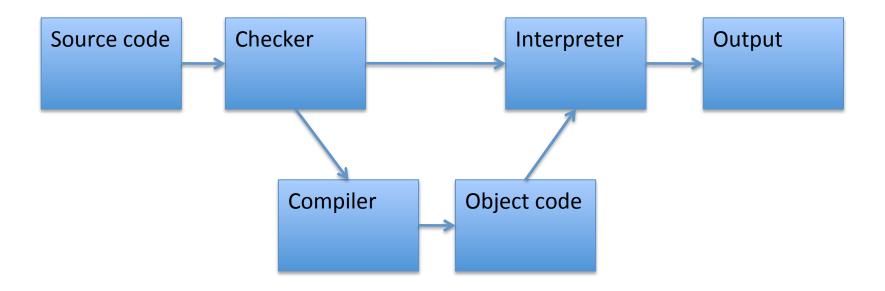
Programming languages

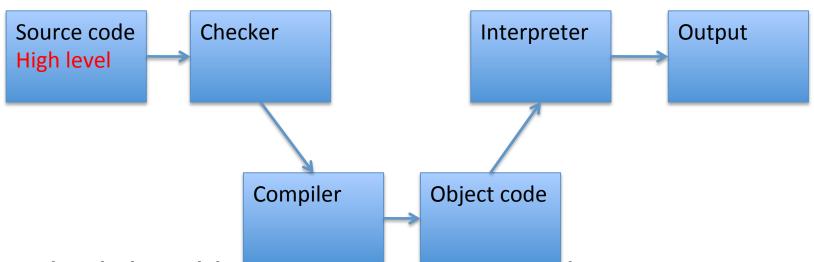
Goal:

- Need a way to describe algorithmic steps such that computer can use them to execute process
- Programming language defines syntax and semantics needed to translate our computational ideas into mechanical steps





- Low level language uses instructions similar to internal control unit:
 - Move data from one location to another
 - Execute a simple ALU operation
 - Jump to new point in sequence based on test
- Checker confirms syntax, static semantics correct
- Interpreter just follows sequence of simple instructions



- A high level language uses more abstract terms invert a matrix, compute a function
- In a compiled language, those abstractions are converted back into low level instructions, then executed



- In an interpreted language, special program converts source code to internal data structure, then interpreter sequentially converts each step into low level machine instruction and executes
- We are going to use Python, which belongs to this class of programming languages