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ALG

- A Language for Geometry



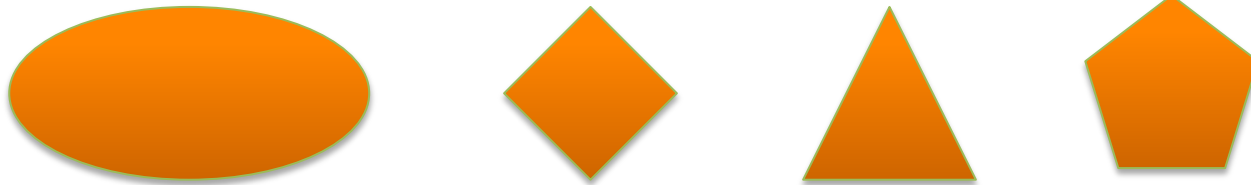


Introduction to ALG

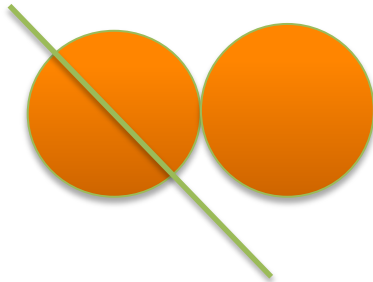


What's ALG

- **The attributes of figures**



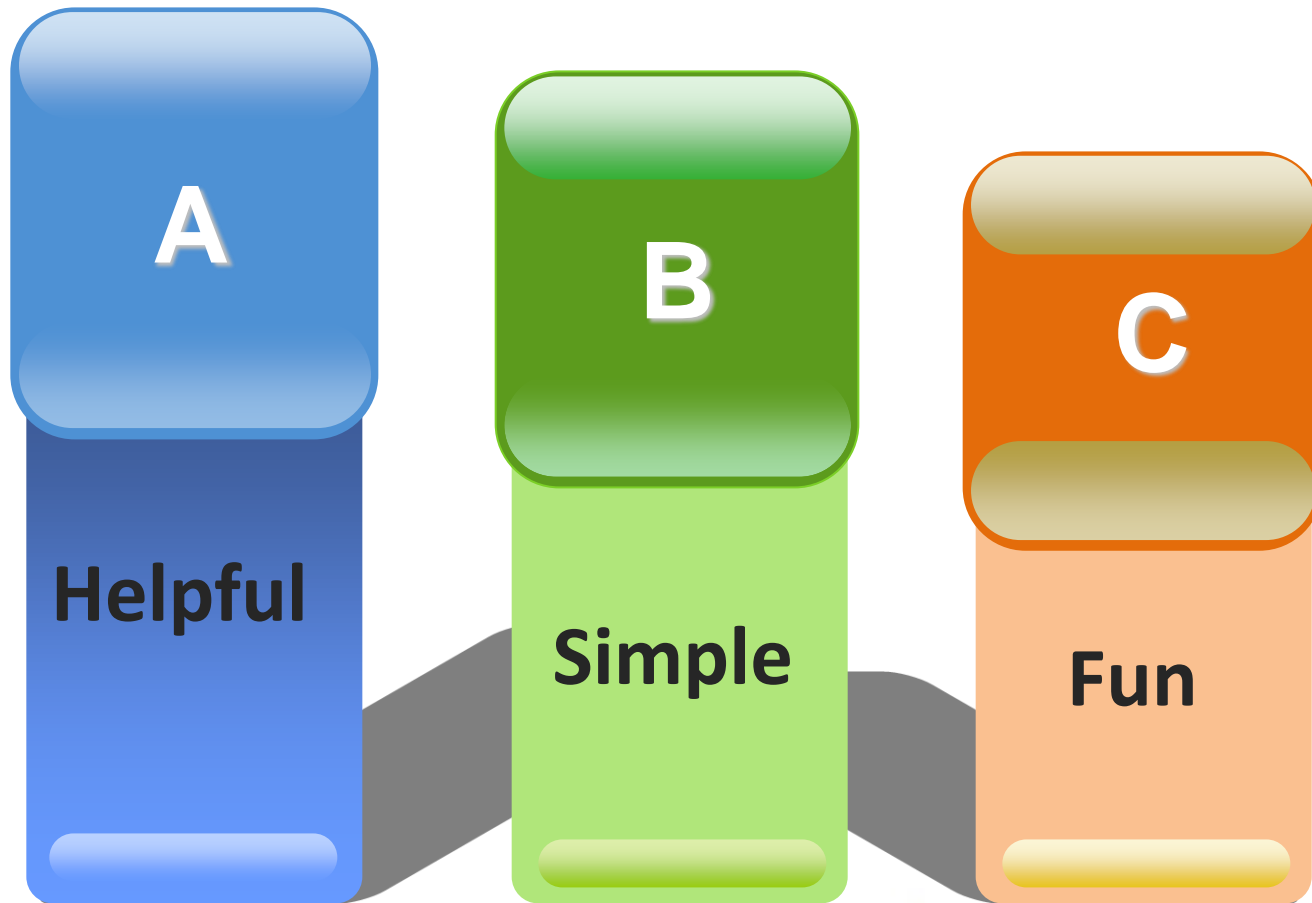
- **The relationship between them**



- **Place action on them**

Introduction to ALG

Why ALG?

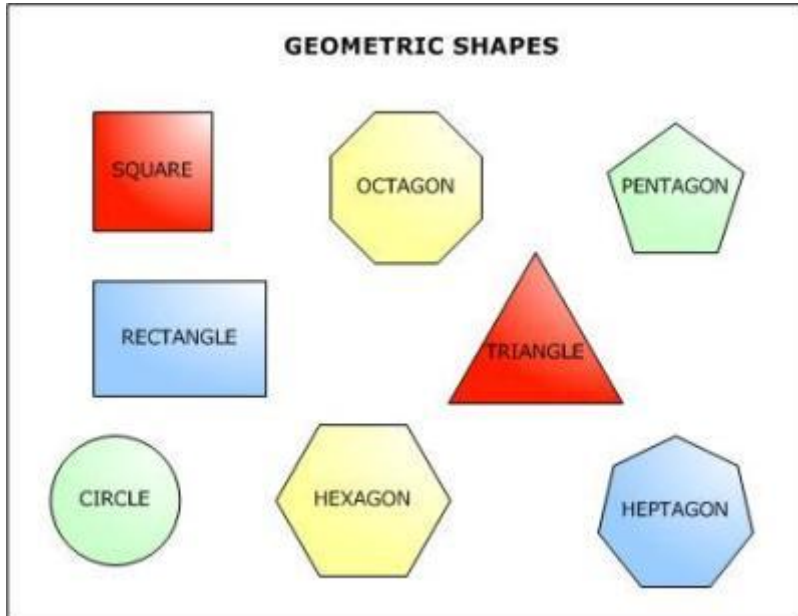




Tutorial to ALG



Tutorial to ALG



What ALG Can Do?

- Basic Calculation
 - ✓ Arithmetic Calculation, String Calculation,
 - ✓ Boolean Calculation, Basic Control Flow
- Geometry Calculation
 - ✓ $L1 // L2$ (parallel), $L1 \wedge L2$ (intersection point)
 - ✓ $L1 | - e1, e1 | - e2$ (positional relation)
 - ✓ $poly1 \sim poly2$ (congruent), $poly1 \sim poly2$ (similar)
 - ✓ Area, Perimeter, Draw
 - ✓ Perimeter comparison: $\ll \gg \ll - \gg =$
 - ✓ Area comparison: $\sim < \sim > \sim \sim < \sim \sim >$

Tutorial to ALG

How To Use

Environment:

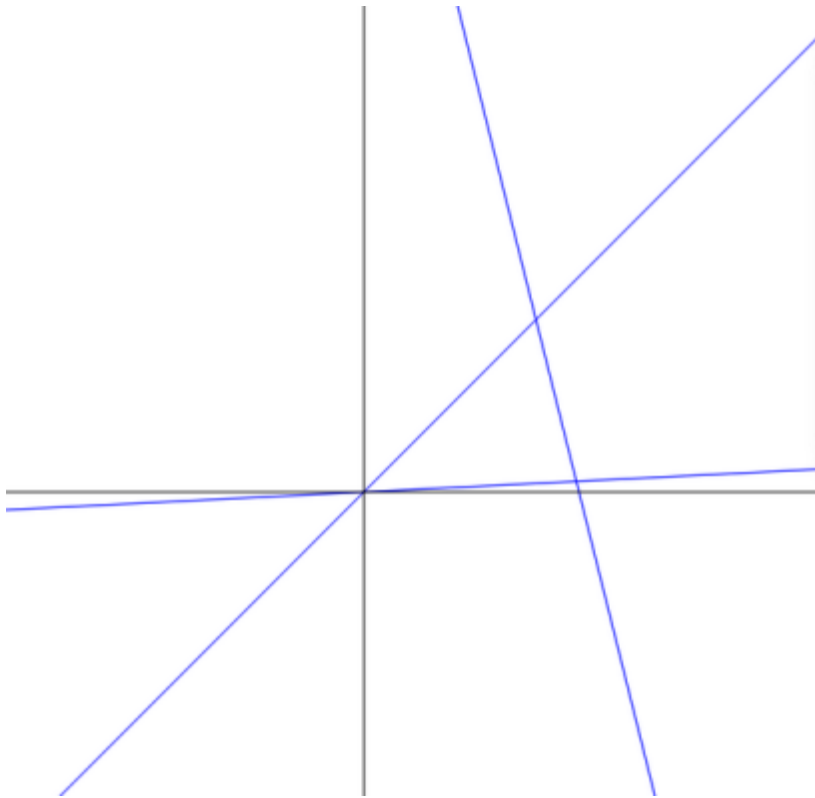
gcc,
opencv,
pkgconfig

Steps:

- make clean
- make
- bash
./compiler.sh
input.alg
output_alg

Tutorial to ALG –Demo 1

```
1  def int main()
2  {
3      line l1;
4      line l2;
5      line l3;
6      point p1;
7      point p2;
8      point p3;
9      polygon poly;
10     l1=[[10;10],[20;20]];
11     l2=[[0;0],[20;1]];
12     l3=[[15;20],[20;0]];
13     Draw(l1);
14     Draw(l2);
15     Draw(l3);
16     (!display the information of the three lines!)
17     display(l1);
18     display(l2);
19     display(l3);
20     p1=l1^l2; !!p1 is the intersect point of l1 and l2
21     p2=l2^l3; !!p2 is the intersect point of l2 and l3
22     p3=l3^l1;      !!p3 is the intersect point of l1 and l3
23
24     poly=[p1,p2,p3]; !! poly is the intersect area of the three lines
25     print("the area of the intersection area is ");
26     print(Area(poly)); !!print the area of the intersection part of the three lines
27     print_newline();
28 }
```

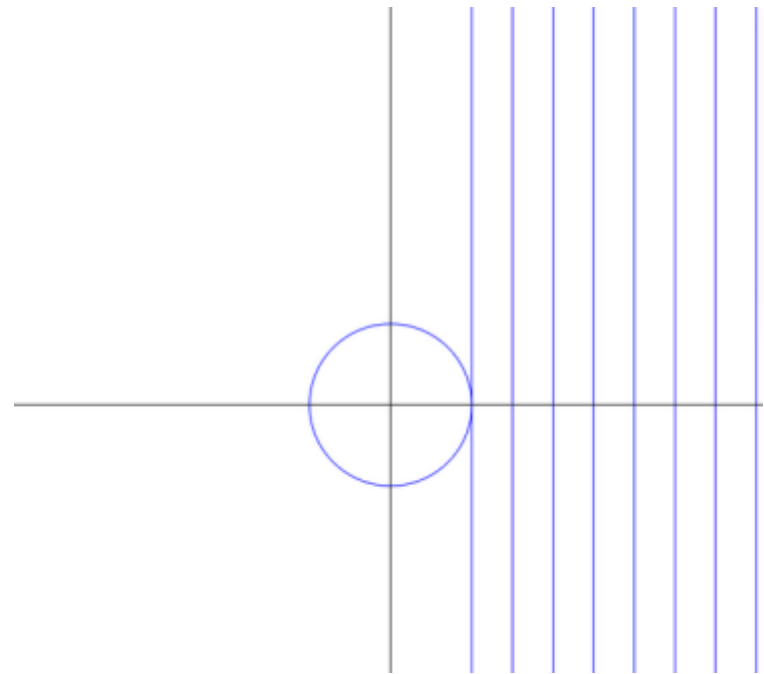



```
qingyejiang$ ./output
This is a line!
The first point is (10.000000 10.000000)
The second point is (20.000000 20.000000)
This is a line!
The first point is (0.000000 0.000000)
The second point is (20.000000 1.000000)
This is a line!
The first point is (15.000000 20.000000)
The second point is (20.000000 0.000000)
the area of the intersection area is 150.123
```



Tutorial to ALG –Demo 2

```
1  def int main()
2  {
3      ellipse e1;
4      line l1;
5      int i;
6      i=50;
7      e1={{0;0},10,10};
8      l1=[[50;0],[50;1]];
9      Draw(e1);
10     while(i>=0)
11     {
12         Draw(l1);
13         if((l1|-e1):="tangent")
14         {
15             print("tangent");
16             print_newline();
17             display(l1);
18             done;
19         }
20         Move(l1,-5,0);
21     }
22 }
23 }
```

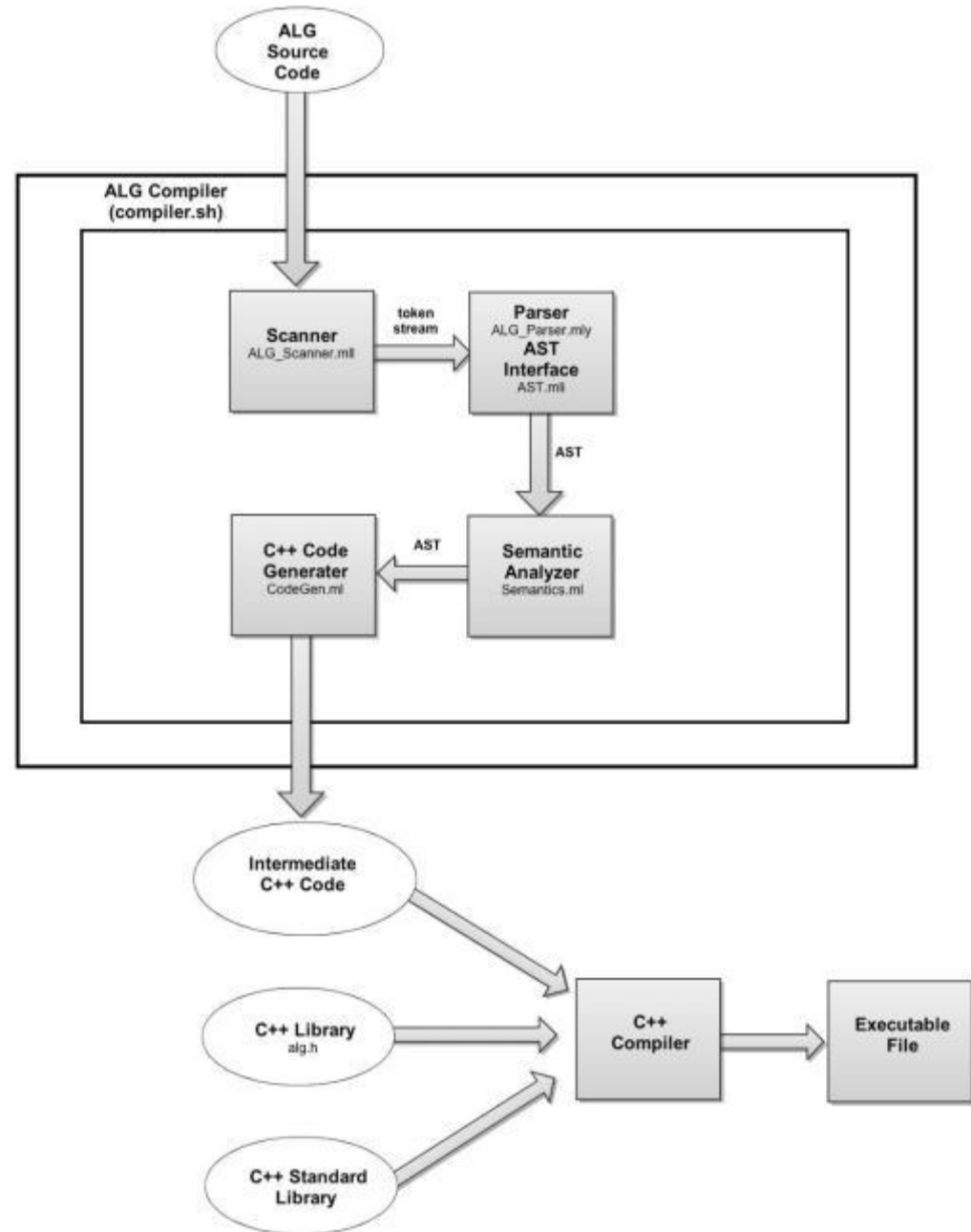




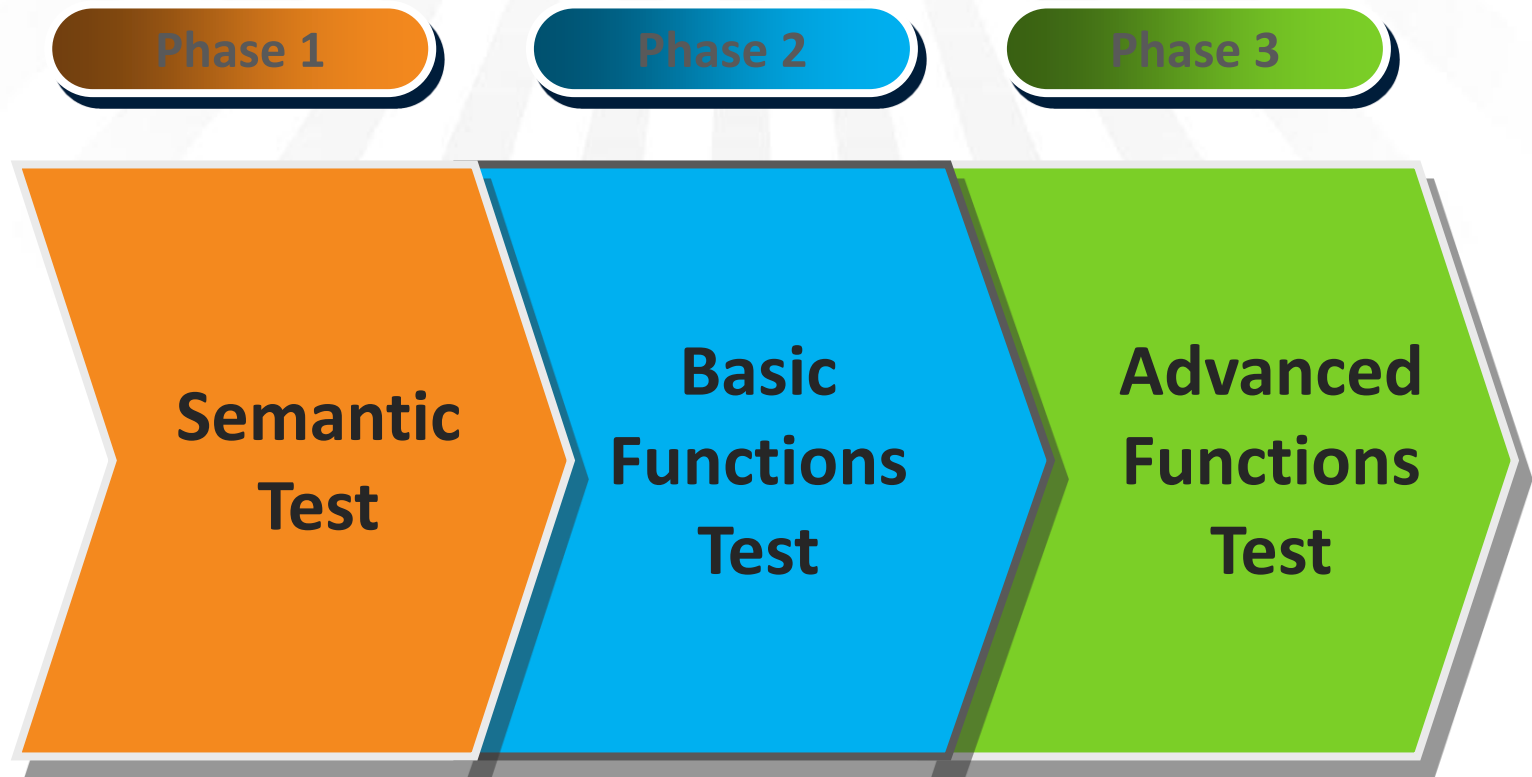
Project Architecture



Project Architecture



Project Architecture





Summary & Lessons



Summary & Lessons



WHY NOT?



**Change the course name as PLT & O'Caml ?
You take one but get both!**



Thank you!

