Programming Language Posters

Suggested Activities

1. Discover why each programming language was created.

2. Find what has changed with programming languages over time.

3. List what other programming languages you know.

4. Research what these programming terms mean:
   - Imperative
   - Functional
   - Object Oriented
   - Static Typing
   - Dynamic Typing
   - Visual Programming

programming.dojo.net.nz

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Assembly

Popular for low level programming, compatability with older hardware

```
.text
.global main
main:
        # Save the non-volatile registers:
        pushq   %r15
        pushq   %r14
        pushq   %r13
        pushq   %r12
        pushq   %rbx

        # Initialize the loop counter:
        movl    $1, %ebx

        # Load the string literal addresses:
        leaq    FizzBuzz(%rip), %r14
        leaq    Fizz(%rip), %r15
        leaq    Buzz(%rip), %r12
        leaq    Format(%rip), %r13

Top:
        # Compute i % 3 and i % 5:
        movzbl  %bl, %eax
        imull   $205, %eax, %ecx
        shrl    $10, %ecx
        leal    (%rcx,%rcx,4), %edx
        imull   $171, %eax, %eax
        shrl    $9, %eax
        leal    (%rax,%rax,2), %eax
        negl    %eax
        movzbl  %al, %ecx
        addl    %ebx, %ecx
        movl    %ebx, %eax
        subl    %edx, %eax
        movl    %ecx, %edx

        # Decide what to print:
        orb     %al, %dl
        je      PutsFizzBuzz

        testb   %cl, %cl
        je      PutsFizz

        testb   %al, %al
        je      PutsBuzz

        movq    %r13, %rdi
        movl    %ebx, %esi
        xorl    %eax, %eax
        callq   printf
        jmp     Next

PutsFizzBuzz:
        movq    %r14, %rdi
        jmp     CallPuts

PutsFizz:
        movq    %r15, %rdi
        jmp     CallPuts

PutsBuzz:
        movq    %r12, %rdi

CallPuts:
        callq   puts

Next:
        incl    %ebx
        cmpl    $101, %ebx
        jne     Top

        # Set the return value to 0:
        xorl    %eax, %eax

        # Restore the non-volatile registers:
        popq    %rbx
        popq    %r12
        popq    %r13
        popq    %r14
        popq    %r15

        # Return:
        retq

Format:
        .asciz  "%d\n"

Buzz:
        .asciz  "Buzz"

Fizz:
        .asciz  "Fizz"

FizzBuzz:
        .asciz  "FizzBuzz"
```

programming.dojo.net.nz/assembly

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The assembly code above is modified from a compiled version of the C FizzBuzz program.
This poster is part of a series about programming languages: programming.dojo.net.nz

Basic

Popular for computer science education, scripting, games

```
FOR A = 1 TO 100
    IF A MOD 3 = 0 AND A MOD 5 = 0 THEN
        PRINT "FizzBuzz"
    ELSE IF A MOD 3 = 0 THEN
        PRINT "Fizz"
    ELSE IF A MOD 5 = 0 THEN
        PRINT "Buzz"
    ELSE
        PRINT A
    END IF
NEXT A
```

programming.dojo.net.nz/basic

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C

Popular for operating systems, interpreters, embedded processors, games

```c
#include <stdio.h>

int main (int argc, char** argv)
{
    for (int i = 1; i <= 100; i++)
    {
        if (!(i % 3) && !(i % 5))
            printf("FizzBuzz\n");
        else if (!(i % 3))
            printf("Fizz\n");
        else if (!(i % 5))
            printf("Buzz\n");
        else printf("%d\n", i);
    }
    return 0;
}
```

programming.dojo.net.nz/c

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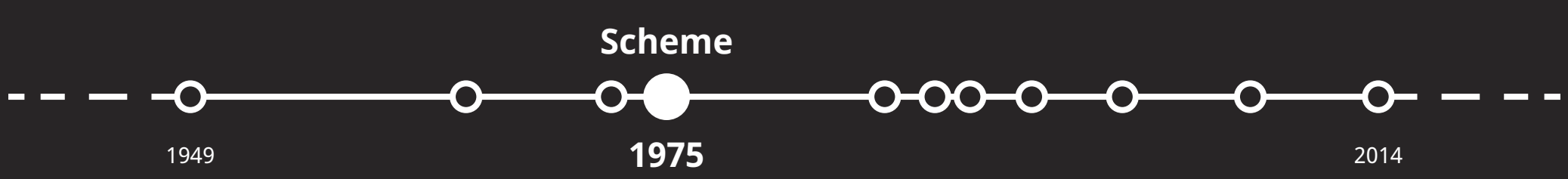
Scheme

Popular for computer science education, scripting, academic research

```
(define (fizzify i)
    (cond
        (and (= (modulo i 3) 0) (= (modulo i 5) 0) "FizzBuzz")
        ((= (modulo i 3) 0) "Fizz")
        ((= (modulo i 5) 0) "Buzz")
        (#t i)
    )
)

(define (fizzbuzz i)
    (if (<= i 100)
        (begin
            (display (fizzify i)) (display "\n")
            (fizzbuzz (+ i 1))
        )
    )
)

(fizzbuzz 1)
```



programming.dojo.net.nz/scheme

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Perl

Popular for scripting, internet services, interfacing systems

```perl
for my $i(1..100) {
  if ($i % 3 == 0 && $i % 5 == 0) {
    print "FizzBuzz";
  }
  elsif($i % 3 == 0) {
    print "Fizz";
  }
  elsif($i % 5 == 0) {
    print "Buzz";
  }
  else {
    print $i;
  }
  print "\n";
}
```

programming.dojo.net.nz/perl

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Haskell

Popular for computer science education, academic research

```haskell
fb :: Integer -> String
fb i
  | mod i 3 == 0 && mod i 5 == 0  = "FizzBuzz"
  | mod i 3 == 0                  = "Fizz"
  | mod i 5 == 0                  = "Buzz"
  | otherwise                     = show i

main = do
  putStrLn $ unlines (map fb [1..100])
```

programming.dojo.net.nz/haskell

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Python

Popular for computer science education, scripting, internet services, games

```python
for i in range(1, 101):
    if i % 3 == 0 and i % 5 == 0:
        print("FizzBuzz")
    elif i % 3 == 0:
        print("Fizz")
    elif i % 5 == 0:
        print("Buzz")
    else:
        print(i)
```

programming.dojo.net.nz/python

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Java

Popular for applications, mobile devices, compilers, interpreters, games

```java
public class FizzBuzz
{
    public static void main (String[] args)
    {
        for (int i = 1; i <= 100; i++)
        {
            if (i % 3 == 0 && i % 5 == 0) {
                System.out.println("FizzBuzz");
            } else if (i % 3 == 0) {
                System.out.println("Fizz");
            } else if (i % 5 == 0) {
                System.out.println("Buzz");
            } else {
                System.out.println(i);
            }
        }
    }
}
```

programming.dojo.net.nz/java

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Ruby

Popular for internet services, scripting

```ruby
for i in 1..100
    if (i % 3 == 0) && (i % 5 == 0)
        puts "Fizzbuzz"
    elsif i % 3 == 0
        puts "Fizz"
    elsif i % 5 == 0
        puts "Buzz"
    else
        puts i
    end
end
```

programming.dojo.net.nz/ruby

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JavaScript

Popular for web applications, scripting


```
for (var i = 1; i <= 100; i++) {
    if (i % 3 == 0 && i % 5 == 0) {
        console.log("FizzBuzz");
    } else if (i % 3 == 0) {
        console.log("Fizz");
    } else if (i % 5 == 0) {
        console.log("Buzz");
    } else {
        console.log(i);
    }
}
```

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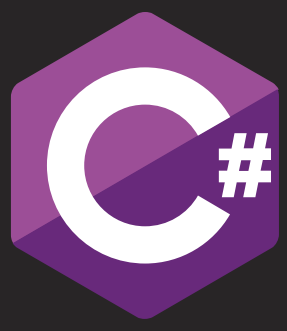
C#

Popular for applications, internet services, business, games



```
using System;
namespace FizzBuzz {
    public class example {
        static void Main(string[] args) {
            for (int i = 1; i <= 100; i++) {
                if (i % 3 == 0 && i % 5 == 0) {
                    Console.WriteLine("FizzBuzz");
                } else if (i % 3 == 0) {
                    Console.WriteLine("Fizz");
                } else if (i % 5 == 0) {
                    Console.WriteLine("Buzz");
                } else {
                    Console.WriteLine(i);
                }
            }
        }
    }
}
```

programming.dojo.net.nz/c-sharp

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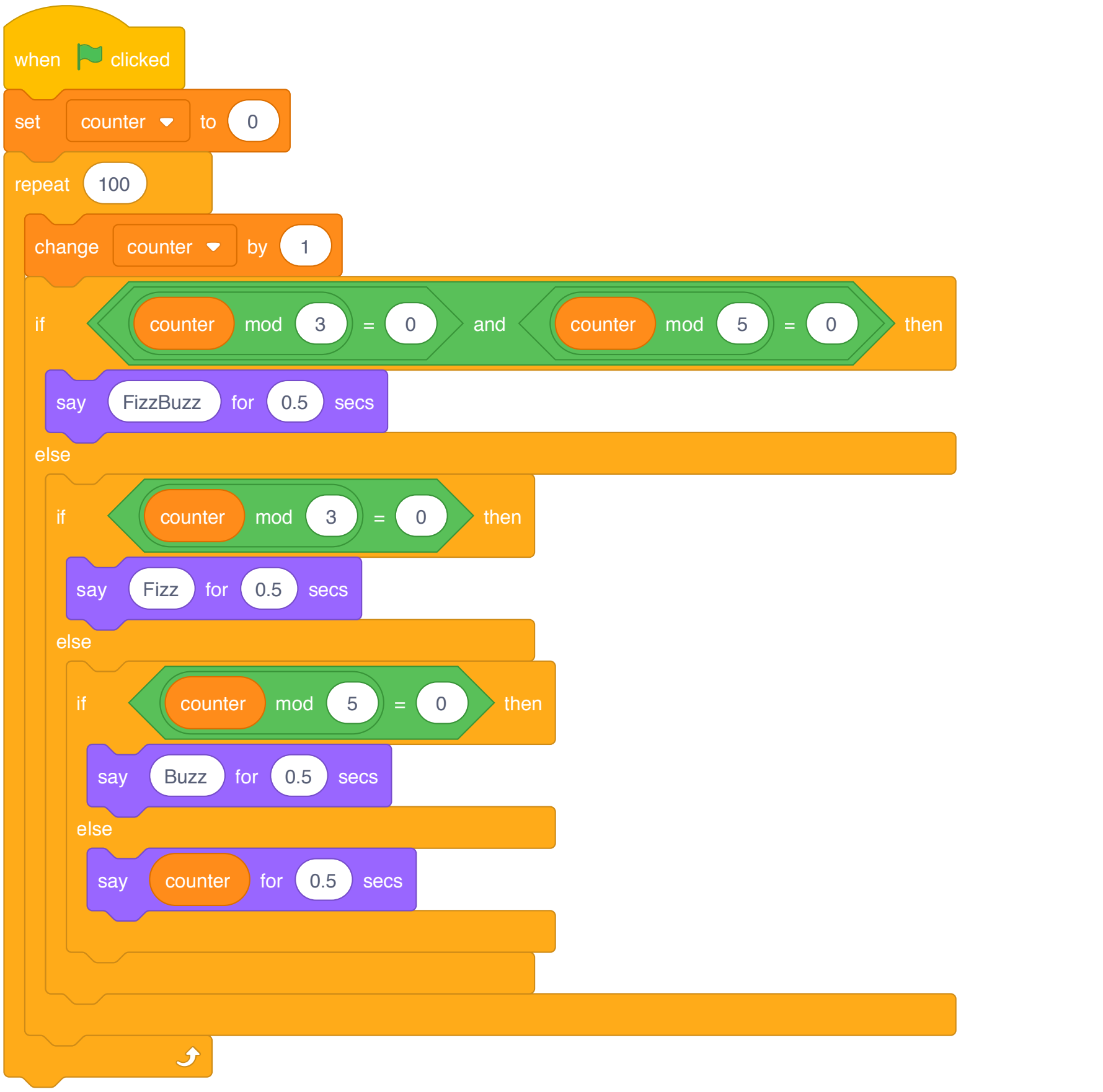
Scratch

Popular for computer science education



programming.dojo.net.nz/scratch

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Swift

Popular for developing software on Apple platforms

```swift
for i in 1...100
{
    if i % 3 == 0 && i % 5 == 0 {
        print("FizzBuzz")
    } else if i % 3 == 0 {
        print("Fizz")
    } else if i % 5 == 0 {
        print("Buzz")
    } else {
        print(i)
    }
}
```

programming.dojo.net.nz/swift

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