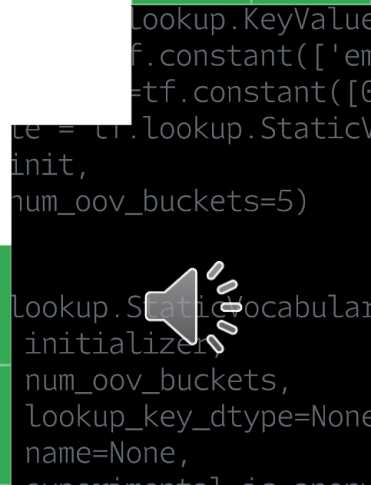
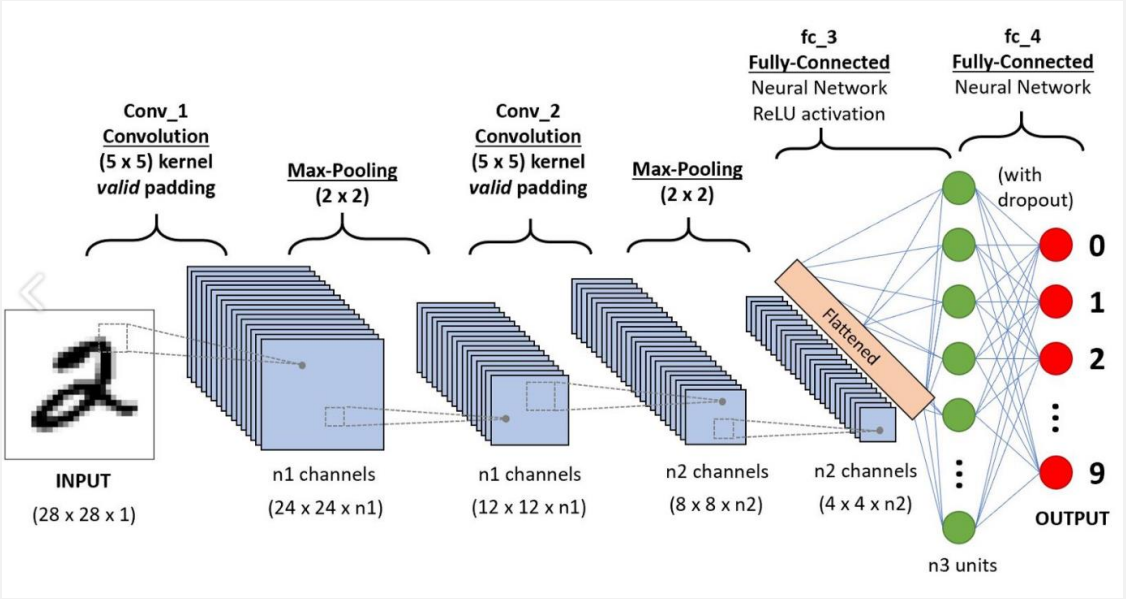
Google Developer Student Clubs

ML/DL Basic Week 04

서지현

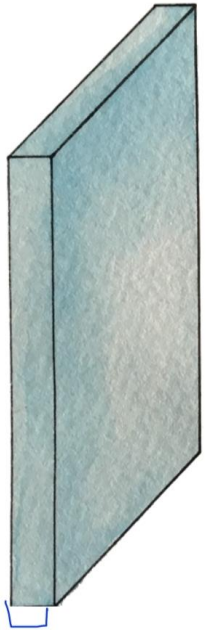


CNN(Convolutional Neural Networks)



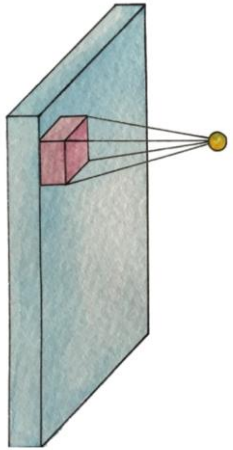
1. Convolution layer
2. Polling layer
3. Fully-connected layer

Convolution layer

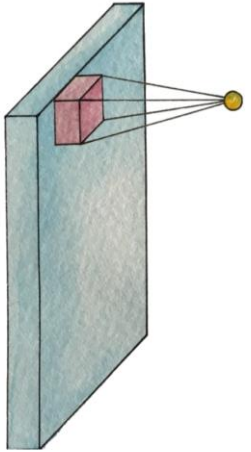


32x32x3 image

5x5x3 filter



32x32x3 image



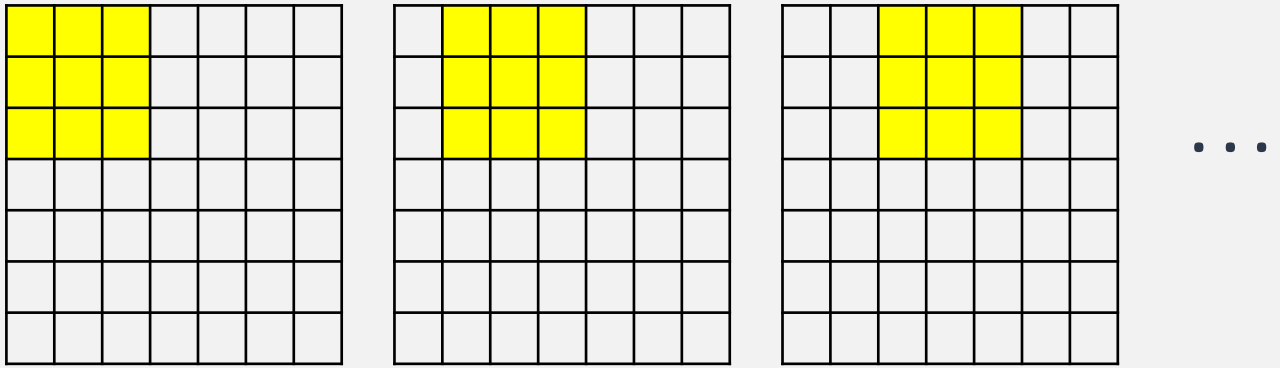
32x32x3 image

- Stride: 필터의 이동 간격

Input : 7x7

Filter: 3x3

Stride =1



Stride의 크기

Stirde의 크기

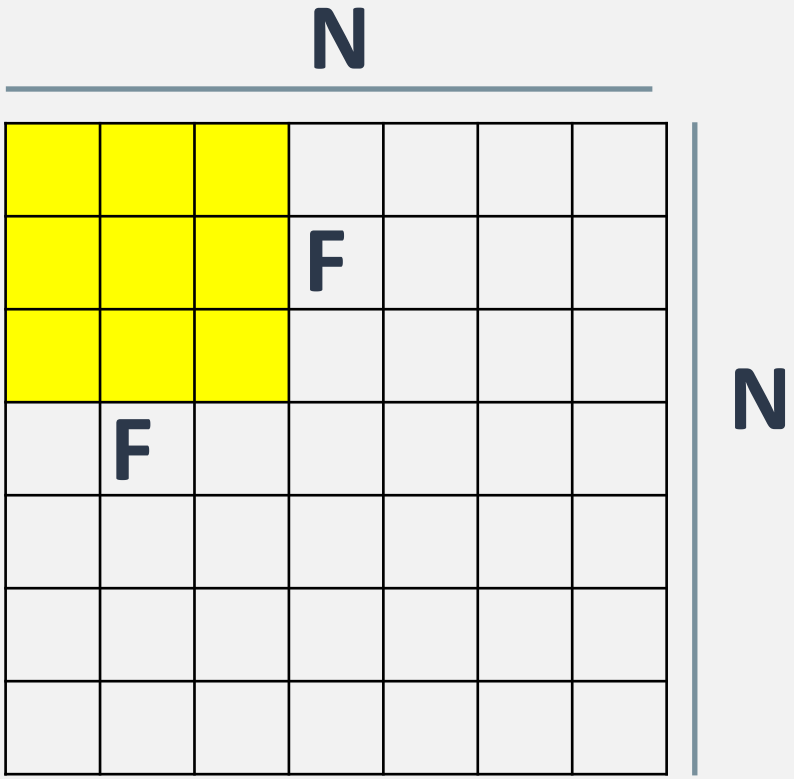
- 작은 stride

- 모든 feature을 놓치지 않고 추출
- 중복된 정보를 가져올 가능성이 있음

- 큰 stride

- 연산 속도 향상
- 불필요한 특성 제거할 수 있음
- feature 손실

Output size



Output size:

(N-F) / stride +1

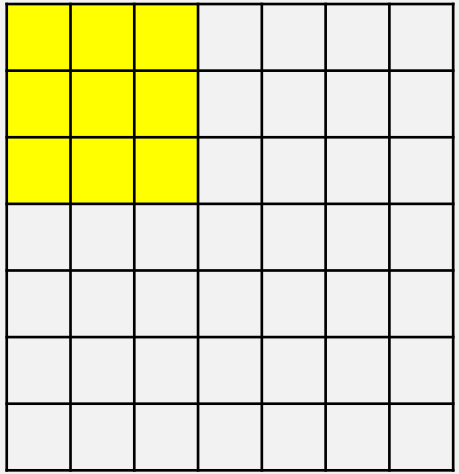
e.g. N = 7, F = 3

Stride 1 => (7-3)/1 + 1 = 5

문제: 필터를 쓰면 사이즈가 작아짐
-> 정보 손실

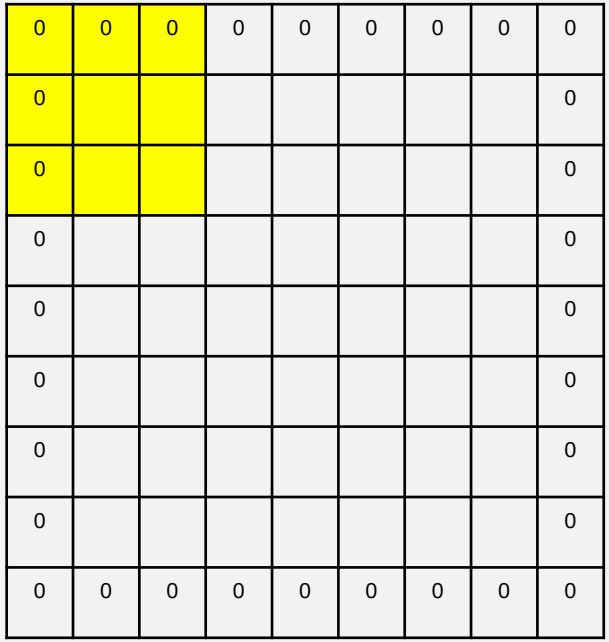
Padding

- **Padding: 입력데이터 주변을 특정값으로 채워 늘리는 것**



7x7

zero-padding



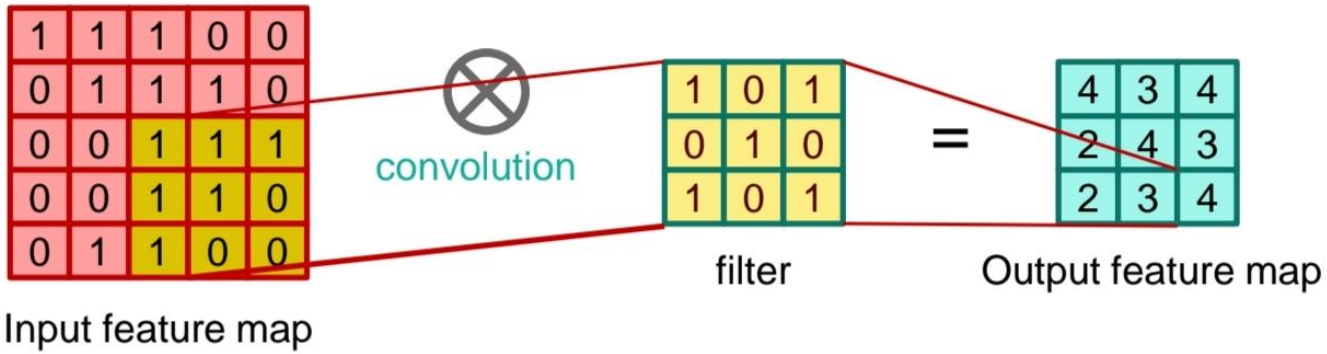
9x9

(9-3)/1 + 1 = 7

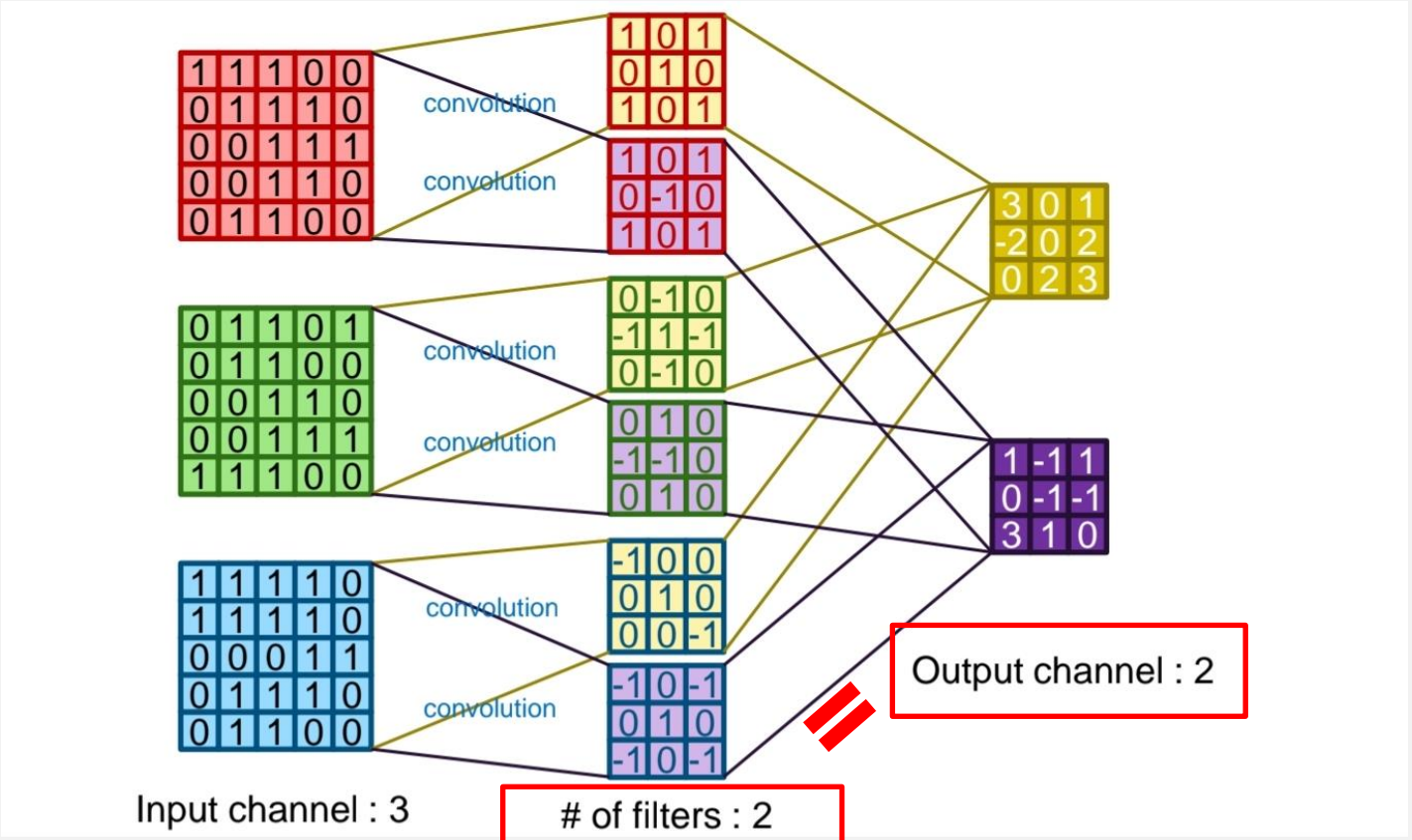
=> 데이터 크기 유지!

Convolution Layer - Computation

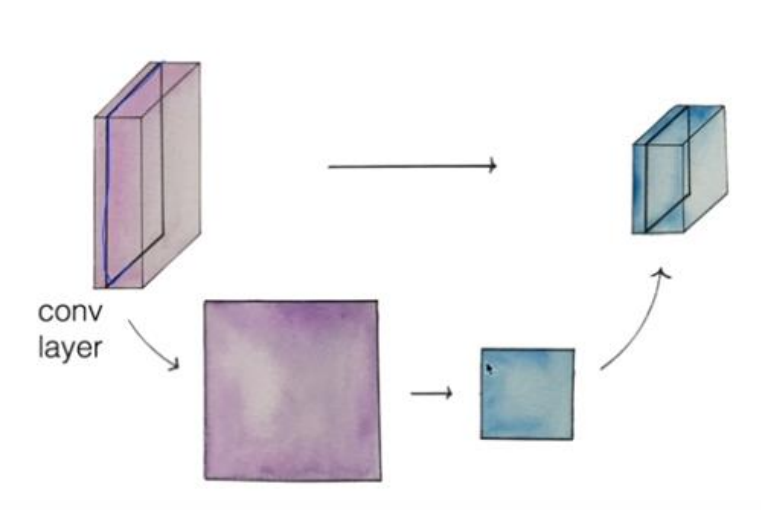
- $1x1 + 1x0 + 1x1 + 1x0 + 1x1 + 0x0 + 1x1 + 0x0 + 0x1 = 4$



Convolution Layer - Computation



Pooling layer



Max Pooling

Single depth slice

1	1	2	4
5	6	7	8
3	2	1	0
1	2	3	4

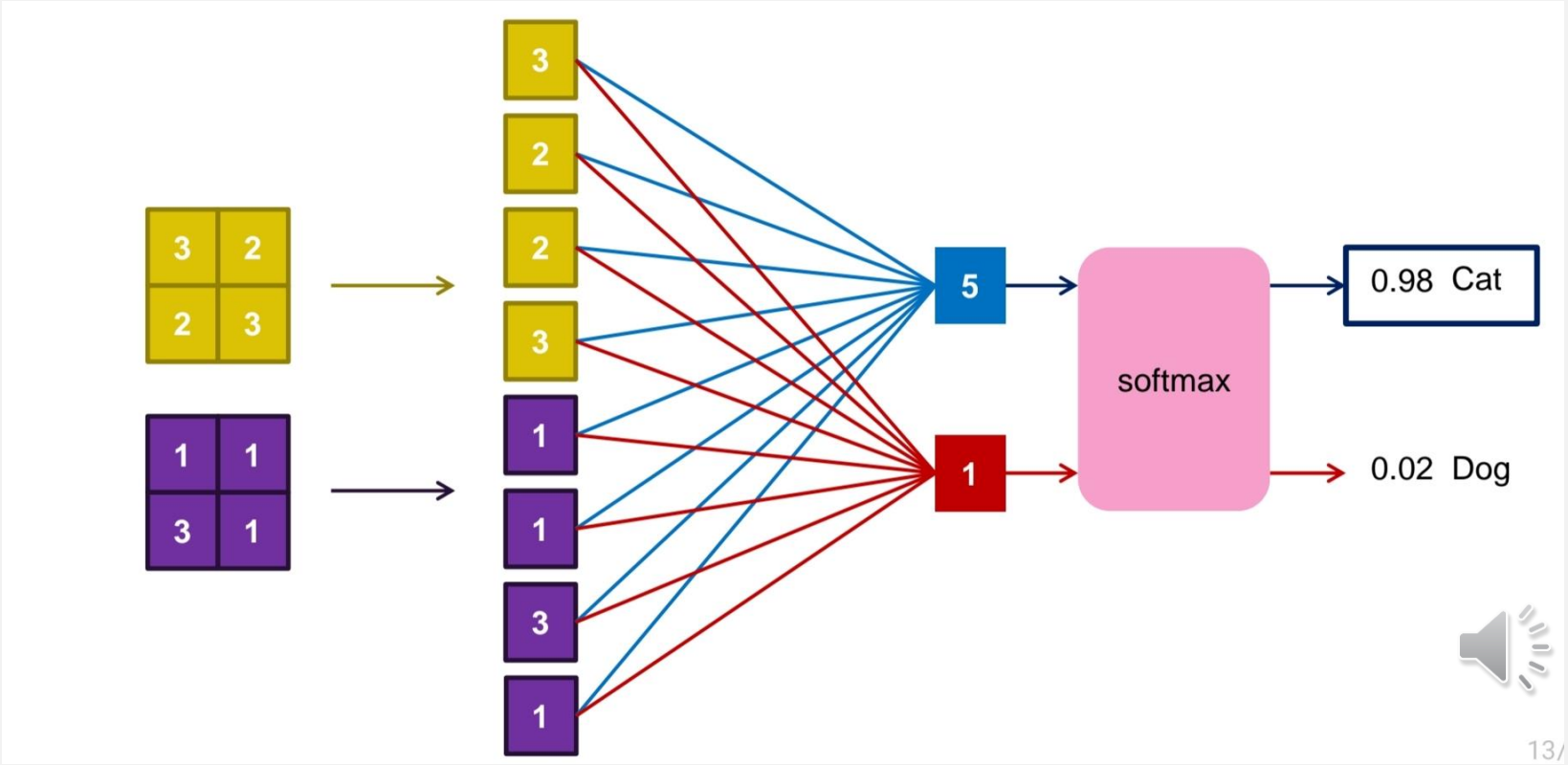
x

y

max pool with 2x2 filters
and stride 2

6	8
3	4

Fully-connected layer



개-고양이 분류기 만들기(Cat-Dog Classifier)

개요	평가기준표	제출	리뷰 결과

리뷰어 지정 전

리뷰 #1 | -

프로젝트 평가 | 코드 리뷰 | 수강생 메모 | 리뷰 목록

리뷰	결과	리뷰일	리뷰어
리뷰 #1 (현재 리뷰)	리뷰어 지정 전	2023.10.04	-