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# CSC 372 PROJECT

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**Hanwei Li**  
lihanwei4c@email.arizona.edu

**Evan Kuo**  
evankuo@email.arizona.edu

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## ABSTRACT

### 1 Introduction

### 2 History

Dart was developed by Google in 2011 by Lars Bak and Kasper Lund and first unveiled at the GOTO conference in Aarhus, Denmark[1]. It is a objected-oriented language with C style syntax that is used largely in mobile development [2].It is used heavily within the Flutter framework to develop mobile applications such as Google Ads on mobile and can develop both IOS and Android apps. One of the primary advantages of Dart is that as of version 2.6 it can be compiled into self contained Javascript executables and doesn't require the Dart SDK to be installed [3]. The language is constantly supported and got its most recent patch on March 24, 2020 [4].

### 3 Control Structures

Dart has a wide array of control structures that help augment the flow of our code much like many other programming languages. Knowledge of Python and/or Java would be helpful in understanding how the control structures in Dart work.

Control structures in Dart are similar to those found in a language like python but have a syntax more similar to Java. They are higher level control structures that have all of the elements we would expect from a high level language. This includes, if/then/else, while, for, switch, for...In and more.

Let's go over each of these individually and provide examples:

— The For Loop —

The for loop in Dart has a structure very similar to that of C or Java. It starts with a variable declaration, then a conditional statment, and then an iteration. An example follows:

```
for (var i = 1; i <= 20; i++) {  
    print(i);  
}
```

where this example will print out 1...20.

— The For...In Loop —

Dart has a for...In structure for for loops that is very similar to that found in Python. This is very useful if we are trying to loop through an object or list of some sort. It follows a structure that is practically identical to that found in python and uses a "for var name in structure" type of formatting. An example is as follows:

```
var groceryList = ["bread", "bananas", "dog_food"];
```

```

for (var food in groceryList) {
    print("On_my_grocery_list_I_have:_ " + food + ".");
}

```

#### — The While Loop —

The while loop in Dart is also similar to C/Java/Python. It has a conditional that must be evaluated and continues until that conditional is false. An example is as follows:

```

var num = 10;
while (num > 0) {
    print(num);
    num = num - 1;
}

```

#### — The If Statement —

The If statement in Dart is similar to that found in Java/C/Python and other high level languages. It consists of an if statement with a conditional in parenthesis followed by an else if needed. An example is as follows:

```

// If x is even, print out that x is even
if (x % 2 == 0) {
    print("x_is_currently_" + xString + "_and_it_is_an_even_number");
}

// Else, print out it is odd
else {
    print("x_is_currently_" + xString + "_and_it_is_an_odd_number");
}

```

#### — The Switch Statement —

The switch statement is also very similar to the switch statements found in other languages. It takes a value and then goes into different control patterns based upon whether or not certain conditionals pass. These conditionals are exited out of with a break statement and like in other languages this break statement is not strictly necessary. An example is as follows:

```

var cscClass = "CSC372";

switch(cscClass) {

    case "CSC372": { print("CSC372_is_a_good_class!"); }
    break;

    case "CSC345": { print("CSC345_is_super_hard!"); }
    break;

    case "CSC445": { print("CSC445_is_really_hard!!!"); }
    break;

    default: { print("I_haven't_heard_of_that_class."); }
    break;

}

```

## 4 Data Types

## 5 Subprograms

## 6 Summary

## References

- [1] Gilad Bracha and Lars Bak. Goto conference. In *Opening Keynote: Dart, a new programming language for structured web programming*. Aarhus, 2011.
- [2] Gilad Bracha. *The Dart Programming Language*. Addison-Wesley Professional, 2015.
- [3] Jakub Lewkowicz. Dart 2.6 release with dart2native. *SD Times: Software Development*, 11 2019. <https://sdtimes.com/goog/dart-2-6-released-with-dart2native/>.
- [4] Alexandar Thomas. 2.8.0-dev.20.0. Github, 3 2020. <https://github.com/dart-lang/sdk/releases/tag/2.8.0-dev.20.0>.