“Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.” - Archimedes
Team Members

Project Manager - Roy Hermann

Language Guru - Chaiwen Chou

System Architect - Mahd Tauseef

System Engineer - Zissis Konstas

Verification and Validation - Eden Dolev
What is Lever?

- High-level programming language for retrieving useful information from the abundance of data that is available through social networks.
Why Lever?
Lever is....

- Simple
- Concise
- Weakly typed
- Powerful
Language Guru
Chaiwen Chou
Hello World!

**HelloWorld.lever**

```lever
program {
  output "helloworld";
}
```

Compile and run in unix shell

```bash
$ ./leverc HelloWorld.lever
$ ./lever HelloWorld
```

Lever Social Constructs

SimpleProgram.lever

1 program {
2    var topic = #input;
3    var user = @input;
4    var result = get topic, user;
5    output result;
6 }

desired output:

@pratapabhyudaya - Conservatives touch 300 mark
#ConservativesMustWin
#UKElectionsFri May 08 03:21:59 EDT 2015
@CidobBarcelona - .@oopenblog: triunfo personal de Cameron limita el
impacto de la ala derecha del partido conservador #UKElectionsFri
System Architect
Mahd Tauseef
Translator Architecture
program {
    output "hello world";
}
Translator Walkthrough

Semantic Check → Symbol Table → Code Generator → .java file

---

1 // HelloWorld.lever
2 program {
3   var a = "hello world";
4   output a;
5 }

---

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>String</td>
</tr>
</tbody>
</table>

---

public class HelloWorld {
   public static void main(String[] args) {
      String a="hello world";
      LeverAPI.output(a);
   }
}
Development and Runtime Environment

- git
- GitHub
- Google Drive
- Java
- JVM
- IntelliJ IDEA
Antlr 4 - Compiler Generation Tool
Verification and Validation

Eden Dolev
Automated Testing

- Bash
- Test Cases
- Bugs
Sample Test Output
whileLoopTest.lever

/*
Test for:
WHILE LOOPS
Expected output: "YES\nYES\nYES\nYES\n"
*/

program {
    var counter = 1;
    while(counter <= 3) {
        output "YES";
        counter++;
    }

    while(counter <= 6) counter++;

    if(counter == 7) {
        output "YES";
    } else {
        output "NO: braceless while failed\n";
    }
}

example output:
user$ ./tester ifTest.lever whileLoopTest.lever
testing...
Compiling Lever into intermediate code...
Compiling and JARing API...
Compiling program...
Removing intermediate files...
ifTest.lever compiled successfully!
Compiling Lever into intermediate code...
Compiling and JARing API...
Compiling program...
Removing intermediate files...
whileLoopTest.lever compiled successfully!
FAILURE - ifTest.lever - Exp:YES YES YES
Act:YES YES NO: Third if statement failed.
SUCCESS - whileLoopTest.lever

0 compile-errors, 0 runtime-errors,
1 failures and 1 successes
Live Demo - UK Elections
Conclusions

- Eden Dolev
- Zissis Konstas
- Mahd Tauseef
- Chaiwen Chou
- Roy Hermann