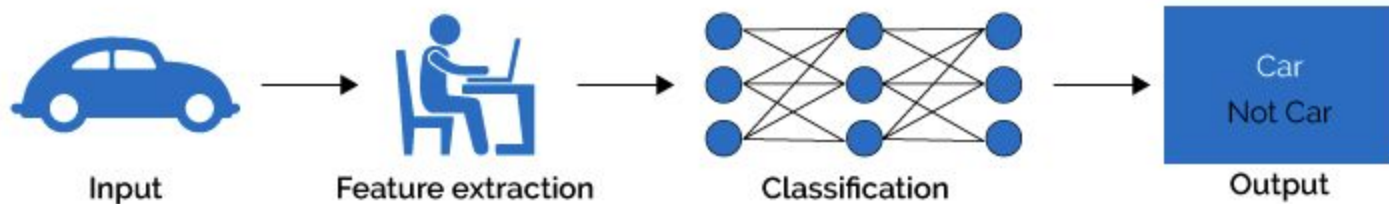


Machine Learning
Deep Learning

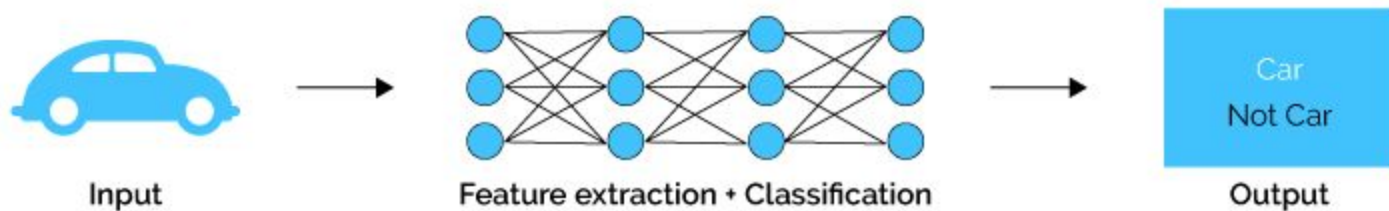
구별할 이유가 있나?

먼저 숙고해봐야 할
한 장의 이미지!

Machine Learning



Deep Learning



ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

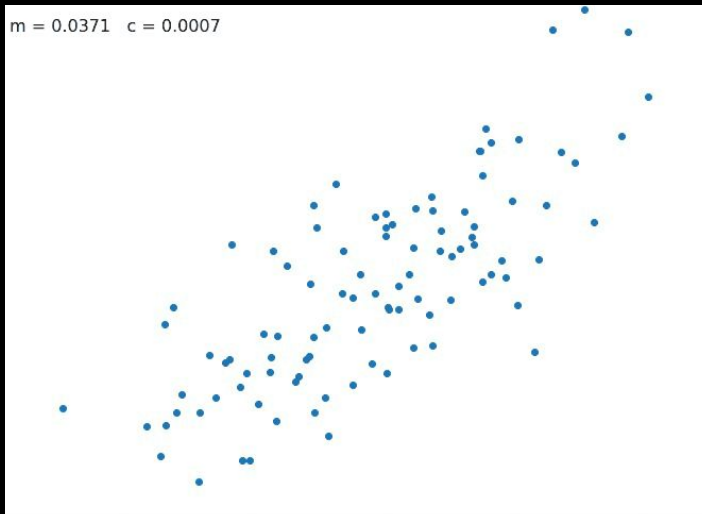
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

Linear Regression



1. '주어진 데이터'를 바탕으로.
2. 올바른 회귀 값이 나오도록
→ 에러가 줄어들도록
3. 가중치를 조절함.

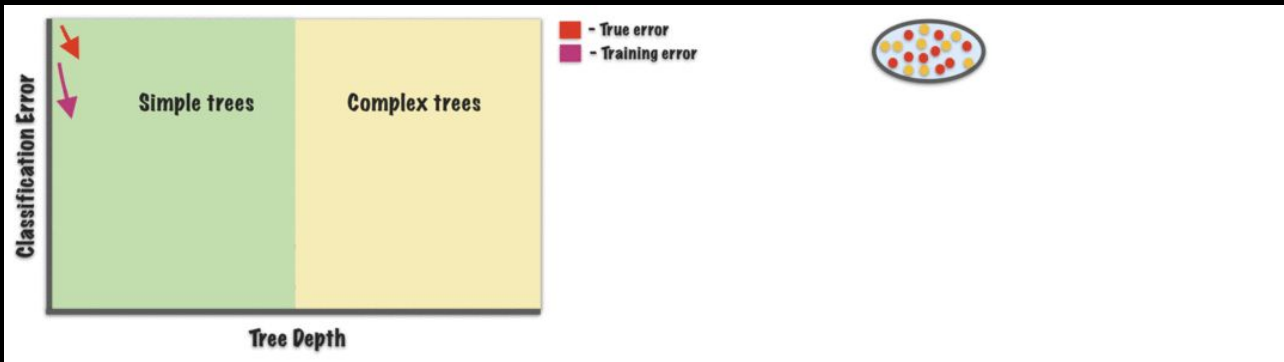
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

Decision Tree



1. '주어진 데이터'를 바탕으로.
2. 올바른 분류/회귀 값이 나오도록
→ 에러가 줄어들도록
3. 분기 조건을 찾음.

ML 필수 절차

Feature
Engineering

‘주어진 데이터’를 바탕으로, 의사결정 Rule이 생성됨.

Learning :
Model Training

주어진 데이터가 ‘성능’을 좌우함!

Inference
(prediction)

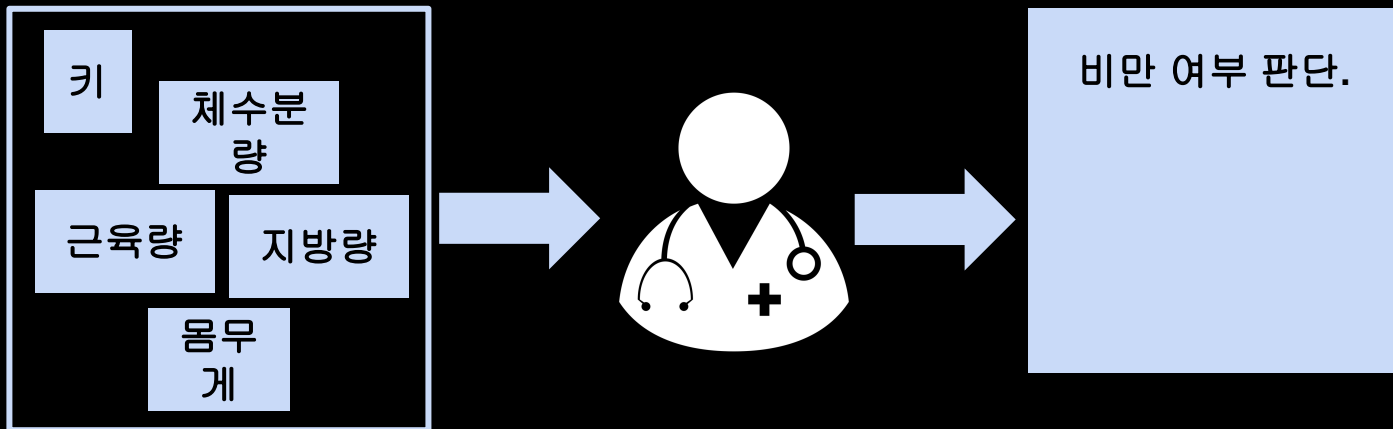
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다?



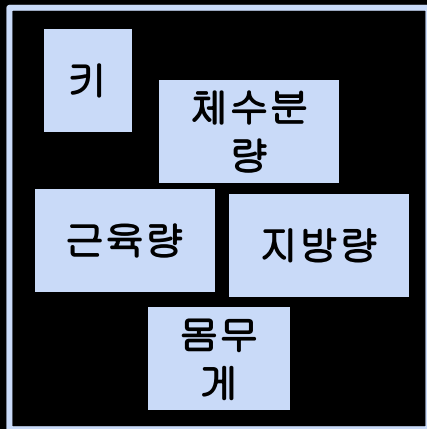
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다?



비만 여부 판단.

어떤 복잡한
논리적인 절차의
결론으로.

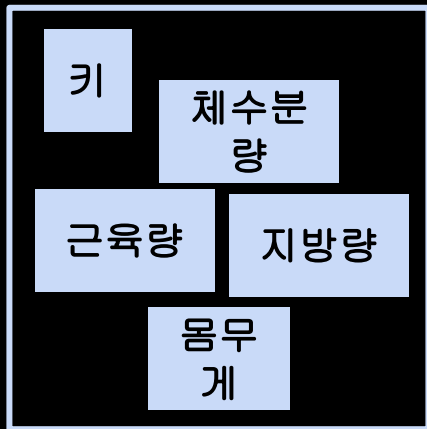
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다?



비만 여부 판단.

어떤 복잡한
논리적인 절차의
결론으로.

자동화된 논리적인 절차 :
머신러닝

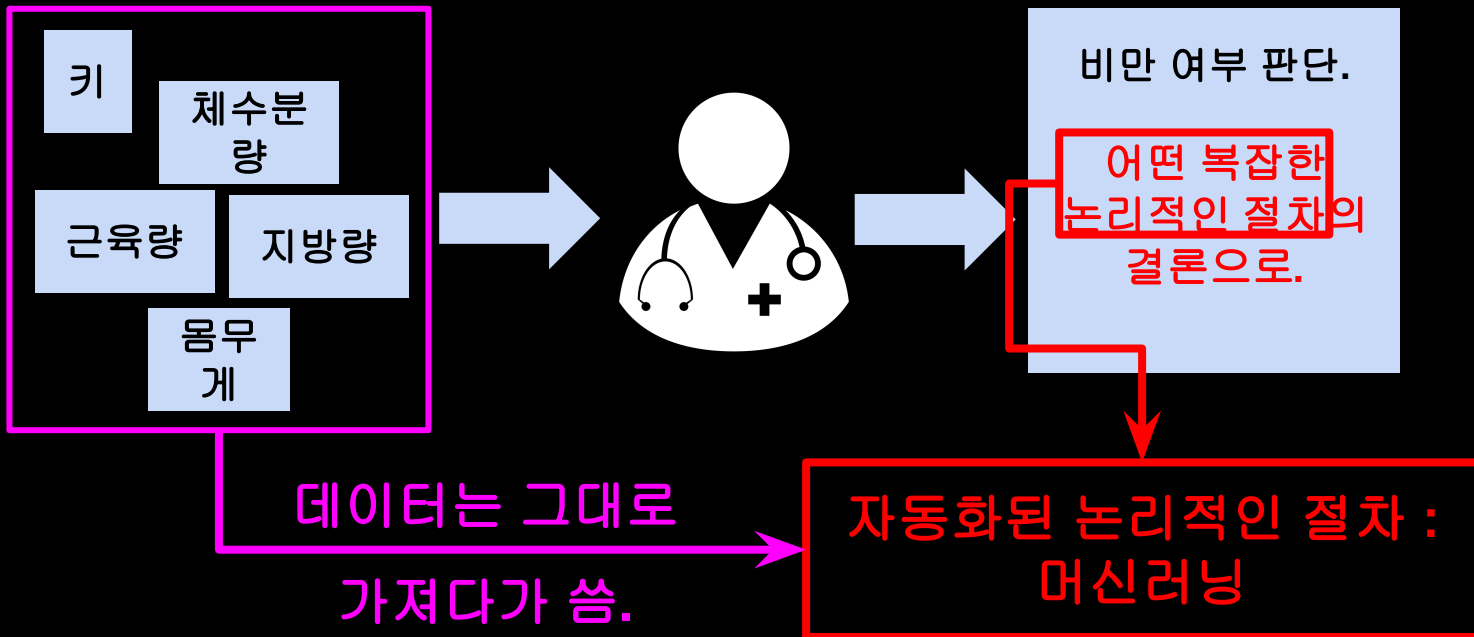
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



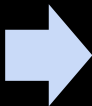
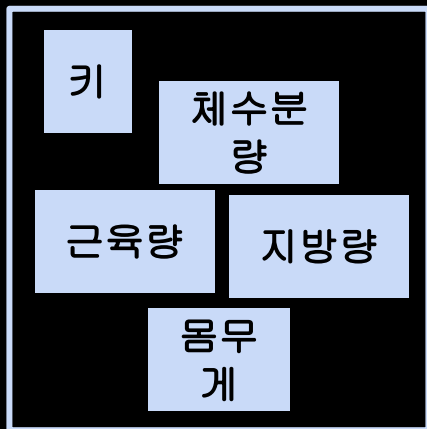
ML 필수 절차

Feature
Engineering

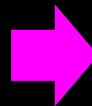
Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



어떤 최신의
비만지표
0 ~ 100



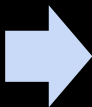
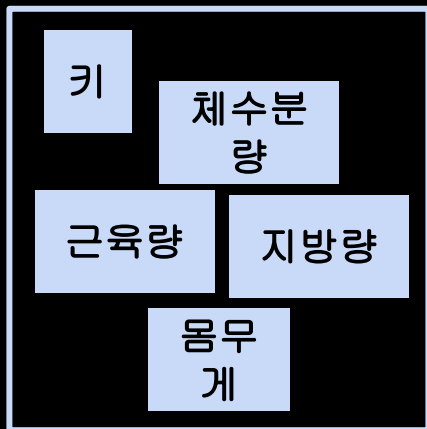
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



어떤 최신의
비만지표
0 ~ 100



비만 여부 판단.
80점 넘으면 비만.

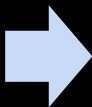
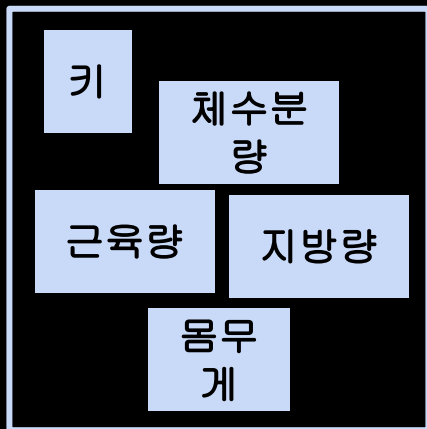
ML 필수 절차

Feature
Engineering

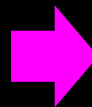
Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



어떤 최신의
비만지표
0 ~ 100



비만 여부 판단.
80점 넘으면 비만.

쉬운 논리절차의
결론.

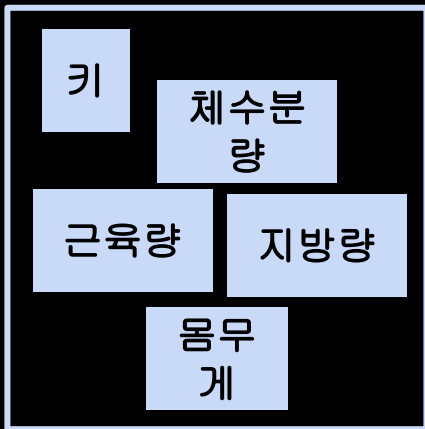
ML 필수 절차

Feature
Engineering

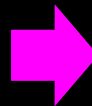
Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



어떤 최신의
비만지표
0 ~ 100



비만 여부 판단.
80점 넘으면 비만.

쉽게! 자동화된 논리적인 절차 :
머신러닝

쉬운 논리절차의
결론.

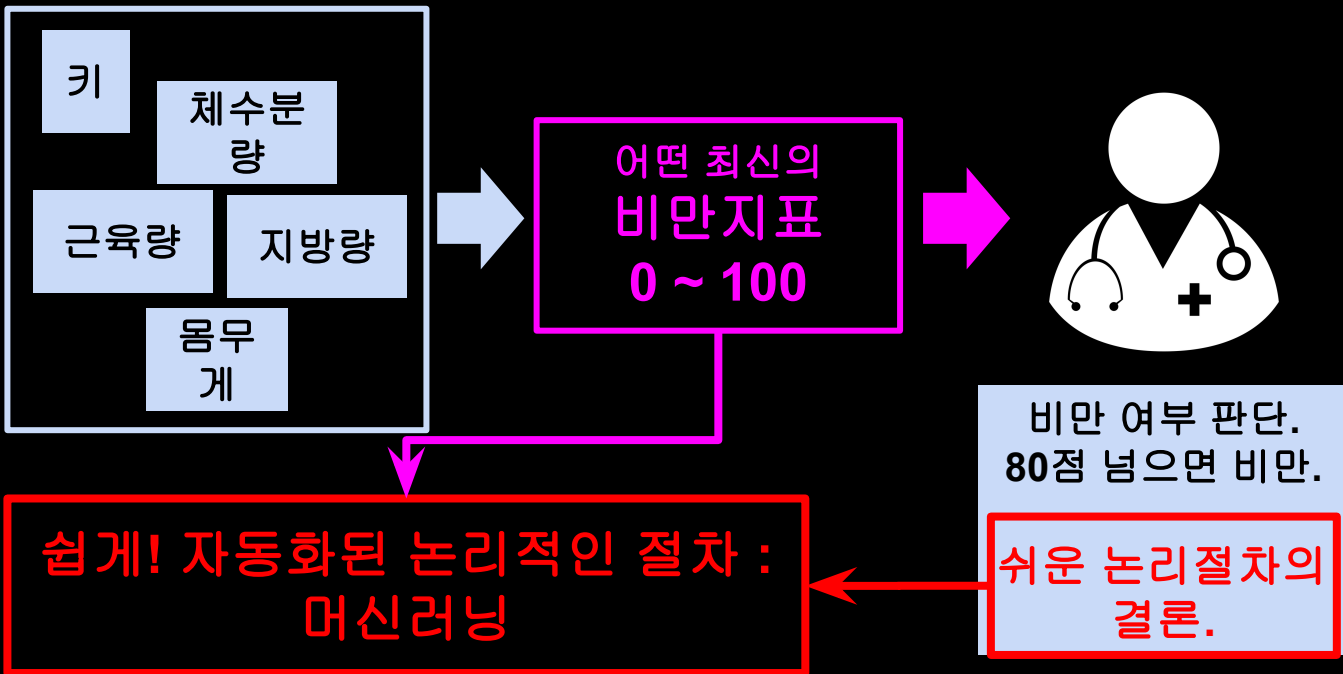
ML 필수 절차

Feature
Engineering

Learning :
Model Training

Inference
(prediction)

주어진 데이터로 의사결정 rule을 만든다



ML 필수 절차

Feature
Engineering

주어진 데이터가

Learning :
Model Training

얼마나 ‘적절’하느냐에 따라서.

Inference
(prediction)

의사결정 **rule** ← 제작 난이도가 다르다!

ML 필수 절차

Feature
Engineering

Feature Engineering :

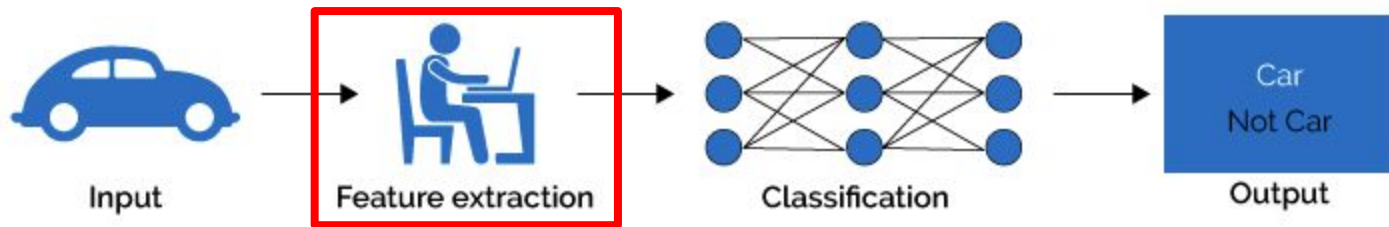
주어진 데이터를, 의사결정에 도움되도록
더 적절히 만들어보는 절차.

Learning :
Model Training

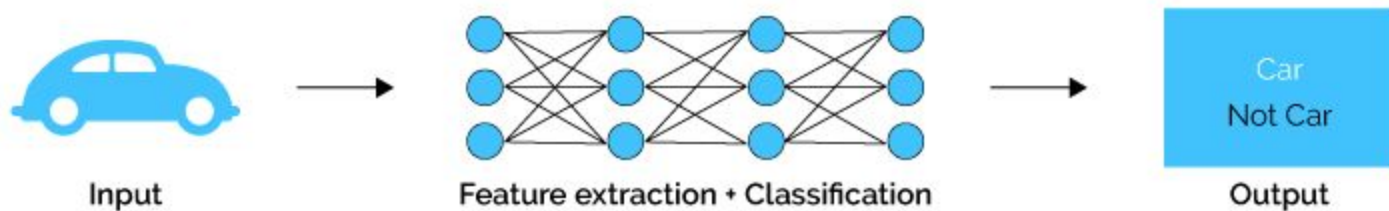
(Math <<<< Domain Knowledge)

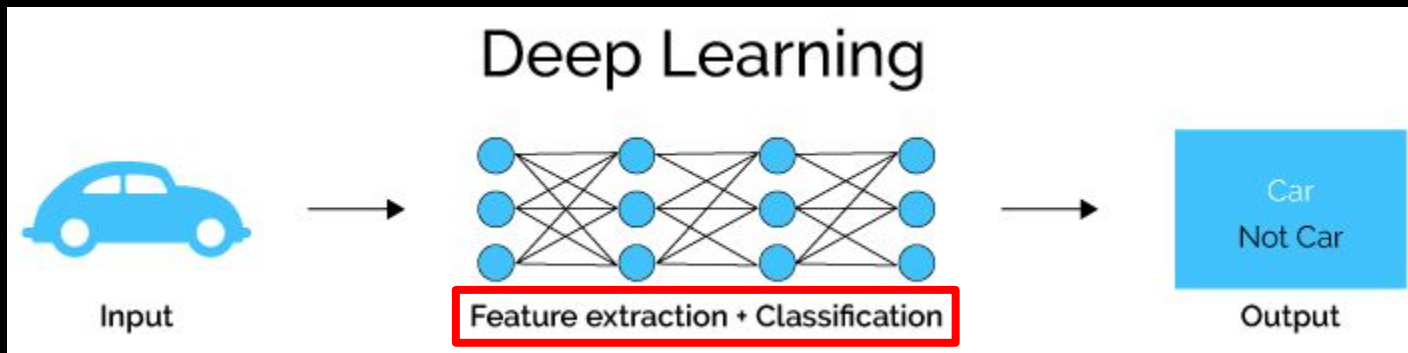
Inference
(prediction)

Machine Learning



Deep Learning

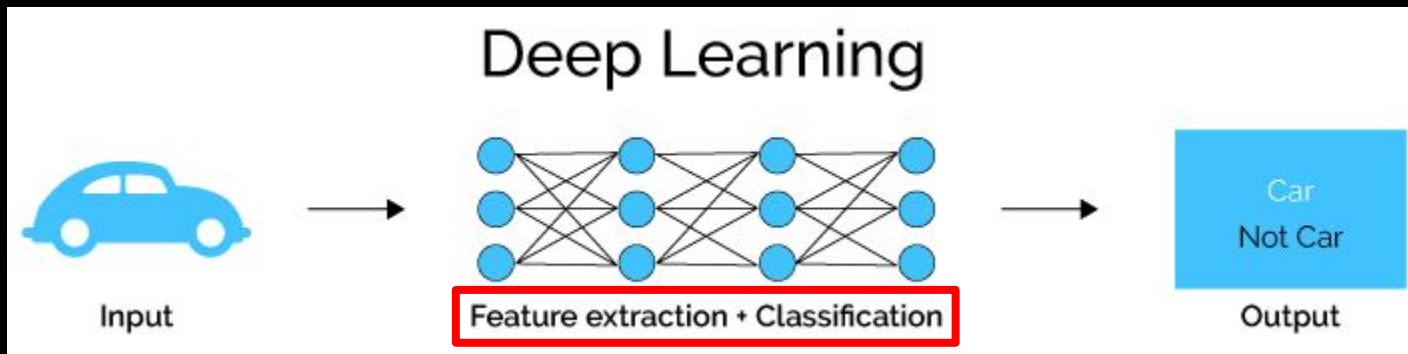




**Feature
Engineering**

**Learning :
Model Training**

**Inference
(prediction)**



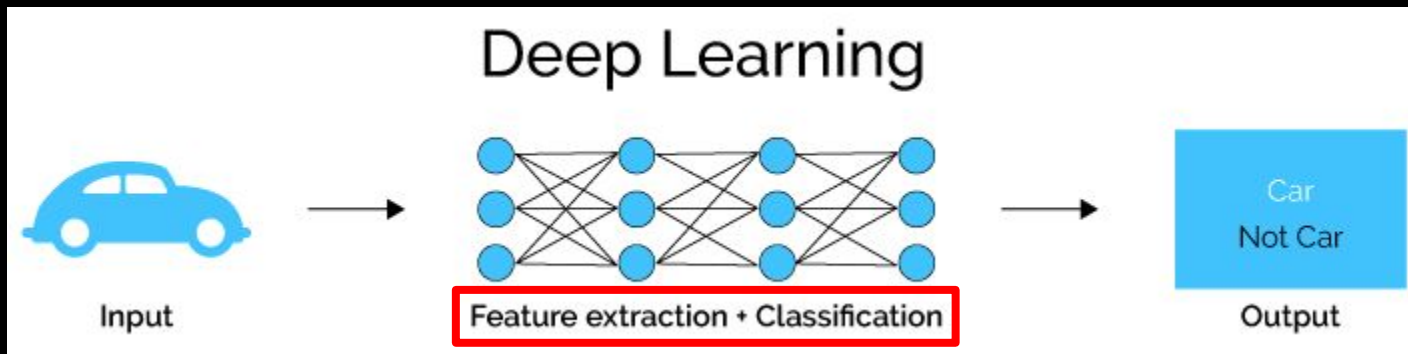
**Feature
Engineering**

**Learning :
Model Training**

**Inference
(prediction)**

Learning :

1. Feature Learning
2. Model Training

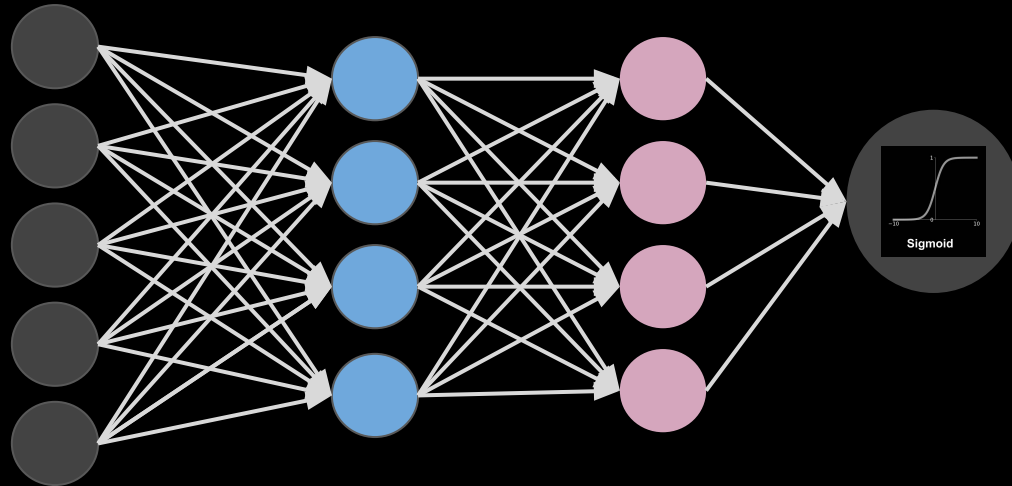


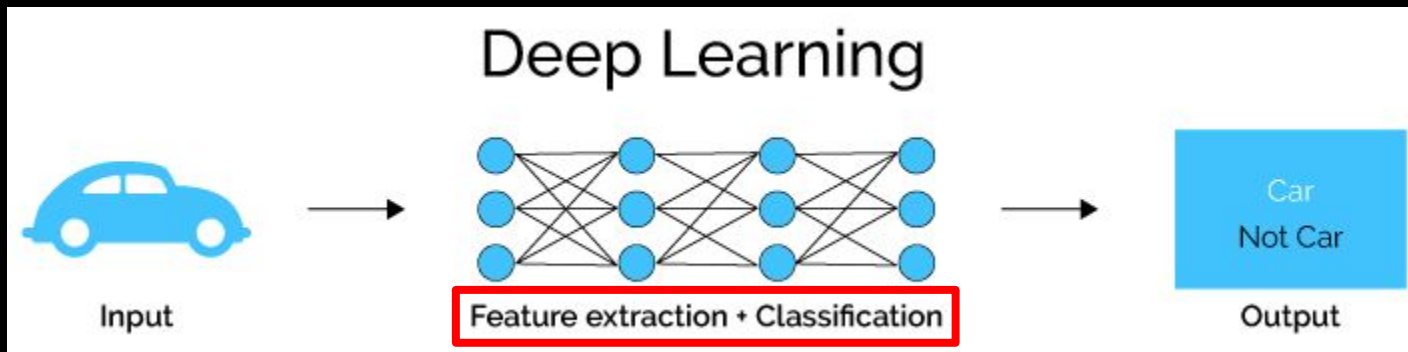
Feature
Engineering

Learning :

1. Feature Learning
2. Model Training

Inference
(prediction)



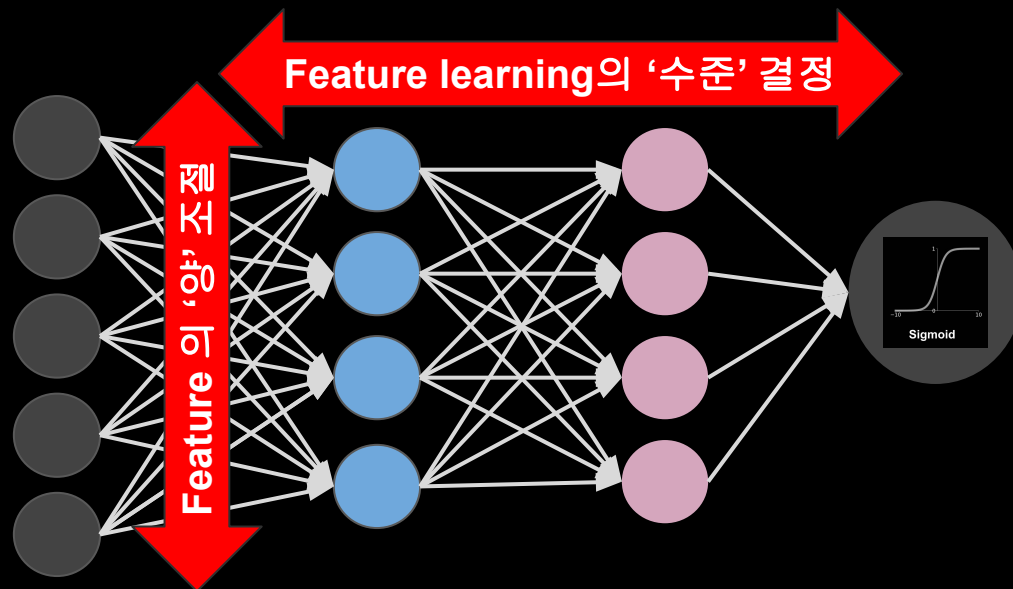


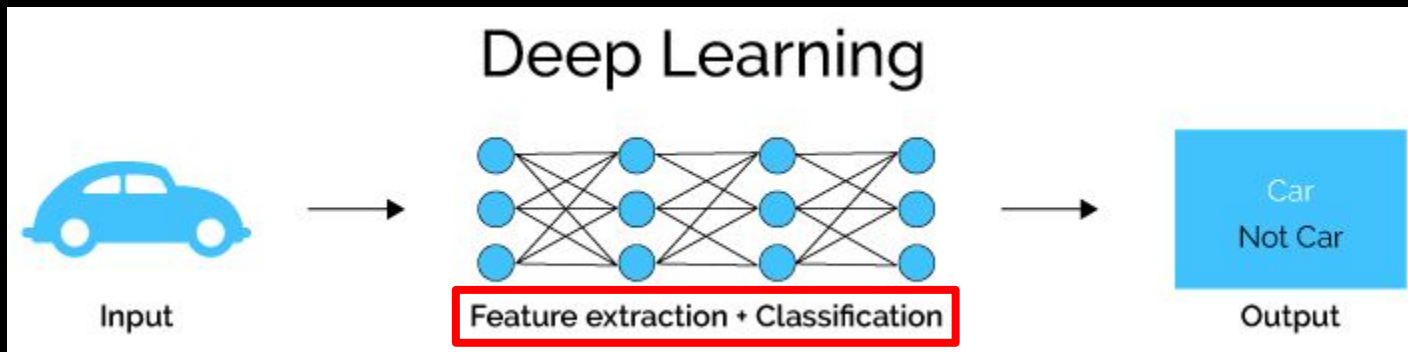
Feature
Engineering

Learning :

1. Feature Learning
2. Model Training

Inference
(prediction)





Feature
Engineering

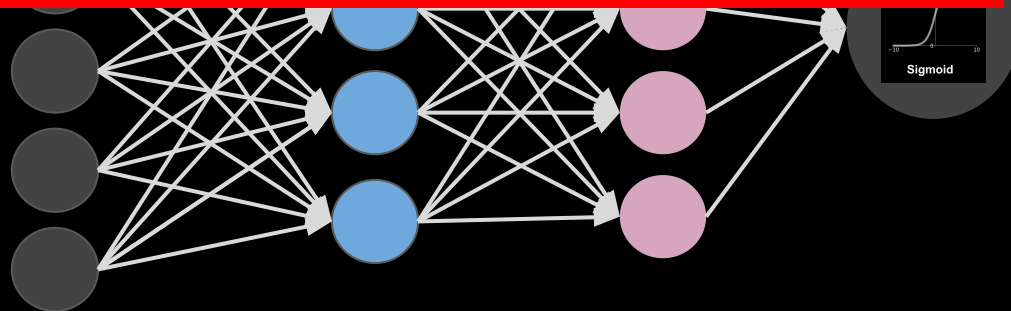
Learning :

1. Feature Learning
2. Model Training

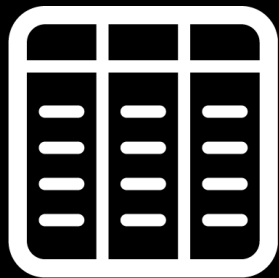
Inference
(prediction)

Feature Engineering

- 자동화 되었음! (Feature Learning)
- 공간만 만들어주면, 예측에 도움이 되는 좋은 특징들 잘 만들어준다!



Tabular Data



- 이미 잘 정제된 데이터
- 보통 데이터가 많지 않음. (col, row)
- 사람이 Feature Engineering 할만 함.

Machine Learning
(conventional)

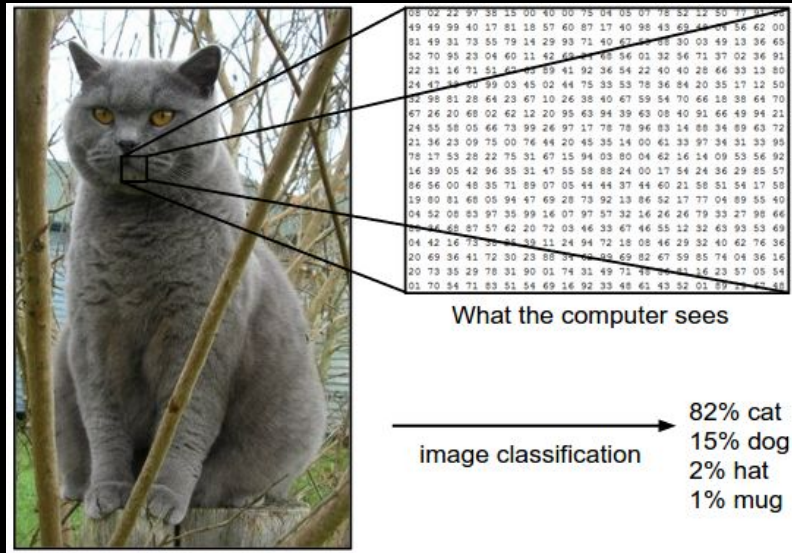
Deep Learning

ML이 DL보다

- 성능이 좋거나
- 비슷함.

Feature Engineering 난이도 비교 ML vs DL

Image Data



Machine Learning
(conventional)

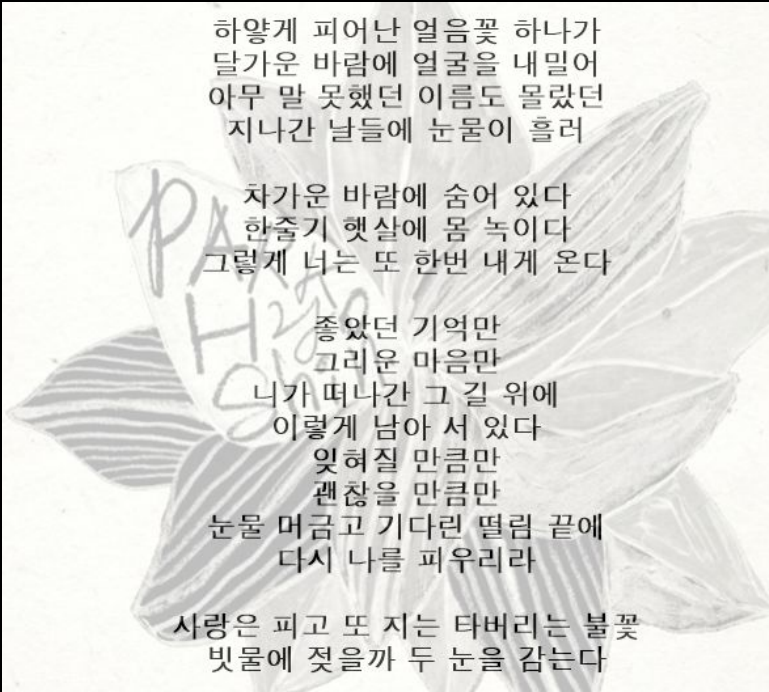
Deep Learning

Deep Learning

- Feature Engineering
수작업 너무너무너무 힘들.

Feature Engineering 난이도 비교 ML vs DL

Text Data



하얗게 피어난 얼음꽃 하나가
달가운 바람에 얼굴을 내밀어
아무 말 못했던 이름도 몰랐던
지나간 날들에 눈물이 흘러

차가운 바람에 숨어 있다
한줄기 햇살에 몸 녹이다
그렇게 너는 또 한번 내게 온다

좋았던 기억만
그리운 마음만
니가 떠나간 그 길 위에
이렇게 남아 서 있다
잊혀질 만큼만
관찮을 만큼만
눈물 머금고 기다린 떨림 끝에
다시 나를 피우리라

사랑은 피고 또 지는 타버리는 불꽃
빗물에 젖을까 두 눈을 감는다

Machine Learning
(conventional)

Deep Learning

Deep Learning

- Feature Engineering
수작업 너무너무너무 힘들.

Machine Learning

Deep Learning

Machine Learning
Deep Learning

무엇이 언제 왜 필요한지!

다양한 형태의 데이터를 다루어 내려면!

다양한 형태의 데이터를 다루어 내려면!

Deep Learning