Types of ISAs

Stack
Accumulator
General-purpose Register

Stack
Example: C=A+B
Push A
Push B
Add (A+B)
Pop C

Accumulator
Example: C=A+B
Load R1, A
Add R3, R1, B
Store R3, C

General Purpose Register Variations
ALU can add three operands
Add R1, R2, R3
ALU can add two operands
Add R1, R2
Maximal number of operands/ALU instruction
This
Load R1, A
Load R2, B
Add R3, R1, R2
versus this
Load R1, A
Add R3, R1, B (ALU accepts B directly)

Popular combinations

register-register (load-store)	0 memory; 3 operands
register-memory	1 memory; 2 operands
memory-memory	2 memories; 2 operands
	3 memories; 3 operands

Register-Register (load-store)

both operands are in registers
values in memory must be loaded into a register & stored back

```
C = A+B
Load R1, A
Load R2, B
Add R3, R1, R2
Store R3, C
```

Register-Memory (no implicit operand)

one operand in register, other in memory

```
C = A+B
Load R1, A
Add R3, R1, B
Store R3, C
```