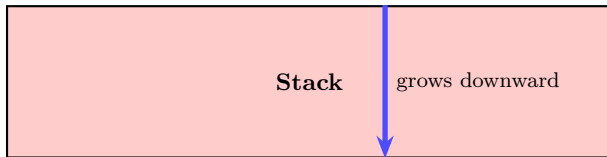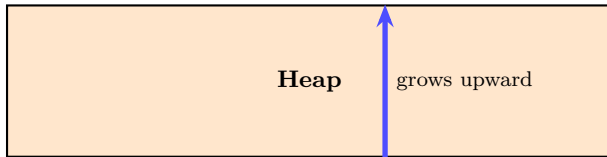# Program Memory Layout

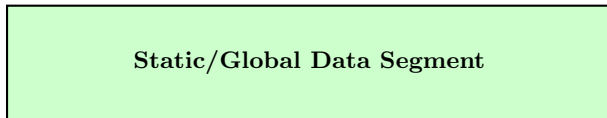High Address

Stack — grows downward
- Local variables
- Function parameters
- Return addresses
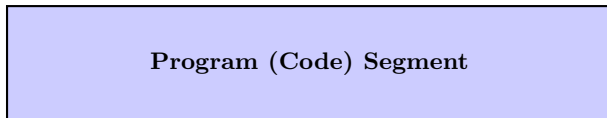- LIFO structure

Heap — grows upward
- Dynamic allocation
- malloc() / free()
- Variable size at runtime

Static/Global Data Segment
- Global variables
- Static variables
- Lifetime: entire program

Program (Code) Segment
- Machine instructions
- Read-only
- Fixed size

Low Address