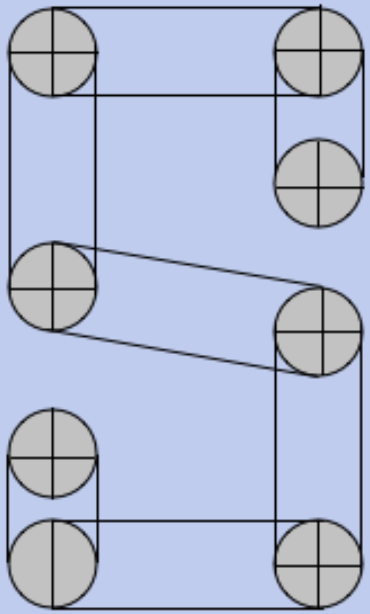


SHAPESHIFTER

TEAM ROLES

STEPHANIE

TESTER

ESZTER

LANGUAGE GURU

ISHAN

MANAGER

RAJIV

SYSTEM ARCHITECT

RASHIDA

TESTER

WHY

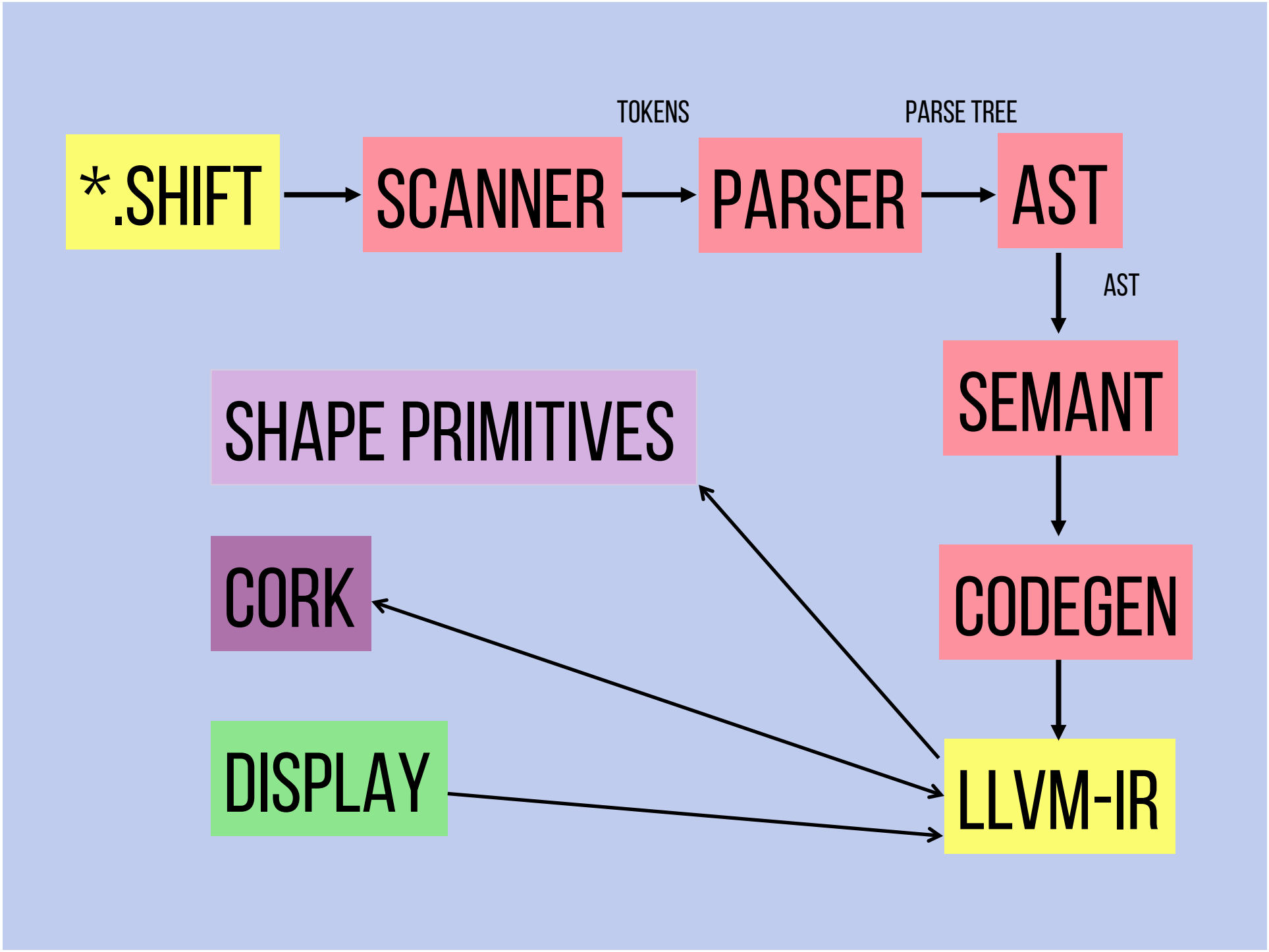
SHAPESHIFTER?

CORK

+

DISPLAY

COMPILER
ARCHITECTURE


*.SHIFT
SCANNER
TOKENS
PARSER
PARSE TREE
AST
AST
SEMANT
SHAPE PRIMITIVES
CORK
CODEGEN
DISPLAY
LLVM-IR

LANGUAGE FEATURES

LANGUAGE SPECIFICS

SHAPE

SPHERE

CUBE

TETRA

CYLINDER

CONE

LANGUAGE FEATURES

```
Translate()
Rotate()
Reflect()
Scale()
```

```
Union()
Intersect()
Difference()
Xor()
```

LANGUAGE FEATURES

```
Render()
Save()
```

BASIC SYNTAX

```
int scene() {

    Shape s = CUBE;
    Shape s2 = CUBE;

    Scale(s, 0.5, 0.5, 0.5);

    Translate(s, 0.0, 0.5, 0.0);

    Shape su = Union(s, s2);
    Translate(su, 0.0, 1.0, 0.0);

    Render(su);
    Save(su, "stack.off");
}
```

EQUIVALENT TO MAIN IN C

ENTRY POINT TO THE PROGRAM

BASIC SYNTAX

```
int scene() {

    Shape s = CUBE;
    Shape s2 = CUBE;

    Scale(s, 0.5, 0.5, 0.5);

    Translate(s, 0.0, 0.5, 0.0);

    Shape su = Union(s, s2);
    Translate(su, 0.0, 1.0, 0.0);

    Render(su);
    Save(su, "stack.off");
}
```

SHAPE CONSTRUCTION

BASIC SYNTAX

```
int scene() {

    Shape s = CUBE;
    Shape s2 = CUBE;

    Scale(s, 0.5, 0.5, 0.5);

    Translate(s, 0.0, 0.5, 0.0);

    Shape su = Union(s, s2);
    Translate(su, 0.0, 1.0, 0.0);

    Render(su);
    Save(su, "stack.off");
}
```

SHAPE TRANSFORMATION

BASIC SYNTAX

```
int scene() {

    Shape s = CUBE;
    Shape s2 = CUBE;

    Scale(s, 0.5, 0.5, 0.5);

    Translate(s, 0.0, 0.5, 0.0);

    Shape su = Union(s, s2);
    Translate(su, 0.0, 1.0, 0.0);

    Render(su);
    Save(su, "stack.off");
}
```

BOOLEAN TRANSFORMATION

BASIC SYNTAX

```
int scene() {

    Shape s = CUBE;
    Shape s2 = CUBE;

    Scale(s, 0.5, 0.5, 0.5);

    Translate(s, 0.0, 0.5, 0.0);

    Shape su = Union(s, s2);
    Translate(su, 0.0, 1.0, 0.0);

    Render(su);
    Save(su, "stack.off");
}
```

OUTPUT

USER-DEFINED FUNCTIONS

```
Shape getHouse(){
    Shape base = CUBE;
    Shape roof = TETRA;

    Scale(roof, 1.5, 1.5, 1.5);
    Translate(roof, 0.0, 1.0, 0.0);

    return Union(base, roof);
}

int scene() {
    Shape house = getHouse();
    Save(house, "house.off");
}
```

TEST SUITE

ARITHMETIC
DATA TYPES
BOOLEAN OPS
COMPARISON OPERATORS
CONTROL FLOW
FUNCTIONS
SHAPE TRANSFORMATIONS
BOOLEAN TRANSFORMATIONS

AUTOMATED

TEST SUITE

ARITHMETIC
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BOOLEAN TRANSFORMATIONS

SYSTEMATIC

TEST SUITE

ARITHMETIC
DATA TYPES
BOOLEAN OPS
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CONTROL FLOW
FUNCTIONS
SHAPE TRANSFORMATIONS
BOOLEAN TRANSFORMATIONS

SANDBOX

LESSONS LEARNED

DEMO