YOLOP

Your Octothorpean Language for Optical Processing

Team Members

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Introduction

- Image manipulation language
  - C-like syntax

- Simplifies common image processing tasks such as...
  - importing & exporting images
  - cropping images
  - creating & applying filters

Short Tutorial

Keywords

- return
- break
- continue
- function
- __print
- read_in
- write_out
- get
- set
- setc
- getc
- while
- for
- if
- else
- image
- pixel
- int
- string

Short Tutorial

Types

- integer
- string
- pixel
- image

Short Tutorial

Math Operators

- expr + expr
- expr - expr
- expr * expr
- expr / expr

Relational & Equality Operators

- expr < expr
- expr <= expr
- expr > expr
- expr >= expr
- expr == expr
- expr ~= expr

Short Tutorial

Logical Operators

- expr && expr
- expr || expr
- ~ expr

Assignment

- lvalue = expr

Short Tutorial

Variable Declaration

- int x; x = 6;
- string y; y = “why”;
- pixel z; z = [255, 255, 255, 100];
- image g; g =[200, 300];

Function Declaration

- function int add(int x, int y) { return x + y; }

Short Tutorial

Conditional Statement

Ex.

```
if (expression) {
    if (expression) { statement; }
} else { statement; }
```

Short Tutorial

Iteration Statement

Ex.

```
for (expression; expression; expression) {
    statement; }
```

Ex.

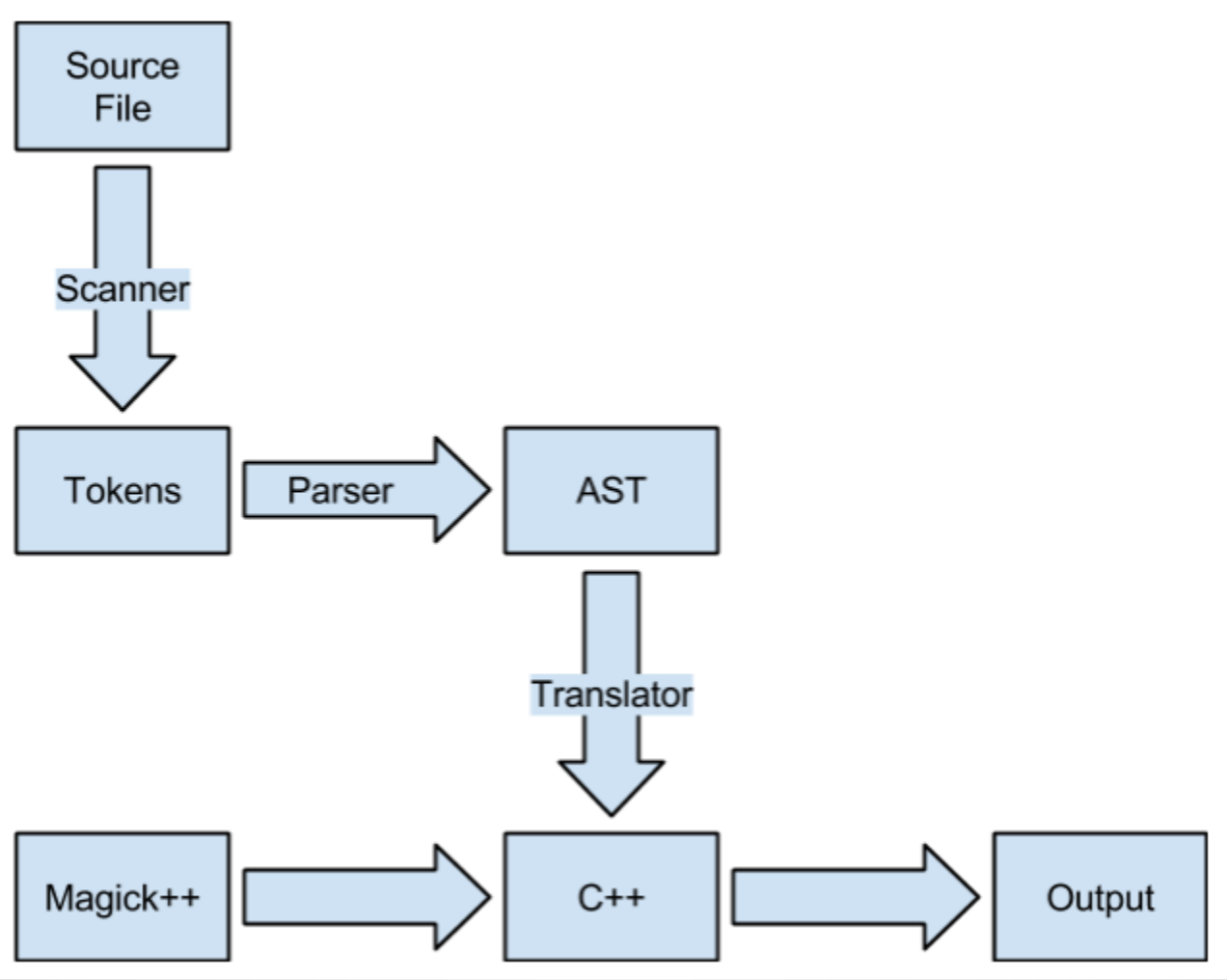
```
while ( expression ) { statement; }
```

Short Tutorial

Built-In Functions

- __print(str);
- img = read_in(filename, ext);
- write_out(img, filename, ext);
- px = get(img, x, y);
- set(img, x, y, px);
- i = getc(px, “color”)
- setc(px, “color”, i)
- dimensions(img, “width”);

Architecture



Sample Program

```
function void main () {
    img cat;
    cat = read_in( "cat1", "jpg" );

    int w;
    w = dimensions( cat, "width" );
    int h;
    h = dimensions( cat, "height" );

    pixel p;
    p = [255,255,255,100];

    int i; int j;
    for (i=0; i<w; i++) {
        for (j=0; j<h; j++) {
            set( cat, i, j, p );
        }
    }
    write_out( cat, "blackout", "jpg");
}
```

Sample Program

```
function void main () {
    img cat;
    cat = read_in( "cat2", "jpg" );

    int w;
    w = dimensions( cat, "width" );
    int h;
    h = dimensions( cat, "height" );

    pixel px;
    int val;

    int i; int j;
    for (i=0; i<w; i++) {
        for (j=0; j<h; j++) {
            px = get(cat, i, j);
            val = getc( p, "b" );
            val = val + 50;
            if ( val > 255 ) { val = 255; }
            set( px, "b", val );
        }
    }
    write_out(cat, "cool_cat", "jpg");
}
```

Potential Programs

- Cropping
- Defining a set of photo filters
- Enhance photos
- Combining images, make collages

Lessons Learned

Set Firm Deadlines

In the same vein as “Start Early” make and set hard deadlines. We aimed to meet once a week and had deadlines but as the semester went on, homework and exams and other things took up more time. We ended putting things off and missing goal dates which made finals week crunch time.

Lessons Learned

Thoroughly Plan Your Language

This one is somewhat difficult to accomplish. Though we thought we had thought through our language well, when it came to development we ended up spending a lot of time going back and modifying/revising previously written code. We wasted a lot of time doing this.

Demo