

SCRATCH

Setting up



Scratch

Repl.it

w 3 schools



The screenshot shows a Scratch Project Editor window titled "Scratch Project Editor - Imagine, Program, Share" and a Repl.it window titled "Repl.it - CompetentResponsibleOpensoundsystem". The Scratch window displays a project titled "Untitled" with a cat sprite and two variables: "aud" set to 50 and "usd" set to 0.73. The Repl.it window shows a code editor with the following JavaScript code:

```
when clicked  
ask enter australian dollar amount you want to convert and wait  
set aud to answer  
ask enter USD rate in cents - eg 0.73 and wait  
set usd to answer  
say aud * usd for 2 secs
```

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Getting Output



```
❖ Hello, world!  
❖ |
```

Hello, world!

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ENTER YOUR NAME:

E.g: Julia

user input

when  clicked

ask What's your name? and wait

say answer

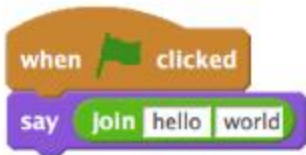
```
name = input("Enter your name")  
print(name)
```

```
<script>  
var name = prompt("Enter your name");  
document.write(name);  
</script>
```

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Concatenation

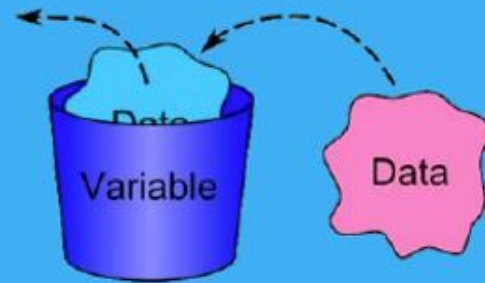


```
print('Hello, ' + 'world!')
```

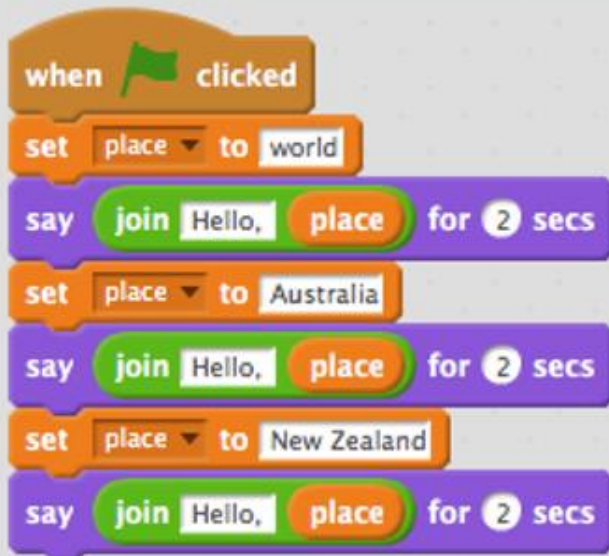
```
<script>  
document.write('Hello, ' + 'world!');  
</script>
```

- Spacing
- Integers and strings

SCRATCH



variables



```
#set variable to world  
place = "world"  
print("Hello, " + place)
```

```
#change variable to Australia  
place = "Australia"  
print("Hello, " + place)
```

```
#change variable to New Zealand  
place = "New Zealand"  
print("Hello " + place)
```

```
<script>  
//set variable to world  
var place = "world";  
document.write("Hello, " + place);
```

```
//change variable to Australia  
place = "Australia"  
document.write("Hello, " + place);
```

```
//change variable to New Zealand  
place = "New Zealand"  
document.write("Hello, " + place);  
</script>
```

SCRATCH



OPERATORS

Pen
Data

Operators
More Blocks

+

-

*

/

pick random 1 to 10

<

=

>

SCRATCH



Text based
Adventure

Gold



Ogre



Thief



SCRATCH



Text based Adventure

```
when clicked
  set goldCoin to 100
  say join You start the game with join goldCoin gold coins for 3 secs
  set goldCoin to goldCoin + 20
  say join You fight and defeat an Ogre. You now have join goldCoin gold coins for 3 secs
  set goldCoin to goldCoin / 2
  say join A thief takes half of your money. You now have join goldCoin gold coins for 3 secs
```


- Unplugged activity:
- Use Mentos and bottle caps to demonstrate variables

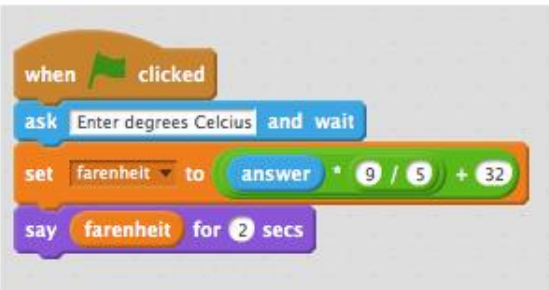


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Celcius to Fahrenheit converter

Celcius $\times (9/5) + 32$



```
celcius = input("Enter degrees Celcius")
```

```
fahrenheit = int(celcius) * 9/5 + 32
```

```
print(fahrenheit)
```

```
<script>
```

```
var celcius = prompt("Enter degrees Celcius");  
fahrenheit = celcius * 9/5 + 32  
document.write(fahrenheit)
```

```
</script>
```

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Australian to USA Dollars converter

```
when clicked
ask enter australian dollar amount you want to convert and wait
set aud to answer
ask enter USD rate in cents - eg 0.73 and wait
set usd to answer
say aud * usd for 2 secs
```

```
aud = input('Enter Australian Dollar amount you wish to convert')

usd = input('Enter USD rate in cents - eg 0.73')

print( float(aud) * float(usd) )
```

```
<script>

var aud = prompt('Enter Australian Dollar amount you wish to convert');
var usd = prompt('Enter USD rate in cents - eg 0.73');

document.write( aud * usd )

</script>
```

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Arrays

Avengers

1	Thor
2	Iron Man
3	Wasp
4	Dr Strange

+ length: 4

Thor is my favourite Avengers character

```
avengers = ['Thor', 'Iron Man', 'Wasp', 'Dr Strange']  
  
print(avengers[0] + ' is my favourite Avengers character.')
```

```
var avengers = ['Thor', 'Iron Man', 'Wasp', 'Dr Strange'];  
  
document.write(avengers[0] + ' is my favourite Avengers character.');
```

when clicked

say **join** item **1** of **Avengers** is my favourite Avengers character

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Random



```
import random
avengers = ['Thor', 'Iron Man', 'Wasp']
num = random.randint(0, 2)
print(avengers[num])
```

```
<script>
num = Math.floor( Math.random() * 2 );
avengers = ['Thor', 'Iron Man', 'Wasp'];
document.write(avengers[num]);
</script>
```

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PASSWORD
GENERATOR



The Scratch logo, featuring the word "SCRATCH" in a stylized, yellow, bubbly font on a blue background.

when  clicked

say **join** **item** **random** of **adjectives** **join** **item** **random** of **nouns** **item** **random** of **numbers** for **2** secs

```
import random
```

```
adjectives = ['happy', 'tall', 'false', 'silent', 'goofy']
```

```
nouns = ['sushi', 'lion', 'motor', 'fish', 'camel']
```

```
numbers = ['1', '2', '3', '4', '5']
```

```
print ( random.choice(adjectives) + random.choice(nouns) + random.choice(numbers) )
```

```
var adjectives = ['happy', 'tall', 'false', 'silent', 'goofy'];
```

```
var nouns = ['Sushi', 'Lion', 'Motor', 'Fish', 'Camel'];
```

```
var numbers = ['1', '2', '3', '4', '5'];
```

```
var randNum = Math.floor( Math.random() * adjectives.length - 1);
```

```
document.write( adjectives[randNum] + nouns[randNum] + numbers[randNum] );
```

The JavaScript logo, consisting of the letters "JS" in a bold, black, sans-serif font on a yellow square background.

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Decisión
Maker



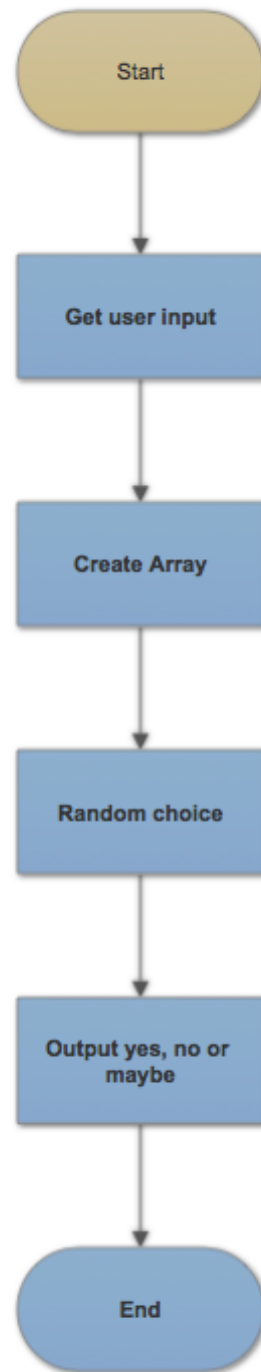
[Decision Maker \(js\)](#)

CHALLENGE

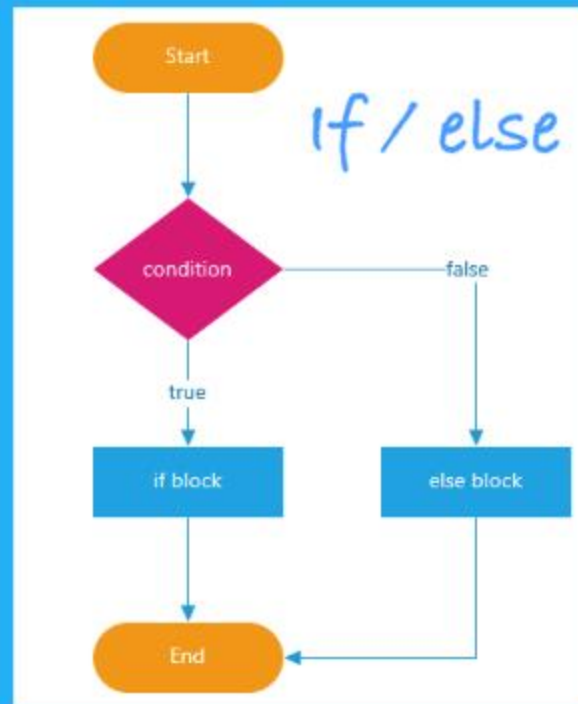
Could you make a magic 8 ball game?

Flowchart

Decision Maker (no branching)



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```
password = 'W98fhry'
answer = input("Enter the password")
```

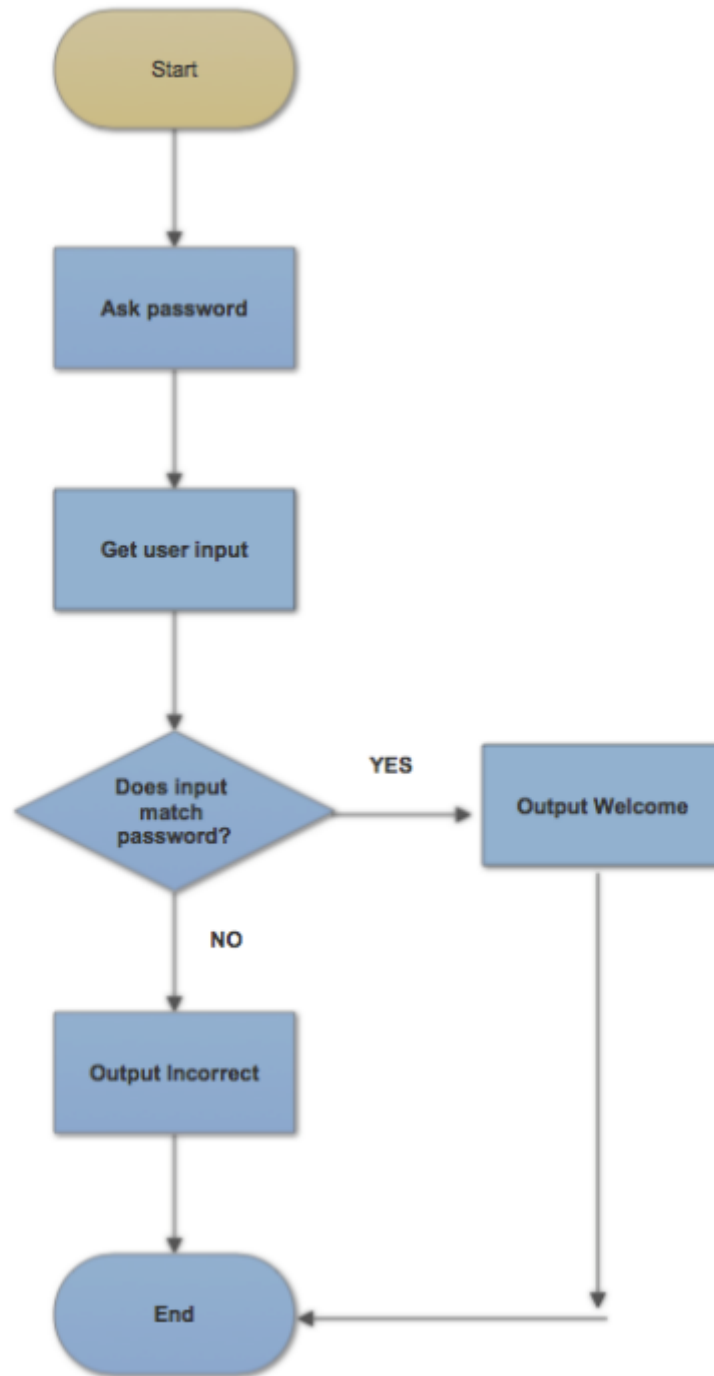
```
if (answer == password):
    print("welcome!")
else:
    print('incorrect password');
```

```
var password = 'W98fhry';
var answer = prompt("Enter the password");

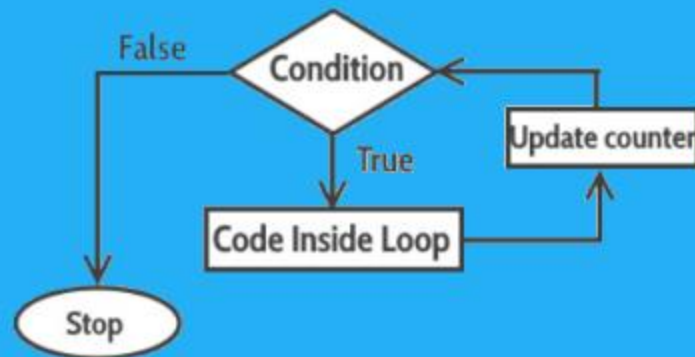
if (answer == password){
    document.write("welcome!");
}

else {
    document.write('incorrect password');
}
```

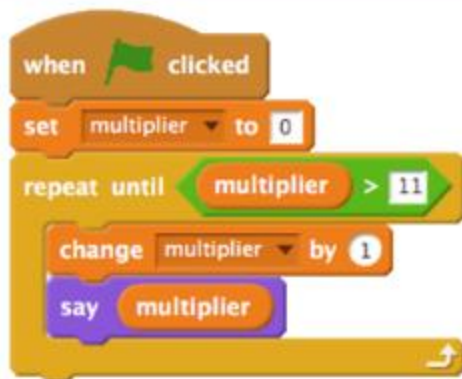
Flowchart Password 1 attempt



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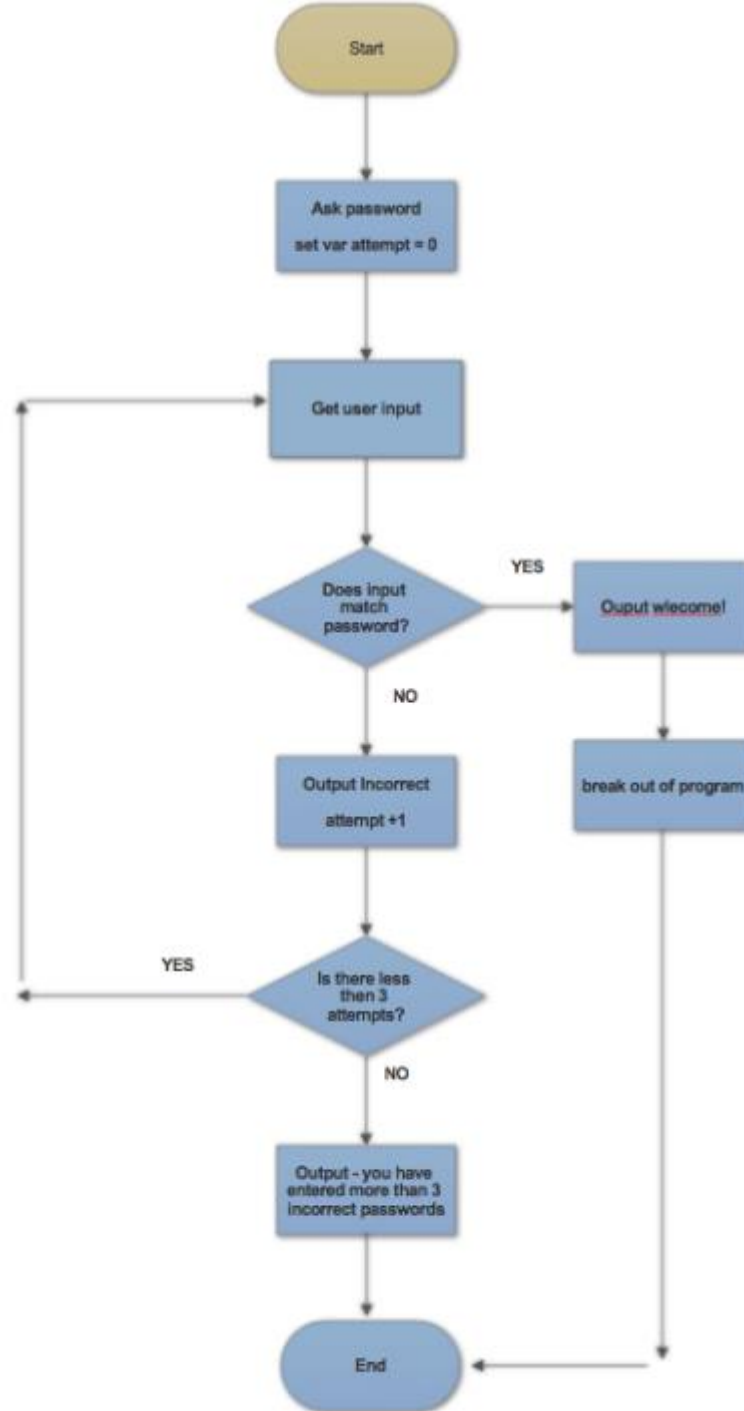
LOOPS



```
multiplier = 0
for multiplier in range(0, 12):
    print(multiplier + 1)
```

```
for (multiplier = 0; multiplier < 13; multiplier ++ )
{
    document.write(multiplier + "<br>");
}
```

Revised
Flowchart
Password
3 attempts
using loop



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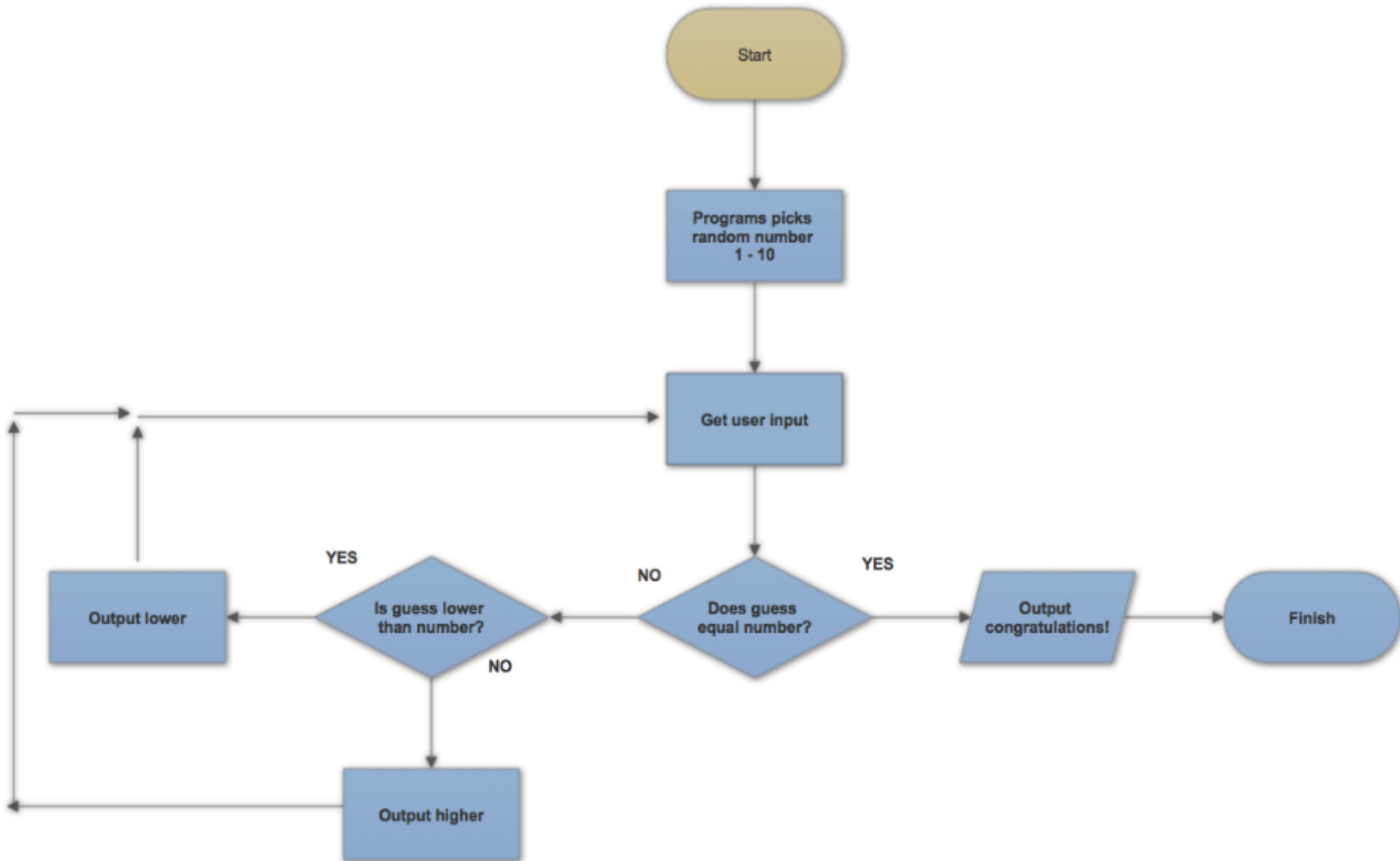


Guess the
number

HIGHER
LOWER

[Higher or lower \(js\)](#)

Flowchart: Higher or Lower



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Guess the number

```
when green flag clicked
  set randomNumber to pick random 1 to 10
  repeat 3
    ask Pick a number between 1 and 10 and wait
    if answer = randomNumber then
      say correct for 2 secs
      stop all
    if answer > randomNumber then
      say go lower! for 2 secs
    else
      say go higher! for 2 secs
  say Your turns are finished for 2 secs
  stop all
```

```
when green flag clicked
  set guessesLeft to 3
  set randomNumber to pick random 1 to 10
  repeat until guessesLeft < 1
    ask Pick a number between 1 and 10 and wait
    if answer = randomNumber then
      say correct for 2 secs
      stop all
    if answer > randomNumber then
      say go lower! for 2 secs
    else
      say go higher! for 2 secs
      change guessesLeft by -1
  say Your turns are finished for 2 secs
  stop all
```

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when clicked

set guessesLeft to 3

set randomNumber to pick random 1 to 10

repeat until guessesLeft < 1

ask Pick a number between 1 and 10 and wait

if answer = randomNumber then

say correct for 2 secs

stop all

if answer > randomNumber then

say go lower! for 2 secs

else

say go higher! for 2 secs

change guessesLeft by -1

say Your turns are finished for 2 secs

stop all



```
import random
randNum = random.randint(1, 10)
guessesLeft = 3
```

```
while guessesLeft > 0:
    userGuess = input('Guess a number between 1 and 10')
    userGuess = int(userGuess)

    if userGuess == randNum:
        print('you are correct')
        break

    elif userGuess < randNum:
        print('go higher!')

    elif userGuess > randNum:
        print('go lower!')

    guessesLeft = guessesLeft - 1
```

HIGHER
LOWER

JS

```
var randNum = Math.floor ( Math.random()*10 + 1 );
var guessesLeft = 3;

while (guessesLeft > 0) {
    var userGuess = prompt('Enter a number between 1 and 10');

    if (userGuess == randNum) {
        alert('correct');
        break;
    } else if (userGuess < randNum) {
        alert('higher');
    } else if (userGuess > randNum) {
        alert('lower');
    }

    guessesLeft --;
}
```

CHALLENGE

Movie Usher program

The movie usher asks you how old you are. You enter your age. If you are younger than 15, the usher responds that you can only watch PG rated movies. If you are 15 or over, you can watch PG and M rated movies.

For an extra challenge, add in an R rated option for over 18 years.

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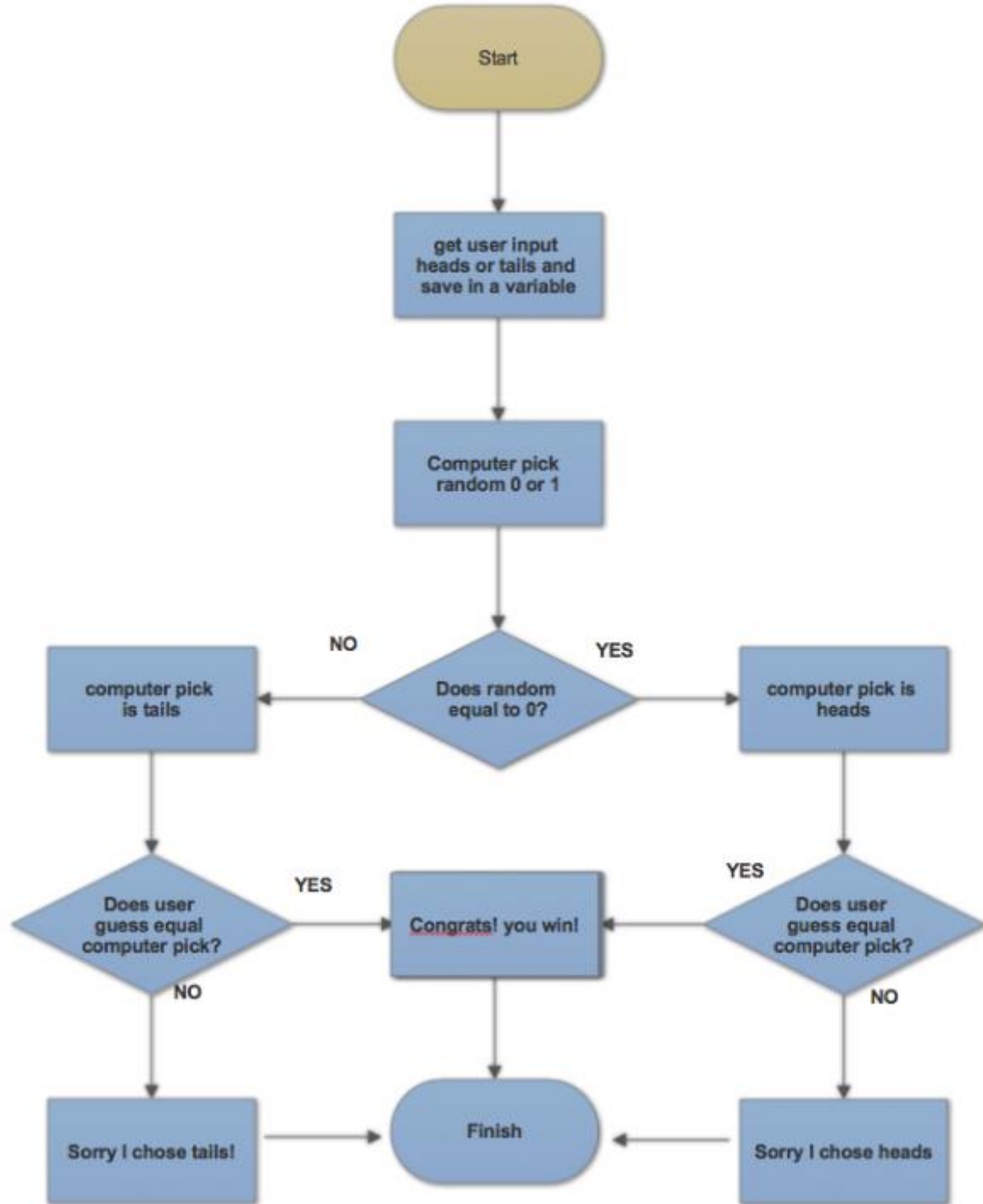


Heads or
Tails



[heads or tails \(js\)](#)

Flowchart: Heads or tails



```
when green flag clicked
ask Heads or tails? and wait
set userGuess to answer
set computerPick to pick random 0 to 1
if computerPick = 0 then
set computerPick to heads
else
set computerPick to tails
if userGuess = computerPick then
say Well done! for 2 secs
else
say join Sorry, I chose computerPick for 2 secs
```



```
userGuess = input('Heads or tails')
computerPick = random.randint(0,1)
```



```
if computerPick == 0:
| computerPick = 'heads'
else:
| computerPick = 'tails'
```

```
if userGuess == computerPick:
| print('Yes!')
else:
| print('Sorry!')
```

```
var userGuess = prompt('Heads or tails');
var computerPick = Math.floor(Math.random * 2
```

```
if (computerPick == 0) {
| computerPick = 'heads';
} else {
| computerPick = 'tails';
}
```



```
if (userGuess == computerPick) {
| document.write('Yes!');
} else {
| document.write('Sorry!');
}
```

CHALLENGE

Could you make a scissors, paper, rock game?

[Scissors, paper, rock game](#) (js)

What is the logic?

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Times Table Generator

1 times table 1x1=1 2x1=2 3x1=3 4x1=4 5x1=5 6x1=6 7x1=7 8x1=8 9x1=9 10x1=10 11x1=11 12x1=12	2 times table 1x2=2 2x2=4 3x2=6 4x2=8 5x2=10 6x2=12 7x2=14 8x2=16 9x2=18 10x2=20 11x2=22 12x2=24	3 times table 1x3=3 2x3=6 3x3=9 4x3=12 5x3=15 6x3=18 7x3=21 8x3=24 9x3=27 10x3=30 11x3=33 12x3=36	4 times table 1x4=4 2x4=8 3x4=12 4x4=16 5x4=20 6x4=24 7x4=28 8x4=32 9x4=36 10x4=40 11x4=44 12x4=48	5 times table 1x5=5 2x5=10 3x5=15 4x5=20 5x5=25 6x5=30 7x5=35 8x5=40 9x5=45 10x5=50 11x5=55 12x5=60	6 times table 1x6=6 2x6=12 3x6=18 4x6=24 5x6=30 6x6=36 7x6=42 8x6=48 9x6=54 10x6=60 11x6=66 12x6=72
7 times table 1x7=7 2x7=14 3x7=21 4x7=28 5x7=35 6x7=42 7x7=49 8x7=56 9x7=63 10x7=70 11x7=77 12x7=84	8 times tables 1x8=8 2x8=16 3x8=24 4x8=32 5x8=40 6x8=48 7x8=56 8x8=64 9x8=72 10x8=80 11x8=88 12x8=96	9 times tables 1x9=9 2x9=18 3x9=27 4x9=36 5x9=45 6x9=54 7x9=63 8x9=72 9x9=81 10x9=90 11x9=99 12x9=108	10 times tables 1x10=10 2x10=20 3x10=30 4x10=40 5x10=50 6x10=60 7x10=70 8x10=80 9x10=90 10x10=100 11x10=110 12x10=120	11 times tables 1x11=11 2x11=22 3x11=33 4x11=44 5x11=55 6x11=66 7x11=77 8x11=88 9x11=99 10x11=110 11x11=121 12x11=132	12 times tables 1x12=12 2x12=24 3x12=36 4x12=48 5x12=60 6x12=72 7x12=84 8x12=96 9x12=108 10x12=120 11x12=132 12x12=144

```
multiplier = input('Enter a number between 0 and 12');
```

```
for timesTable in range(1,13):
```

```
    print( multiplier , 'x', timesTable, '=', int(multiplier) * timesTable )
```