Espresso

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Overview

- Introduction & Background
- Planning & Schedule
- Development Environment
- Syntax
- Architecture
- Testing
- Demonstration

Introduction

What is the Idea behind Espresso?

- A Object-Oriented programming language inspired by Java, stripped down and augmented.

Goals

- **Intuition.**

  Easy to just start coding for experienced programmers. A great platform to learn for beginners.

- **Transparency.**

  The LLVM IR code allows the user to understand the nuts and bolts of their program.

- **Flexibility.**

  Espresso allows for broad purpose use, rather than single-domain application. The language is portable and robust.

Development Environment

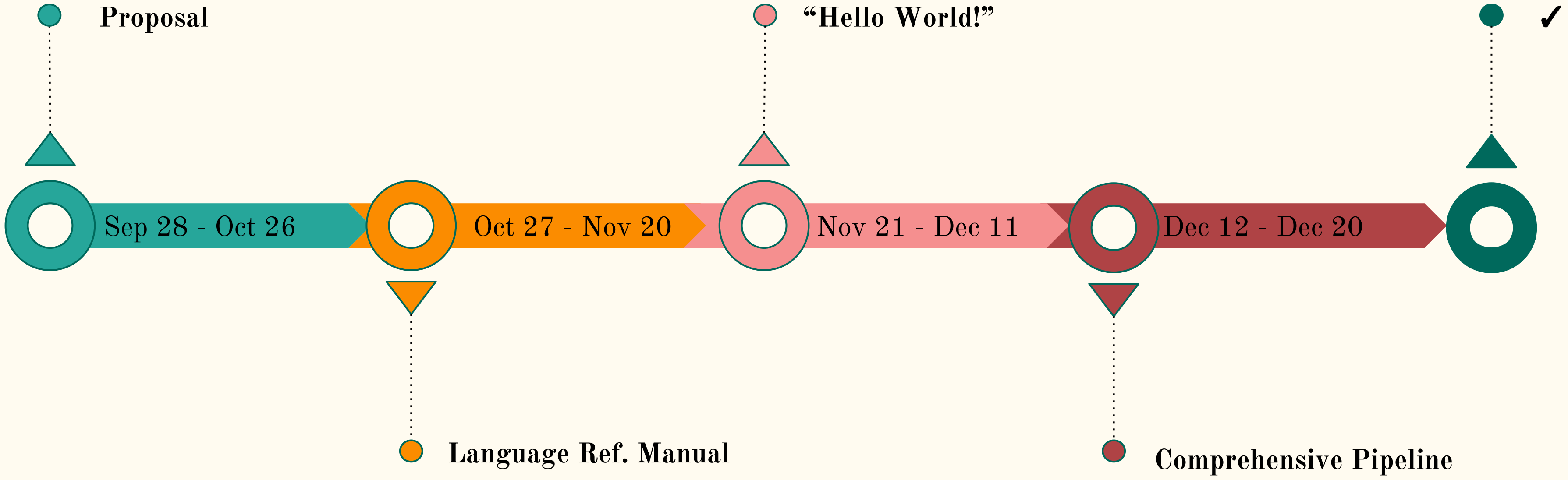
Version Control

Text Editing

Operating System

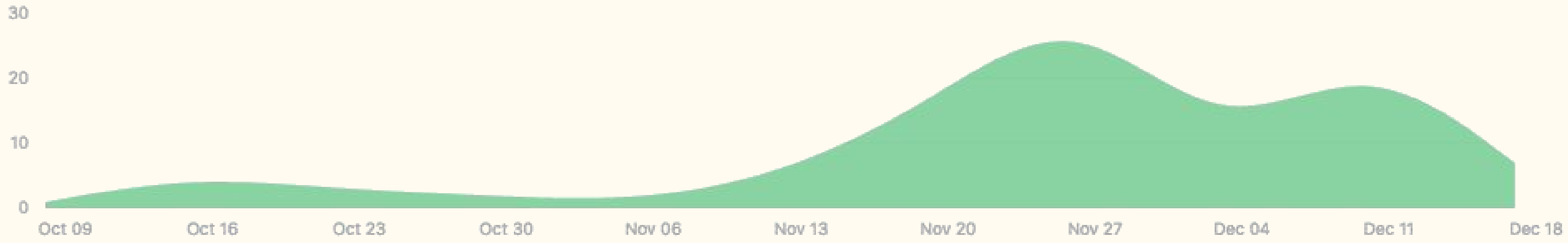
Virtualization

Project Timeline



Git History

129 Commits



Guidelines

Time Management
Start the project early

Cooperation
Teamwork and integration

Communication
Avoid doing the same work

Software Tools
Efficiency improvement

Syntax

Comments

```
//This is an Espresso Comment

/*

      So is this

*/
```

Operators

```
+      //add
-      //sub
*      //mult
/      //div
=      //assign
==     //eq
!-     //neq
<      //lt
<=     //leq
>      //gt
>=     //geq
&&     //and
||     //or
!      //not
```

Arrays

```
int[10] arr;

Arr = {1,2,3,4,5,6,7,8,9,10};

Float[1] precise_arr;

precise_arr[0] = 0.0002;
```

Loops

```
int i;
for (i=1;i<10;i++){
        print_int(i);
}



int x = 0;
while(i<10){
        print_int(x);
        x++;
}
```

Branching

```
while (i < 2){
        print_int(item);
                    break;
}


for (int i=0; i<4;i++){
        if (arr[i] > 0)
                print_int(data[i]);
}

int first_positive(int[] arr){
        for(int i=0;i<4;i++){
                if(arr[i] > 0}
                    return arr[i];
        return -1;
{
```

Classes

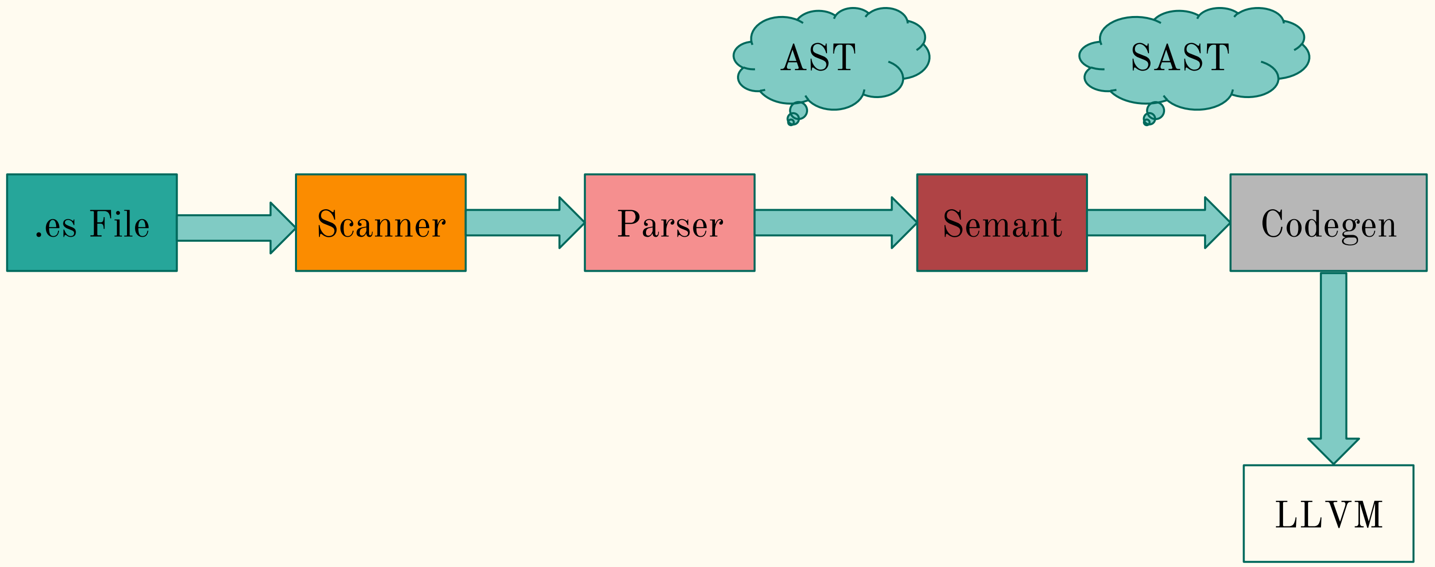
```
Class BankCount{

        int saving;
        String name;
        BankCount(class BankCount
self, String n, int a){
        self.name = n;
        self.Saving = a;
    }

 bool withdraw(class BankCount self,
int a){
        if (a < 0){
                return false;
        }
        else if(self.saving > a){
        self.saving -= a;
        return true;
        }

    }
}
```

Lambda

```
class work
{
        int a;
        void main()
        {

                int b;
                int c;
                int d;
                int[10] arr;
                this.a = 100;
                class animal an;
                lambda : char lfunc(char a) {
return a; }
                print_char (an.getChar(lfunc));
        }
}
```

```
class animal
{
        char b;
        bool x;

        char getChar(lambda lfunc) {
             return #lfunc('a');
        }

        int perform()
        {
                int i;
                i = 5;
                i = 1;
                return i*2;
        }
}
```

Architecture



Testing

Our MO: **Test-Driven Development**

Unit Testing

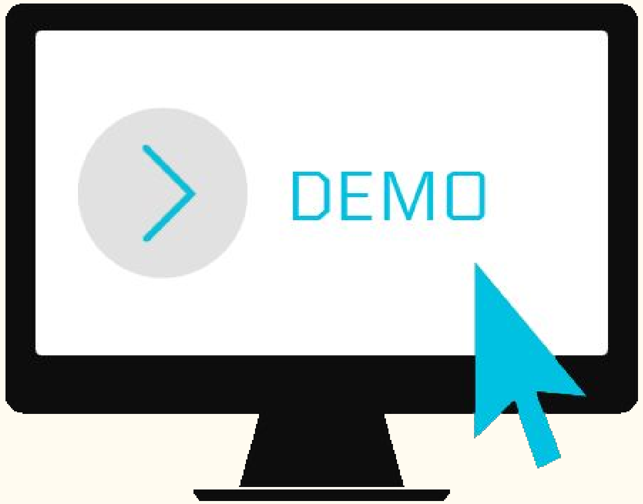
Small test programs were written throughout the development process, designed to test the most recently added feature.

Integration Testing

We created a large and comprehensive test suite, built to test features we didn't think of during the development process, and to make sure the newest feature doesn't negatively affect any of the previous ones.

Automation

```
/testall.sh
```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