Source program → [translator] → target program

{ error messages
  warning }

C → assembly
.C → machine code
assembly → machine code (assembler)
Fortran → C
C++ → C

Java → JVM → runtime
Python → JVM → runtime

dead-store elimination

char password[123];

use (password); ←

clear (password) ←
```
compile time

cc → as → ld → a.out

run time

x is local
var inside
foo(w) w/ type "int"

while loop
read once & translated

loop executed N times
```

```
"front end" → "back end"

some prog → analyze + synthesize → target prog

```

```
errors, warnings
```

"compile time"

"run time"