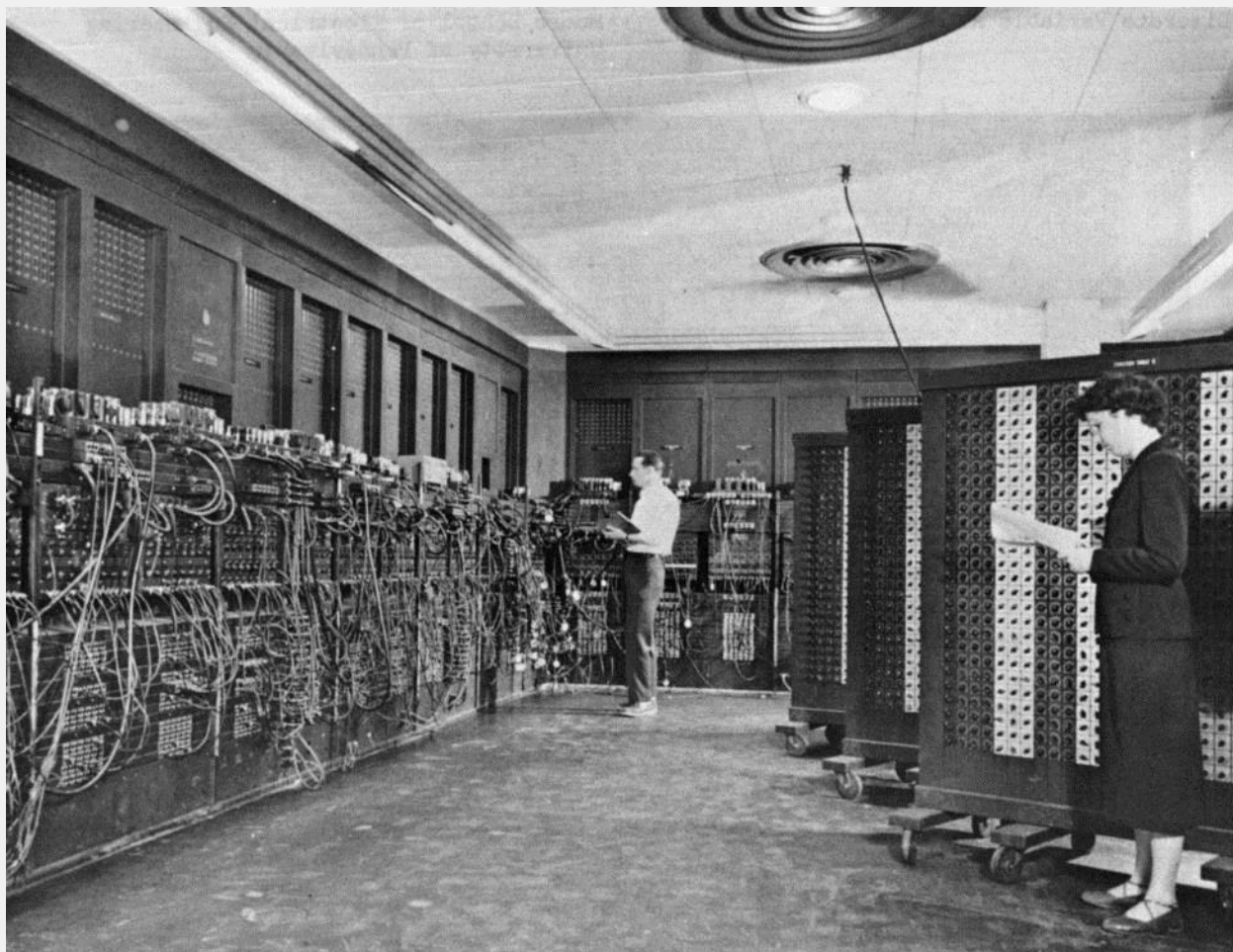


Understanding Digital Technology

2강-공학적 사고와 컴퓨터

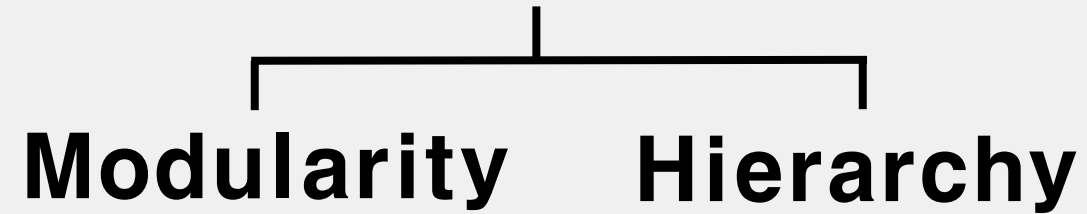
Educast 박태영 대표



컴퓨터가 만들어진 필연적인 원리

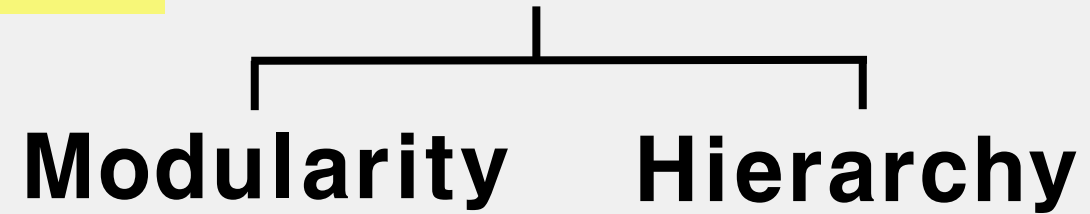
Engineering Thinking

Optimization & Scalability



Engineering Thinking

Optimization & Scalability

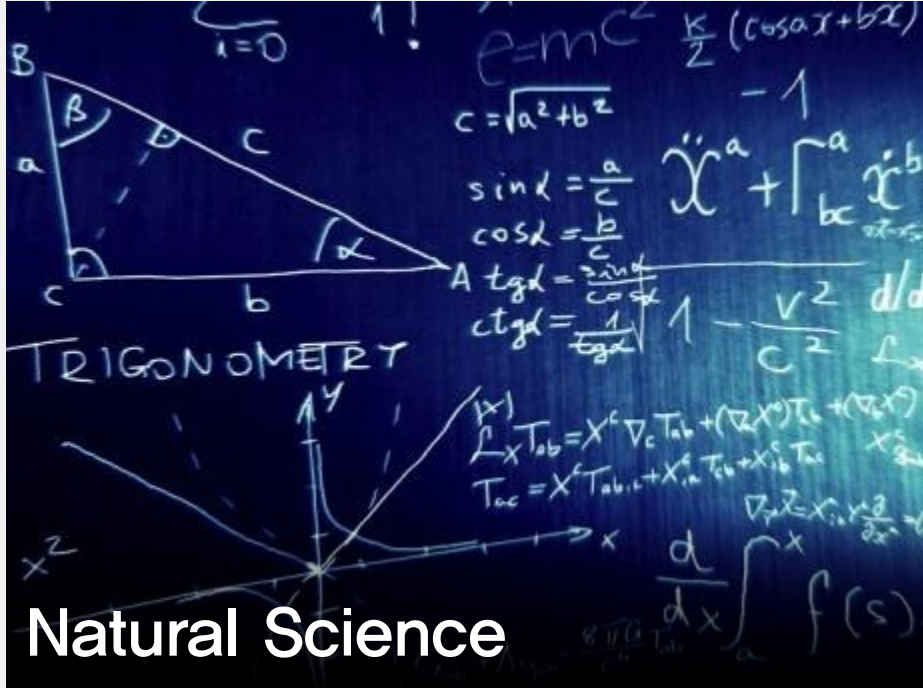


Optimization

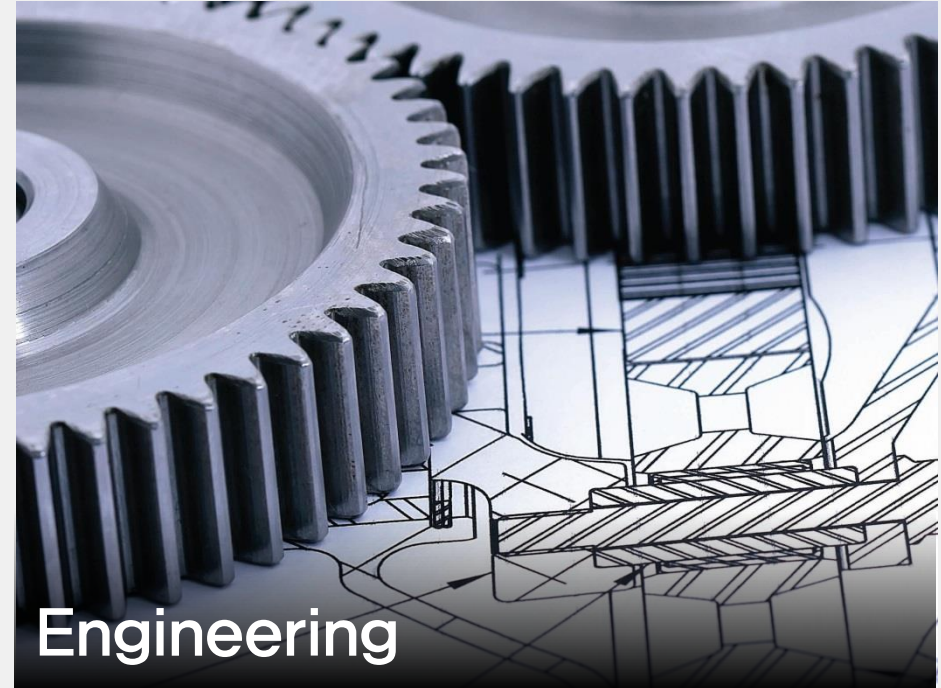


- What do Engineers think?

Optimization



VS

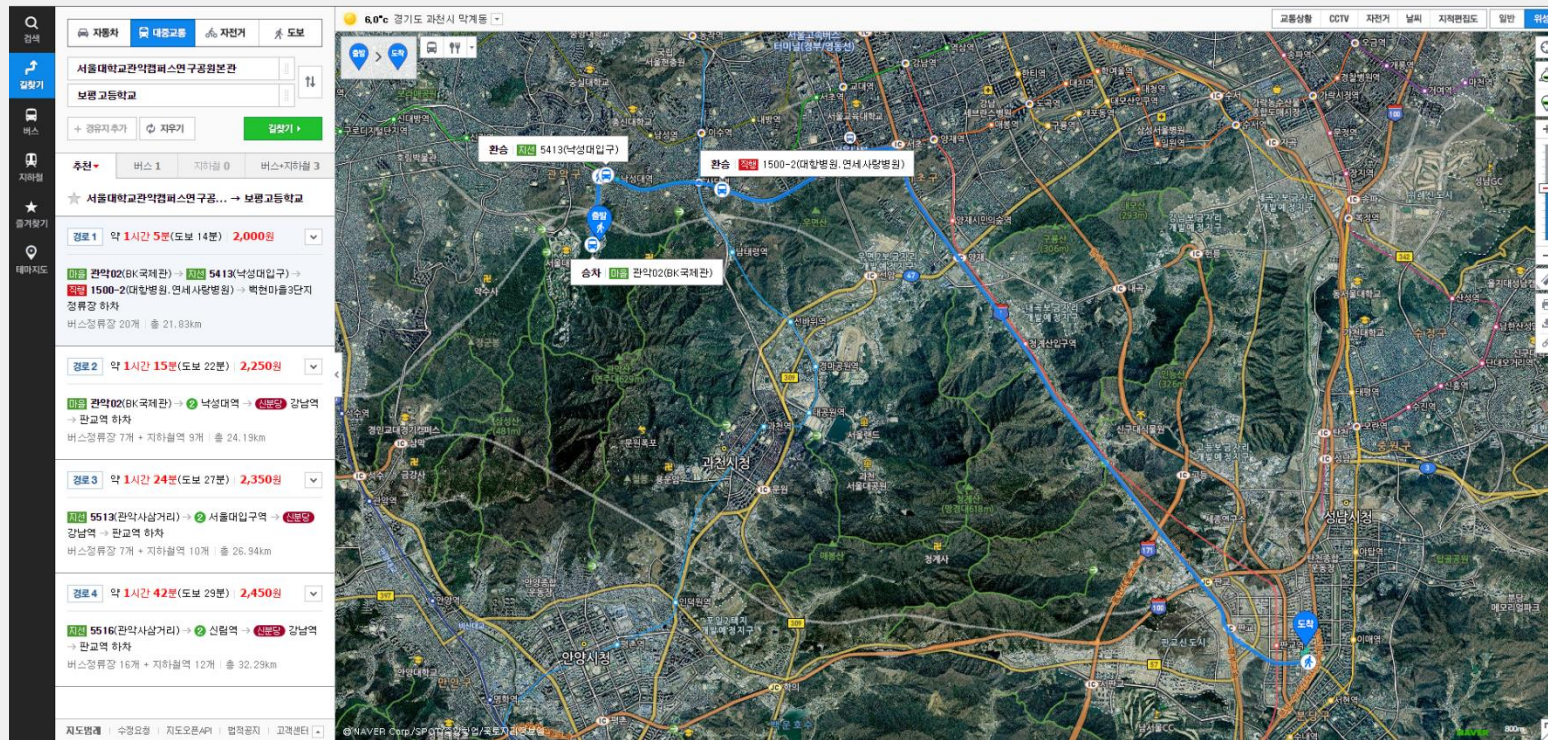


Optimization

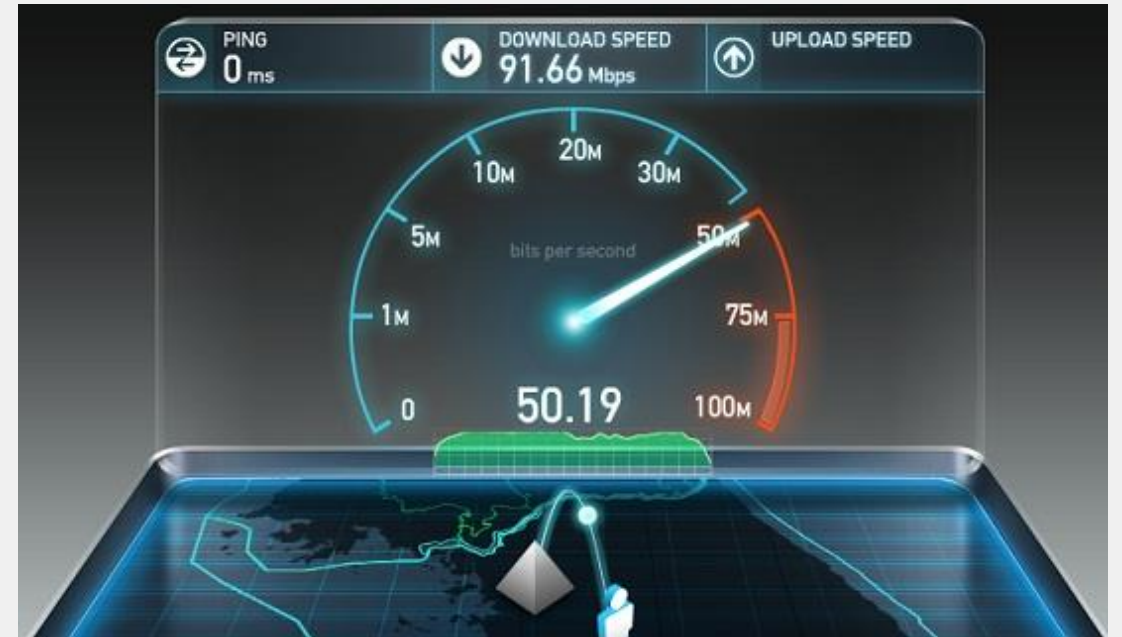
- Resources
- Modeling
- Cost
- Affordable vs Optimized

Optimization – 길찾기

- 최소 비용 vs 최단 거리 vs 최단 시간 이론차



Optimization – 유튜브 화질과 인터넷 속도



Optimization – 최적화와 카카오톡 이야기



VS



VS



- Resources : 배터리, 메모리, CPU, OS

Engineering Thinking

Optimization & Scalability



```
graph TD; A[Optimization & Scalability] --> B[Modularity]; A --> C[Hierarchy]
```

Modularity Hierarchy

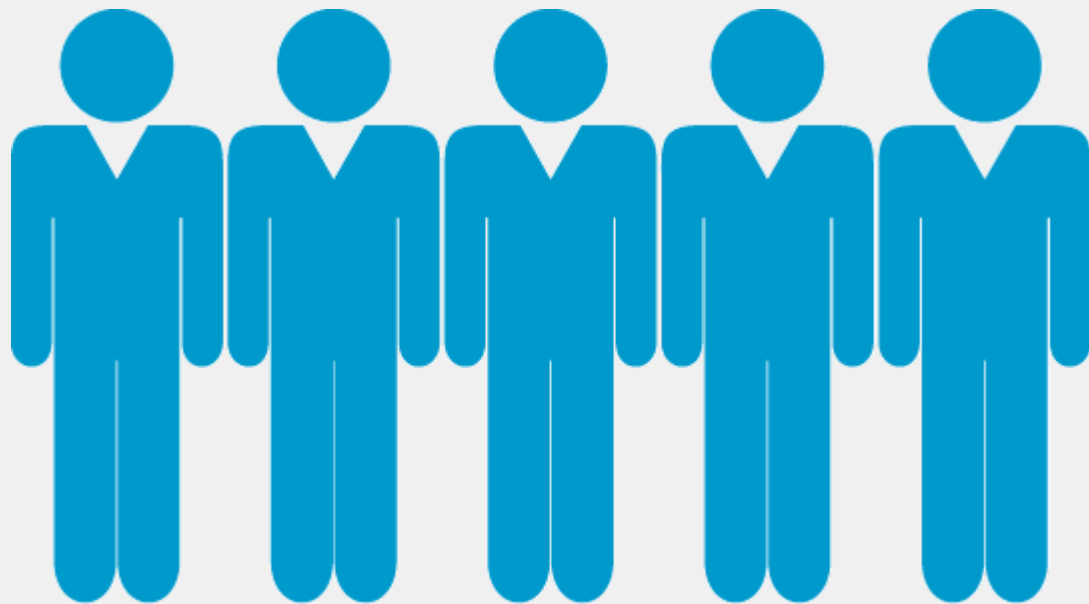
Scalability

- 어떻게 초대형 프로젝트를 관리할 수 있을까?

Scalability

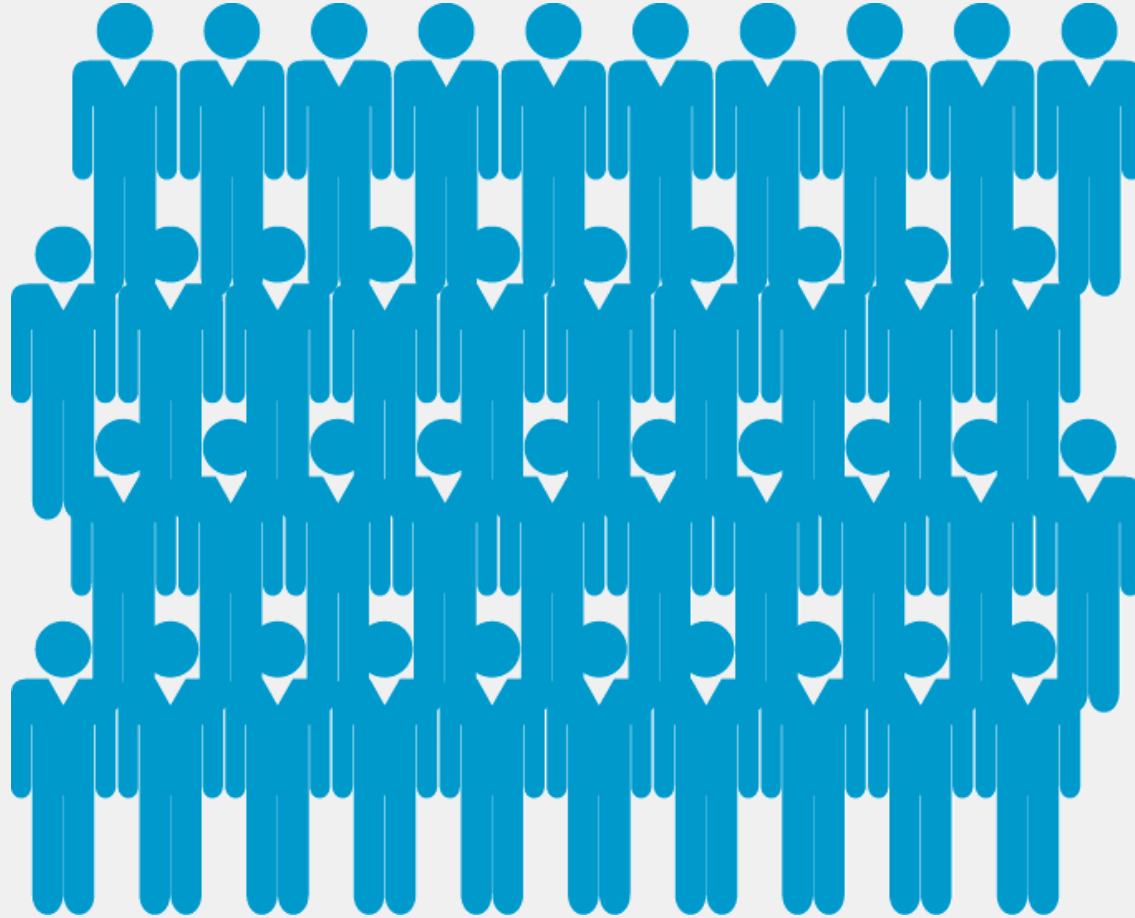


Scalability



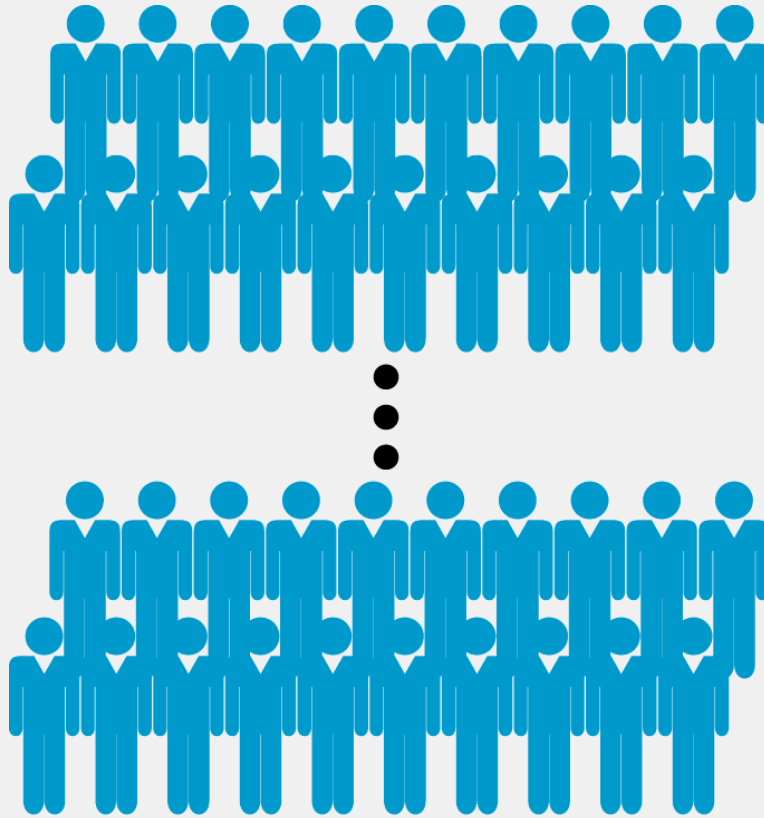
5명

Scalability



40명

Scalability

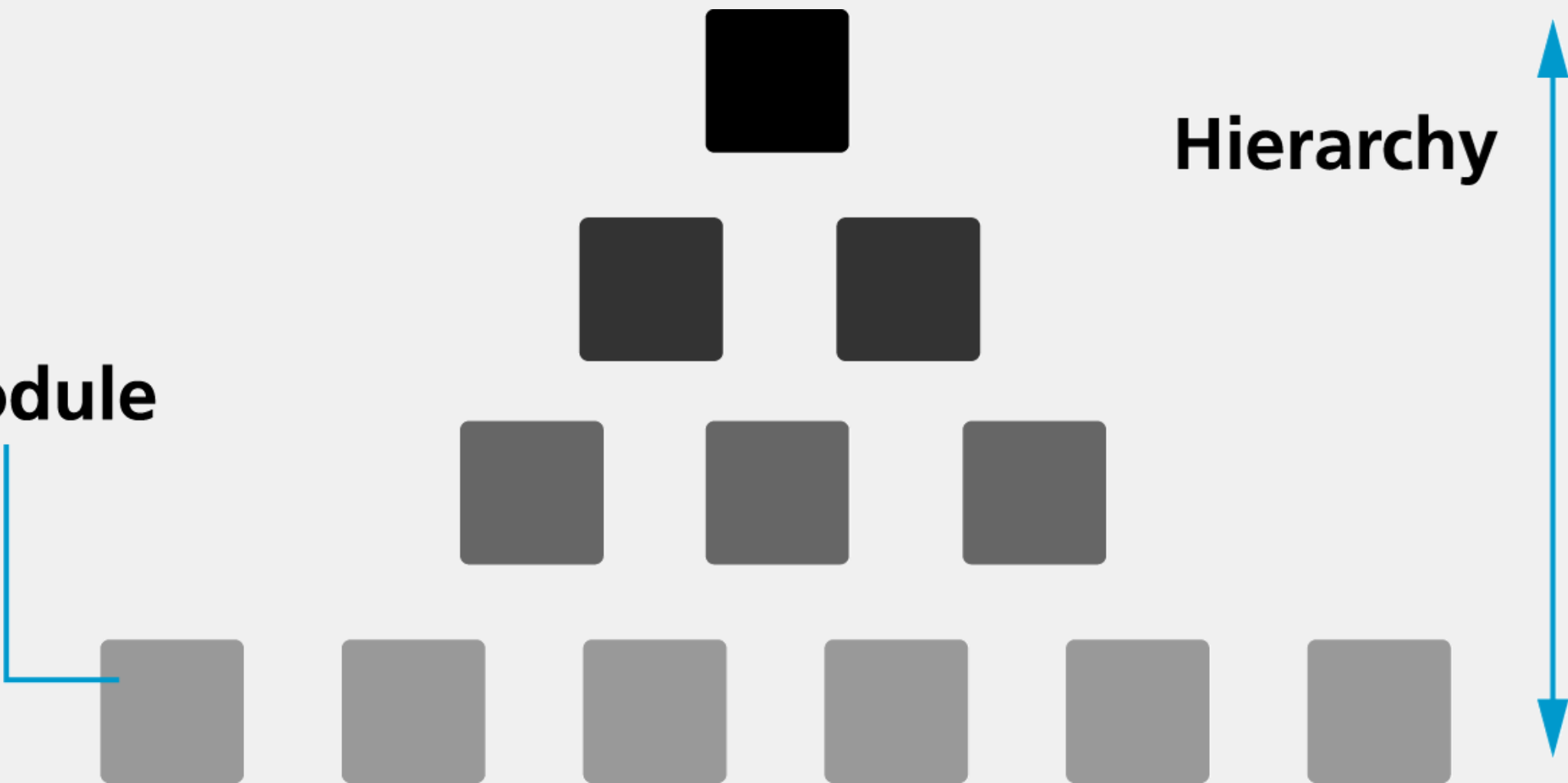


10,000명

Scalability

Module

Hierarchy



Scalability

1,400,000,000

Engineering Thinking

Optimization & Scalability

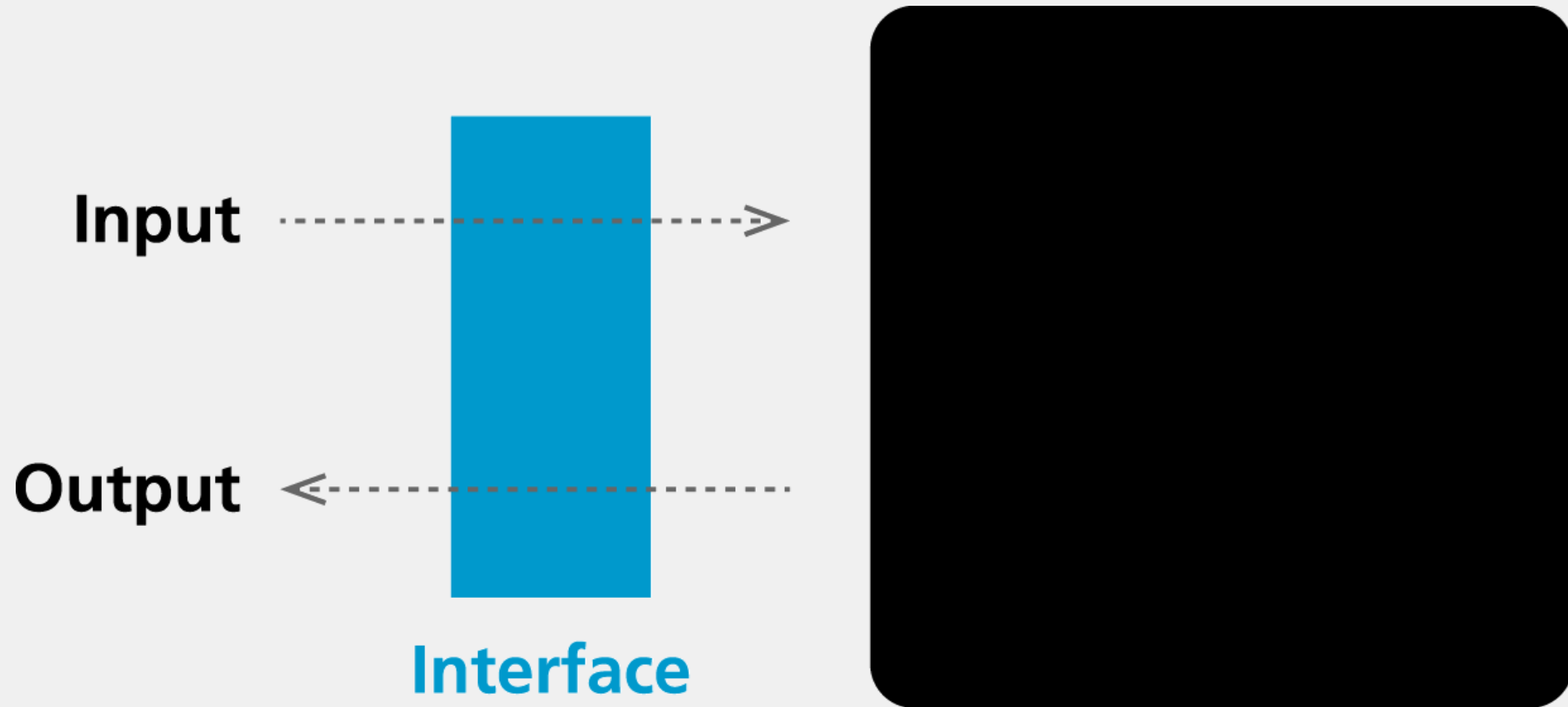


```
graph TD; A[Optimization & Scalability] --> B[Modularity]; A --> C[Hierarchy];
```

Modularity **Hierarchy**

Modularity

The “Black Box”



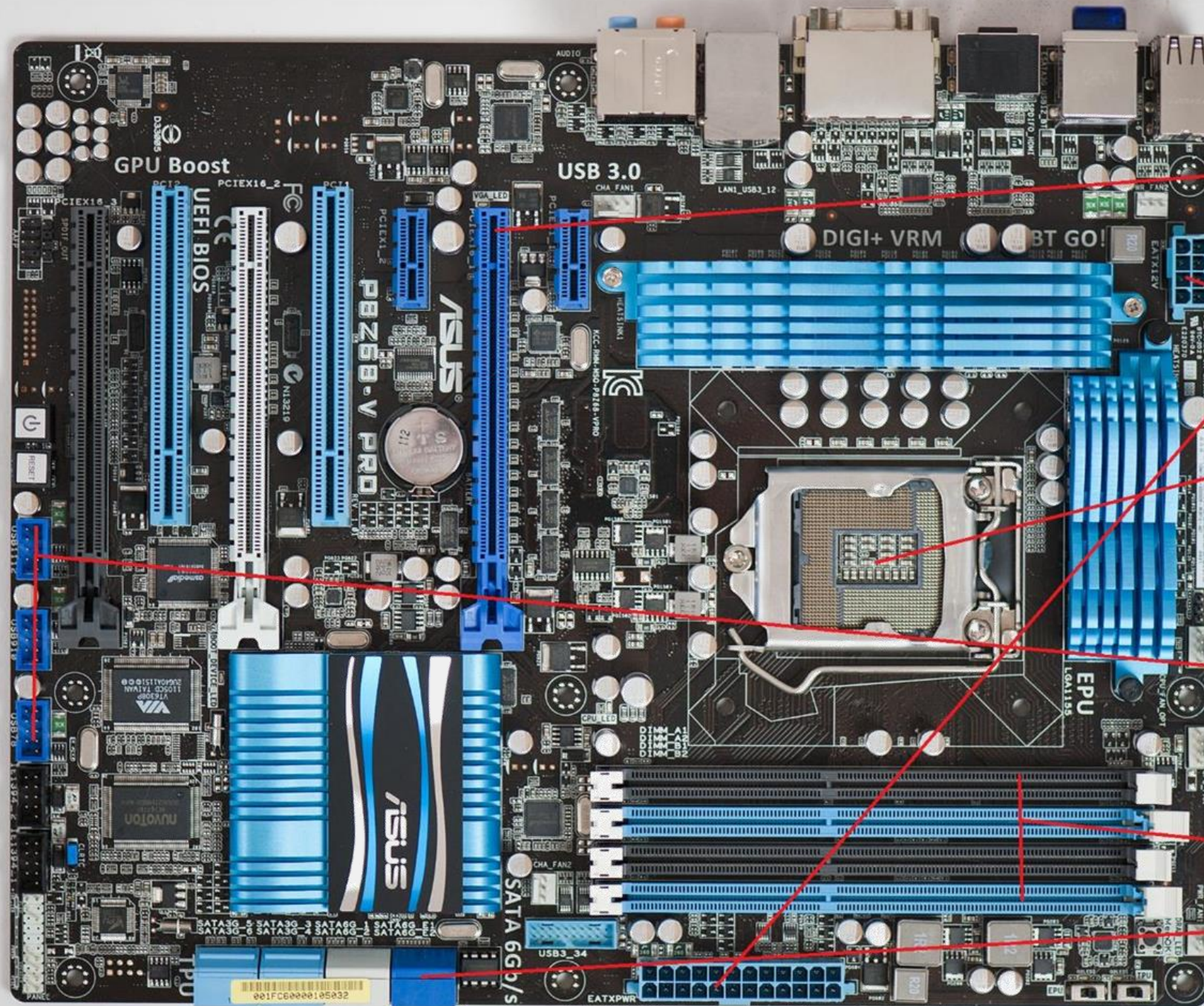
Modularity



몰라도 된다 & 몰라야 한다

Modularity





PCI Slots

Main power connectors for the board

Processor Socket

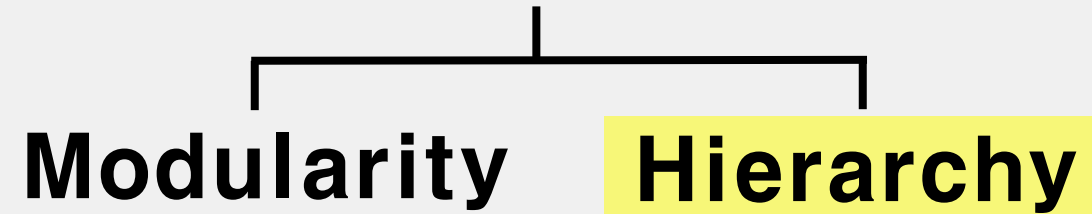
USB 2.0 Connectors

Memory Slots

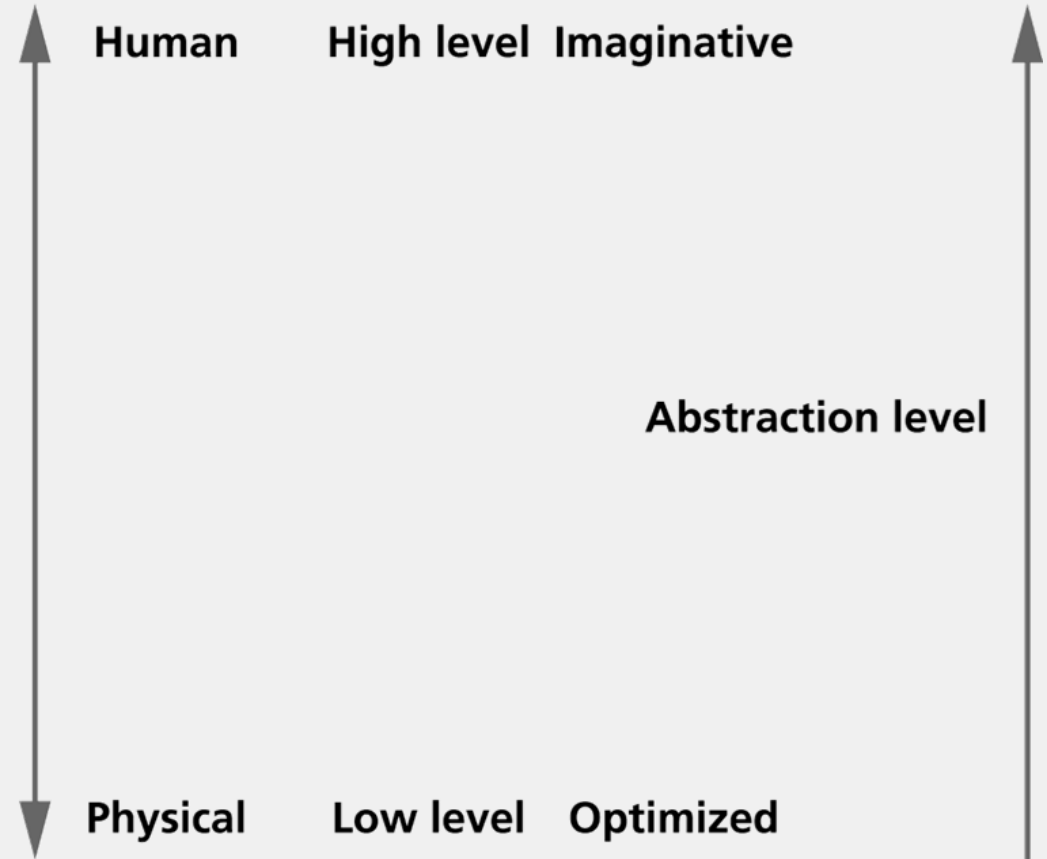
Sata Connectors

Engineering Thinking

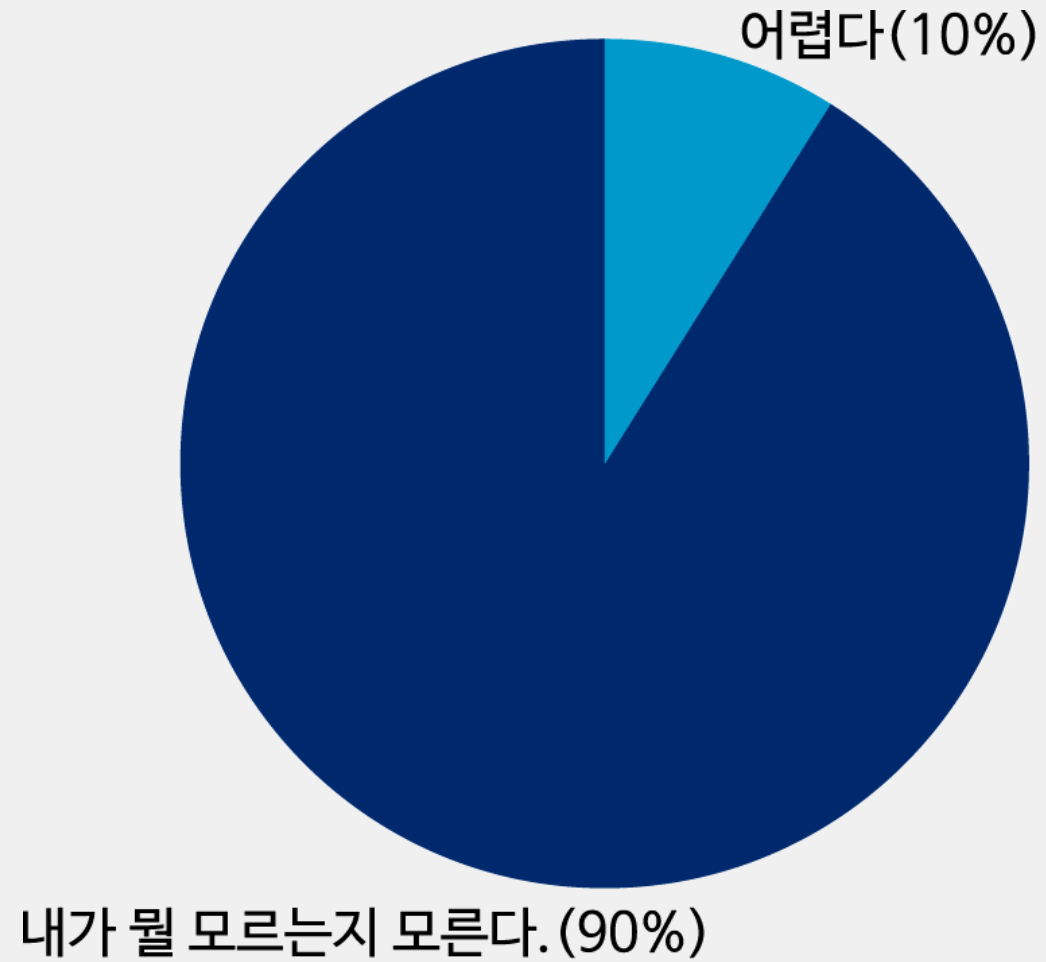
Optimization & Scalability



Hierarchy



컴퓨터를 이해하기 힘든 이유

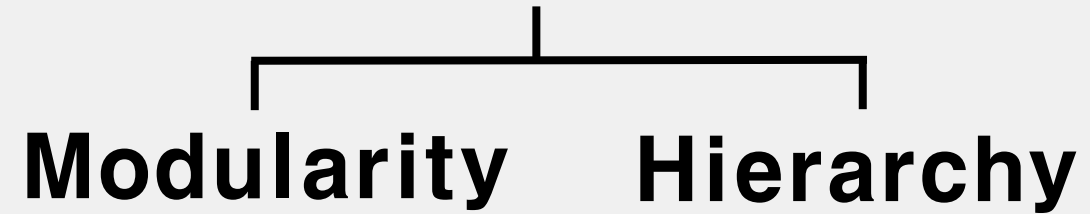


Course Overview

차시	주제	시간	오프라인 날짜
1	오리엔테이션	20분	14.11.15
2	공학적사고와 컴퓨터	40분	14.11.15
3	이진수 Part 1 - 진법 이해하기	40분	14.11.15
4	이진수 Part 2 - 이진수 계산하기	40분	14.11.22
5	전기현상과 전기회로	40분	14.11.22
6	트랜지스터와 게이트	40분	14.11.29
7	Clock, FlipFlop, Memory	40분	14.11.29
8	전자시계를 만들어 봅시다	40분	14.12.06
9	자판기와 FSM	40분	14.12.06
10	CPU와 컴퓨터 구조	40분	14.12.20
11	운영체제	40분	14.12.20
12	기계어와 번역시스템	40분	14.12.20
13	어플리케이션과 API	40분	14.12.27
14	통신과 Web	40분	14.12.27
15	공학적 사고와 기술트렌드	40분	14.12.27

Engineering Thinking

Optimization & Scalability



THE END