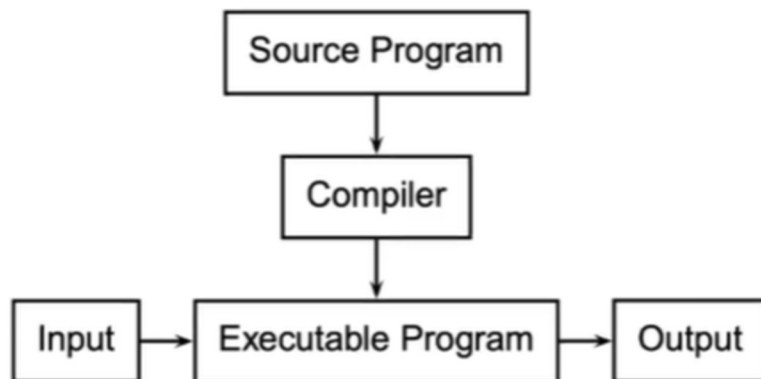


ANTLR Programming

Objectives

- Understand the general structure of a compiler, its main stages, and its organization.
- Understand the existence of tools to help create compilers (e.g. ANTLR)
- Create language processors.
 - Vocabulary definition
 - Grammar Definition
 - Generation of the abstract syntax tree
 - Interpretation through the path of the tree

Compilers: a program that translates programs written in a high level programming language to machine code (e.g. GCC, BCC)



Compilation in C

```
int func(int a, int b){
    a = a + b;
    return a;
}
```

```
gcc -S test.c
```

```
_func:
    pushq   %rbp
    movq    %rsp, %rbp
    movl    %edi, -4(%rbp)
    movl    %esi, -8(%rbp)
    movl    -4(%rbp), %eax
    addl    -8(%rbp), %eax
    movl    %eax, -4(%rbp)
    movl    -4(%rbp), %eax
    popq    %rbp
    retq
```