

Algorithm Design & Problem Solving: Introduction to Scratch



Contents



1

Overview of Scratch

2

Practical implementation of Scratch

3

Programming constructs

4

An exercise

What is Scratch?



- Developed by MIT Media Lab.
- Makes use of snippets of code embedded in blocks shaped like puzzle pieces.
- Gives immediate visual feedback.

FruitcraftRPG

v39



inventory

length: 0



What is Scratch?



You can download it free from

<http://scratch.mit.edu>

You should register on the website so that you can upload and share your code.

What is Scratch?



- It was originally designed for children but is now regularly used in first year third level courses e.g.,
 - Harvard University
 - Rutgers University
 - Norfolk State University
 -

Hello, C

```
#include <stdio.h>
int
main(int argc, char * argv[])
{ printf("hello, world\n"); }
```

Hello, Scratch



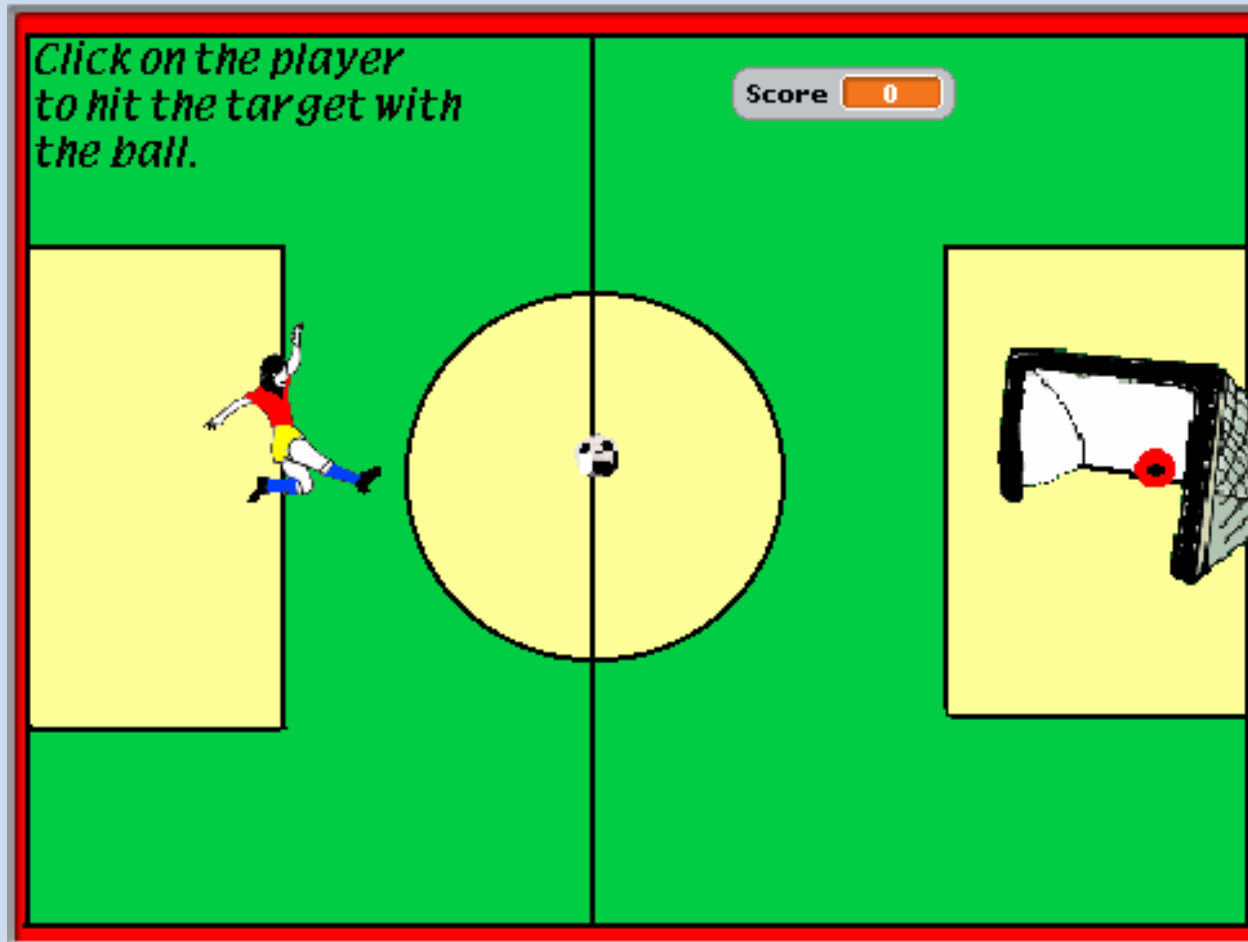
Welcome to Scratch!



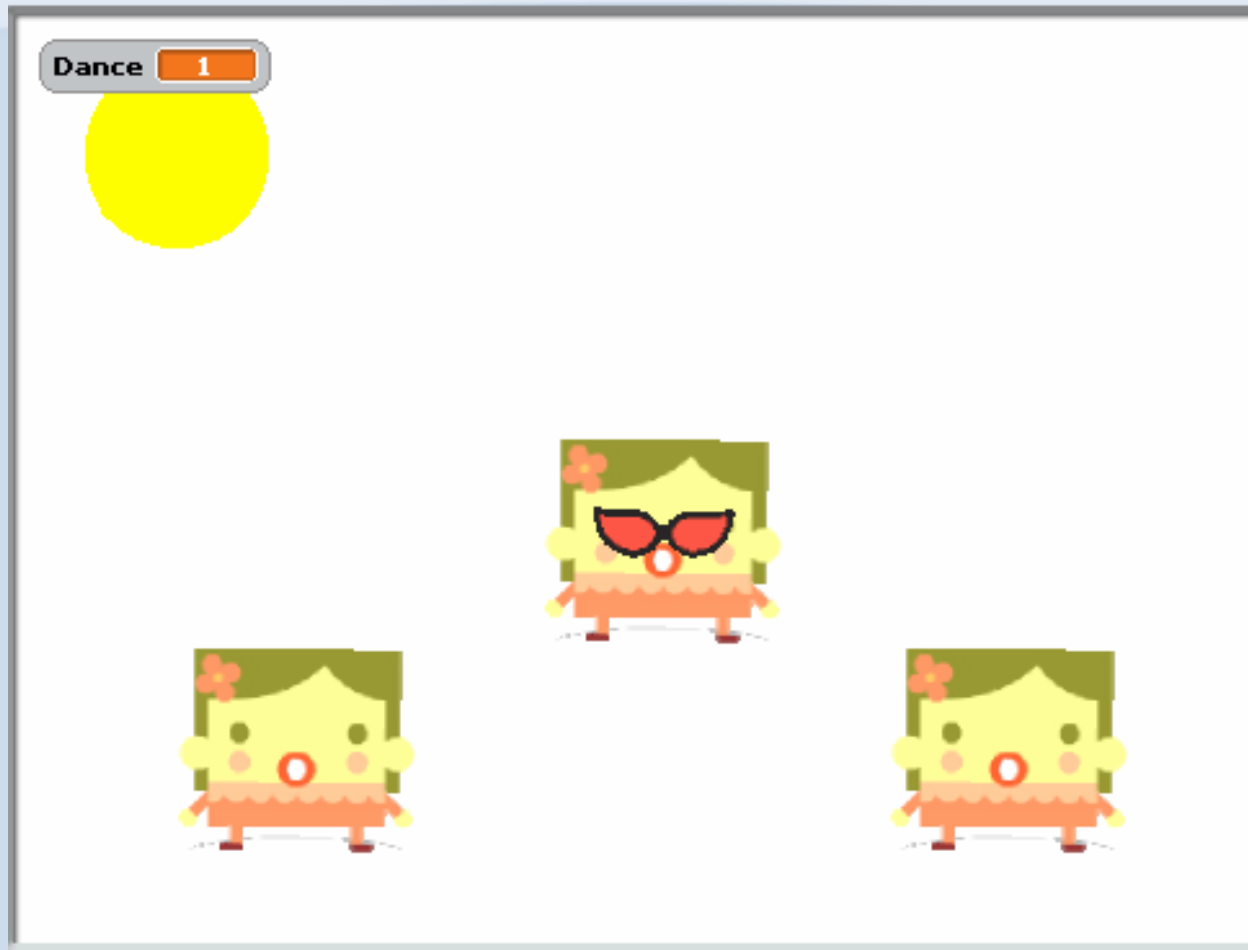
Dancing cookies



Welcome to Scratch!



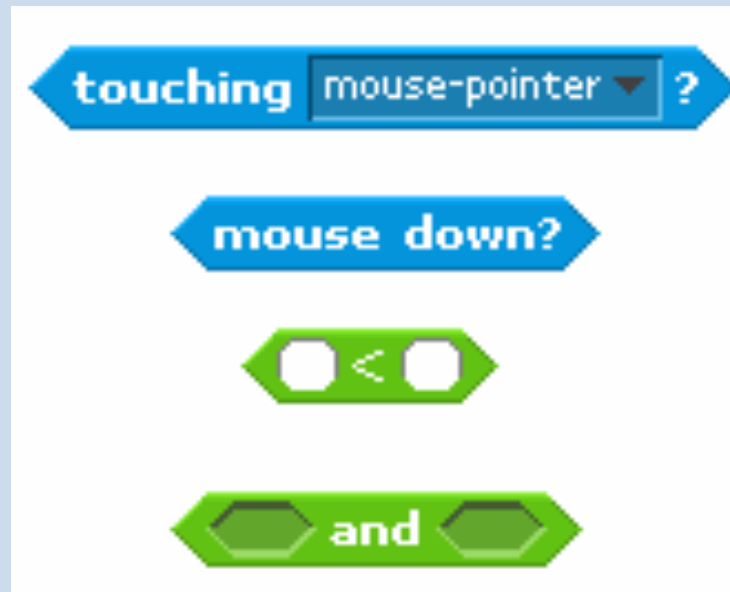
Welcome to Scratch!



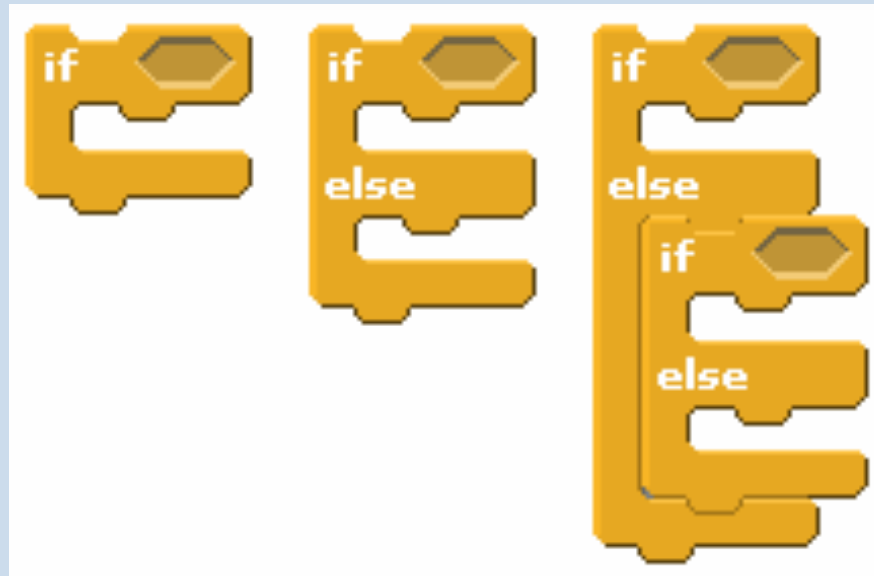
Some Statements



Some Boolean expressions



Some conditions



Some loops



Some variables

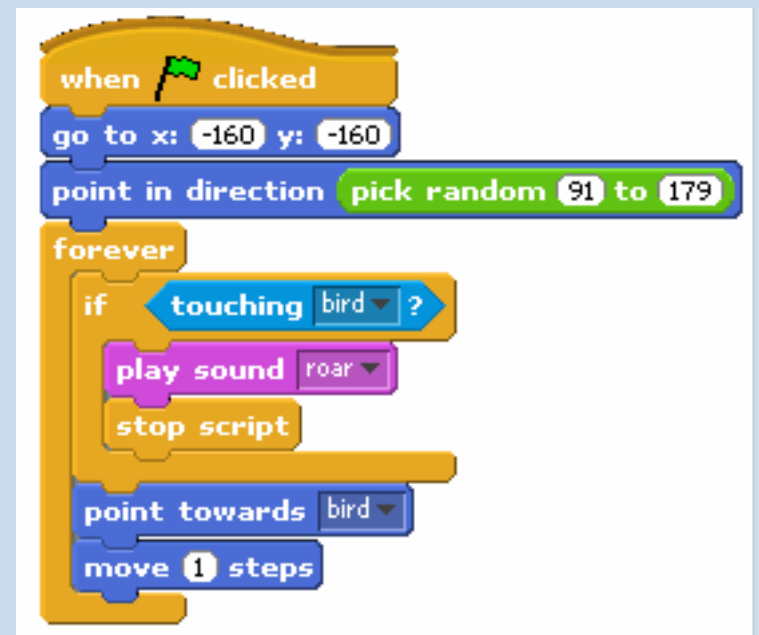
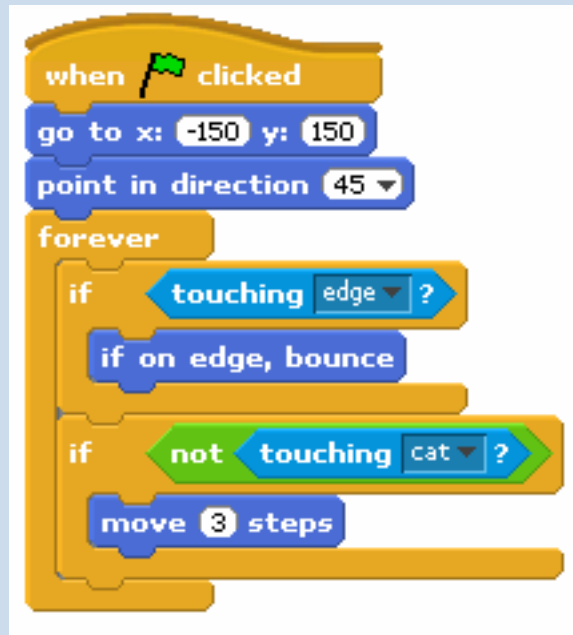


counter

set counter to 0

change counter by 1

Threads



Events



Scratch meets C



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



Statements



```
printf("hello, world\n");
```

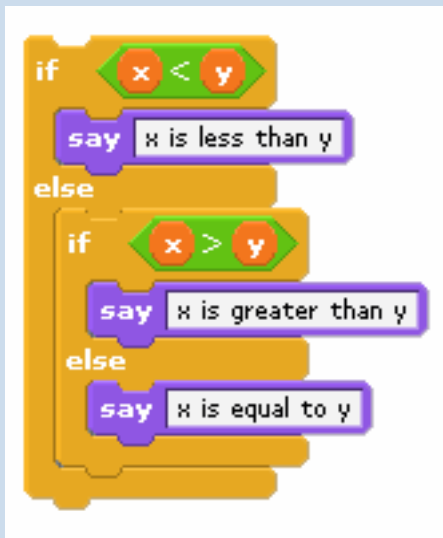

Boolean Expressions



If ($x < y$)

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

Conditions



```
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

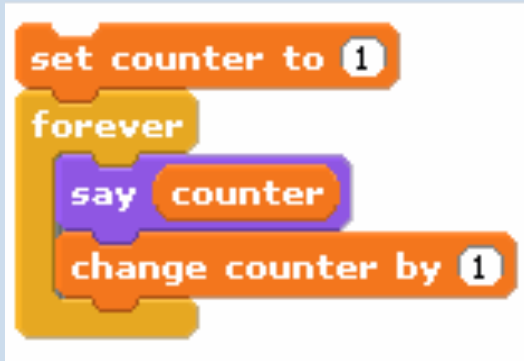


```
while (1)
{
    printf("Hello!\n");
}
```



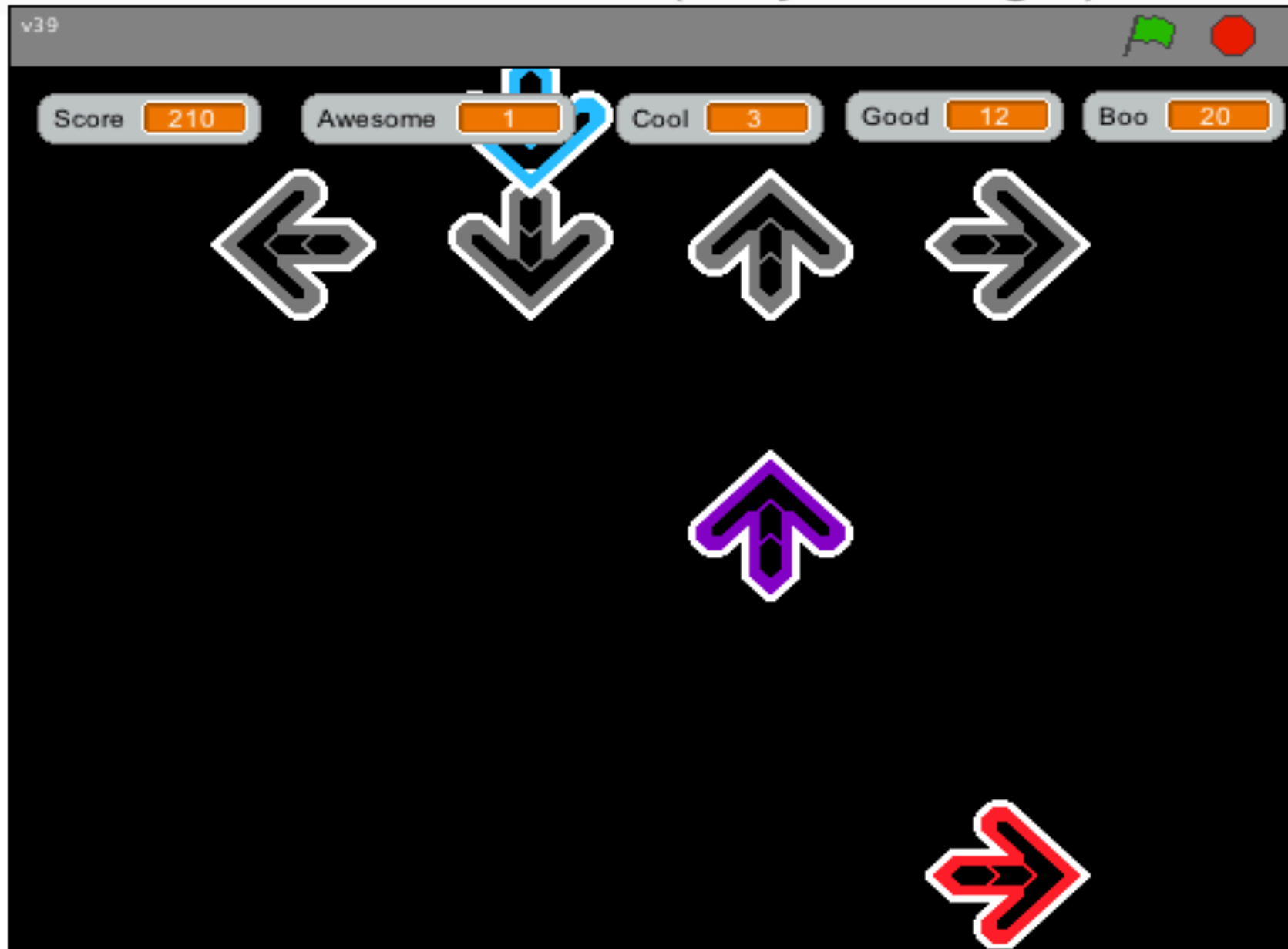
```
for (i = 0; i < 10; i++)
{
    printf("Hello!\n");
}
```

Variables



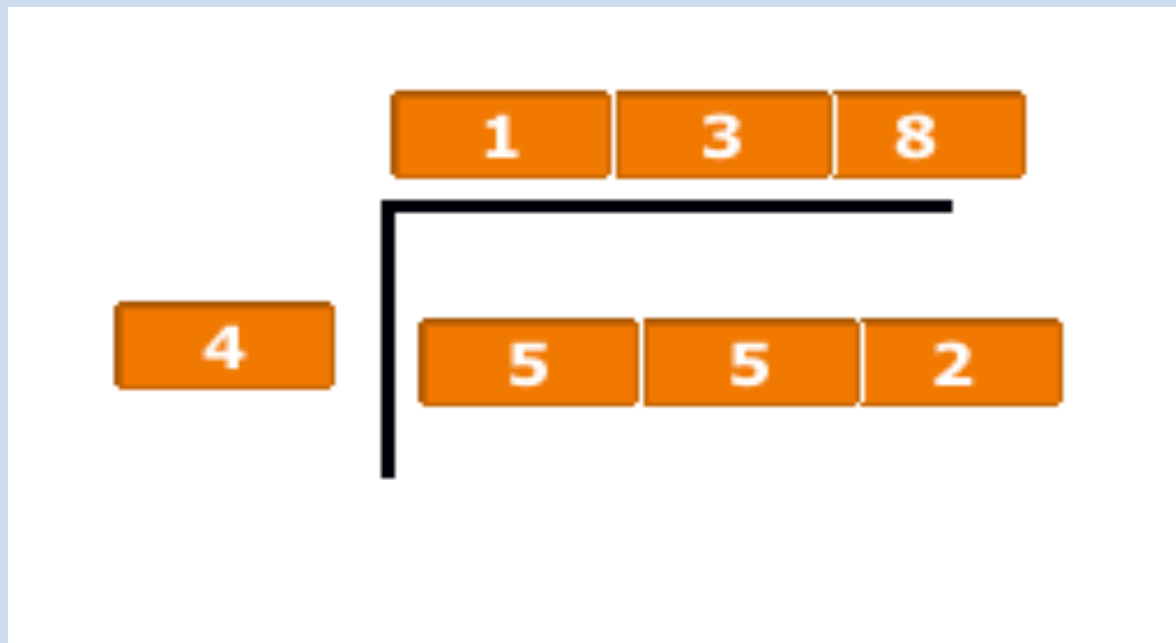
```
int counter = 0;  
while (1) {  
    printf("%d\n", counter);  
    counter++; }  
}
```

Scratch Scratch Revolution! (Kanye- Stronger)



Division

Write the pseudo code for a simple division problem such as the following.



**** You will need this for lab on Monday**

Thank You !

