

SAD

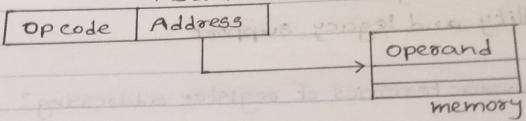
WEB

Tutorial 11

- (1) What is meant by an addressing mode?
The way in which the operand of an instruction is specified.

- (2) What are the two types of addressing?
direct addressing
indirect addressing

- (3) Draw a sample diagram to show how direct addressing works.



- (4) What are the pros and cons of direct addressing?

Pros → • simplicity - straightforward and easy to understand
• efficiency - can be relatively fast and efficient
• predictability - easier for hardware designers and compilers to optimize memory access and cache utilization
• low overhead

Cons → • lack of flexibility

- inefficient for data structures
- difficulty in managing large memory
- security vulnerabilities
- code reusability

- (5) What are the advantages of having multiple addressing modes in computer architecture?
- flexibility
 - support for data structures
 - reduced code size
 - improved performance
 - dynamic memory management
 - modularity and reusability
 - support for high-level languages
 - better code optimization
 - memory efficiency
 - compatibility and legacy support

(6) What are the characteristics of register addressing?

direct access

speed

limited number of operands

code efficiency

reduced memory access

temporary storage

compiler optimization

context sensitivity

register-register operations

reduced addressing overhead

Draw a simple diagram to show how register addressing works.

(8) What are the advantages and disadvantages of register addressing in computer architecture?

advantages	disadvantages
Faster than cache or main memory deterministic can replicate Shard identifiers reduce memory traffic	limited number compiler must manage fixed size need to save and restore on procedure calls and context switch can't take the address of a register