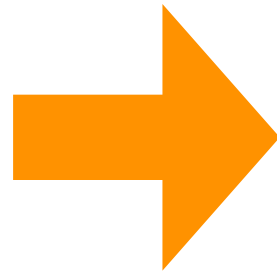
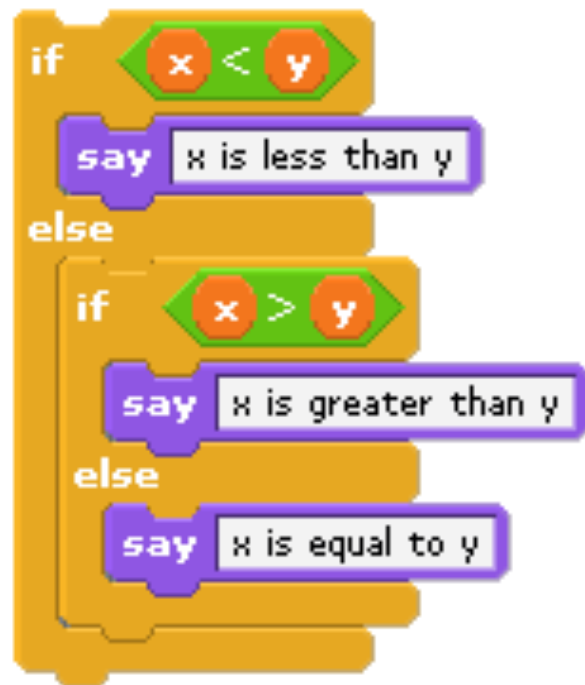
Scratch v. C



$(x < y)$
 $((x < y) \ \&\& \ (y < z))$

Conditions

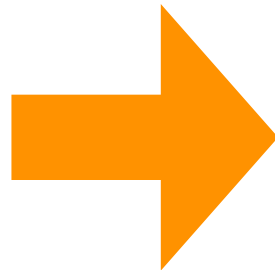
Scratch v. C



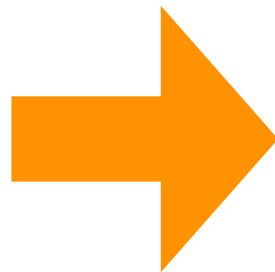
```
if (x < y)
{
    printf("x is less than y\n");
}
else if (x > y)
{
    printf("x is greater than y\n");
}
else
{
    printf("x is equal to y\n");
}
```

Loops

Scratch v. C



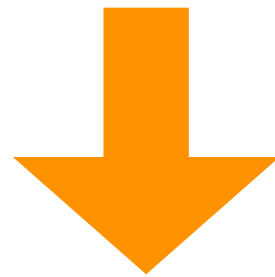
```
while (1)
{
    printf("O hai!\n");
}
```



```
for (int i = 0; i < 10; i++)
{
    printf("O hai!\n");
}
```


Variables

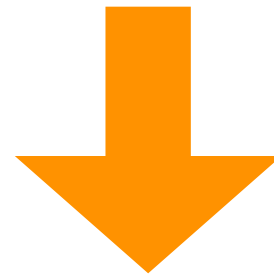
Scratch v. C



```
int counter = 0;
while (1)
{
    printf("%d\n", counter);
    counter++;
}
```

Arrays

Scratch v. C



```
char *inventory[SIZE];  
inventory[i] = "Orange";
```

kt hxb ai