TypeScript, Dart, CoffeeScript and JavaScript Comparison

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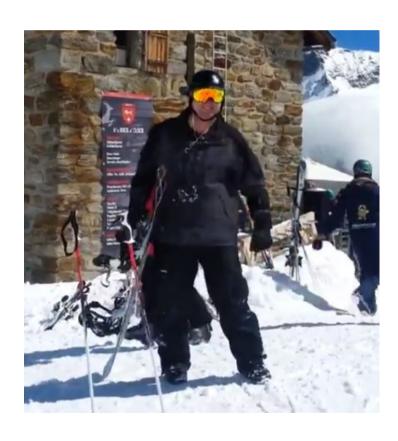
ECMAScript 2015

TypeScript   Dart

LifeMichael.com

Haim Michael Introduction

- Snowboarding. Learning. Coding. Teaching. More than 16 years of Practical Experience.

Haim Michael Introduction

- **Professional Certifications**

  Zend Certified Engineer in PHP

  Certified Java Professional

  Certified Java EE Web Component Developer

  OMG Certified UML Professional

- **MBA (cum laude) from Tel-Aviv University**

  Information Systems Management

The JavaScript Language

- There is a huge number of various programming languages we can transpile into JavaScript.

  https://github.com/jashkenas/coffeescript/wiki/list-of-languages-that-compile-to-js

What is TypeScript?

- The TypeScript programming language was developed by Microsoft. It is an open source programming language.

- The code we write in TypeScript is transpiled into JavaScript, so we can basically use TypeScript wherever we use JavaScript.

  http://www.typescriptlang.org

What is TypeScript?

- TypeScript is a superset of JavaScript. It includes the entire JavaScript programming language together with additional capabilities.

- In general, nearly every code we can write in JavaScript can be included in code we write in TypeScript.

What is TypeScript?

- TypeScript's main added value is the ability to code with types. It allows us to define new classes and new interfaces. TypeScript allows us to specify the type of each and every variable and is even capable of interfering the type by itself. TypeScript allows us to use JavaScript as if it was a strictly type programming language.

What is TypeScript?

```
class Rectangle
{
 private width:number;
 private height:number;
 constructor( w:number, h:number)
 {
    this.setWidtht(w);
    this.setHeight(h);
 }
 setWidtht(num:number):void
 {
    if(num>0)
    {
        this.width = num;
    }
 }
 ...
}
```

What is Dart?

- Dart is an open source class based, object oriented, optionally typed programming language that allows us to develop browser based one page web applications. Dart can be used for the server side.

- Dart is developed by Google and the initial plan was to have a Dart VM installed on every web browser.
  http://www.dartlang.org

What is Dart?

- Using the Dart virtual machine we can execute the code written in Dart on the server side.

- We can execute the code either by using a web browser that supports Dart or by compiling the code into JavaScript.

What is Dart?

```
class Rectangle
{
    double _width;
    double _height;
    Rectangle(double w,double h)
    {
        width = w;
        height = h;
    }
    get width => _width;
    set width(size) => (size>0)?_width=size:_width=10.0;
    get height => _height;
    set height(size) => (size>0)?_height=size:_height=10.0;
    area() => width * height;
    perimeter() => 2*(width+height);
}
```

What is CoffeeScript?

- CoffeeScript is a relatively small programming language we can use for writing code and later transpile it into JavaScript.

- CoffeeScript evolvement was inspired by Python and Ruby. CoffeeScript provides developers with tools similar to those you can find in Python and Ruby.
http://www.coffeescript.org

What is CoffeeScript?

```coffeescript
class Person

    constructor: (@firstName,@lastName,@id) ->

    printDetails: ->
        console.log "first name is #{@firstName}"
        console.log "last name is #{@lastName}"
        console.log "id is #{@id}"

Person a = new Person("haim","michael",123123)
Person b = new Person("danidin","jack",234234)

a.printDetails()
b.printDetails()
```

Detailed Comparison

Types Capabilities

	Strict	Dynamic
High		Coffee Script
Low	Dart TypeScript	JavaScript

White Spaces Sensitivity

Detailed Comparison

Object Oriented Capabilities

Low | High

Capabilities to Use 3rd Party JS Libraries

High

Dart | TypeScript

JavaScript

Coffee Script

Low

Detailed Comparison

Independent Virtual Machine

	Not Available	Available
Frequently	TypeScript	
Rare	Coffee Script	JavaScript (1) Dart

Release of New Versions

https://www.techempower.com/benchmarks/

Detailed Comparison

Developing with Angular 2

	Simple	Difficult
Support for Generics — Available	TypeScript Dart	
Support for Generics — Not Available		JavaScript Coffee Script

Detailed Comparison

Support for Use of Interfaces

	Low	High
Available		TypeScript
Not Available	Coffee Script JavaScript Dart	

Support for Methods Overloading

Detailed Comparison

Support for Access Modifiers

	Low	High
Available		TypeScript
Not Available	Coffee Script · JavaScript · Dart	

Support for Methods Overloading

Detailed Comparison

Support for Abstract Classes

	Not Available	Available
Available		TypeScript Dart
Not Available	JavaScript Coffee Script	

Support for Enum

Detailed Comparison

Popularity
Low / High, IDE Support High/Low quadrant chart: TypeScript, JavaScript (top), Dart, Coffee Script.

Detailed Comparison

Questions & Answers

- If you enjoyed my lecture please leave me a comment at http://speakerpedia.com/speakers/life-michael.

  Thanks for your time!

  Haim.