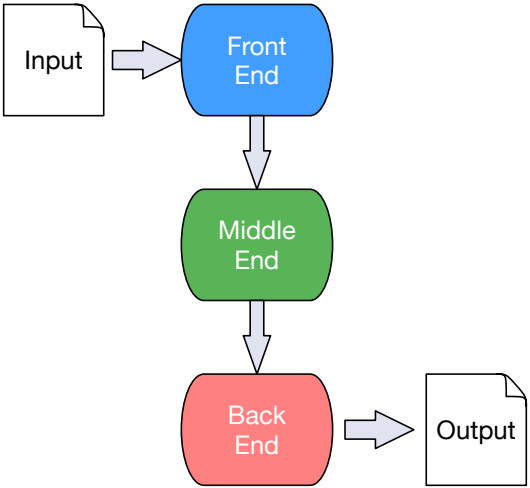
# Compiler Construction

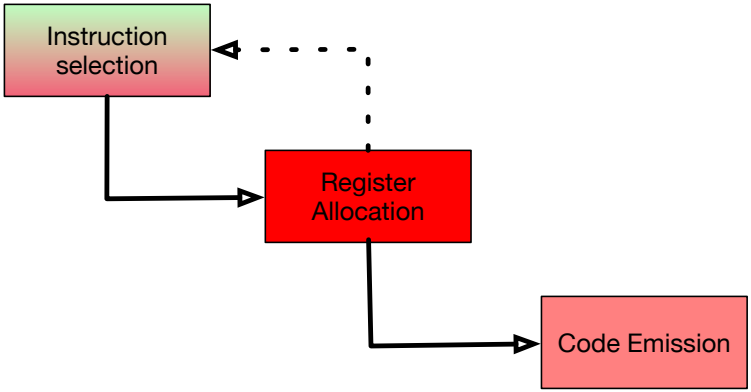
## Backend

# General layout – Compiler structure



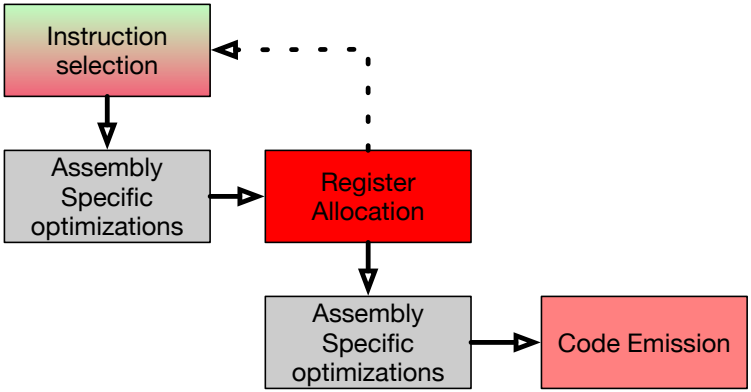
# Backend's overview (1/2)

Everything hardware specific should go in the backend



# Backend's overview (2/2)

Everything hardware specific should go in the backend



# Pre Register Allocation

- Control Flow Graph
- Liveness Analysis
- Dataflow Analysis
- Single Static Assignment
- Interference graph
- Loop unrolling
- Cache handling

Compute information necessary to register allocation

# Register Allocation

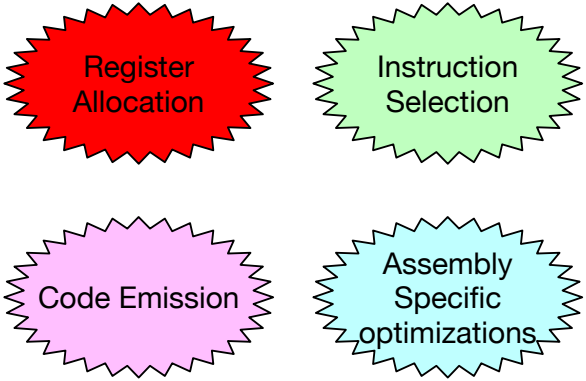
- Graph Coloring
- Spilling
- Coalescing

Find a register for each variable
OR
put some variables onto the stack

# Post Register Allocation

- Instruction scheduling
- Code emission
- *Garbage collection*

# Summary


Register Allocation
Instruction Selection
Code Emission
Assembly Specific optimizations