



MLOps 101

Episode 3: ML 생애주기 (2) 실험/학습

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Episode 3

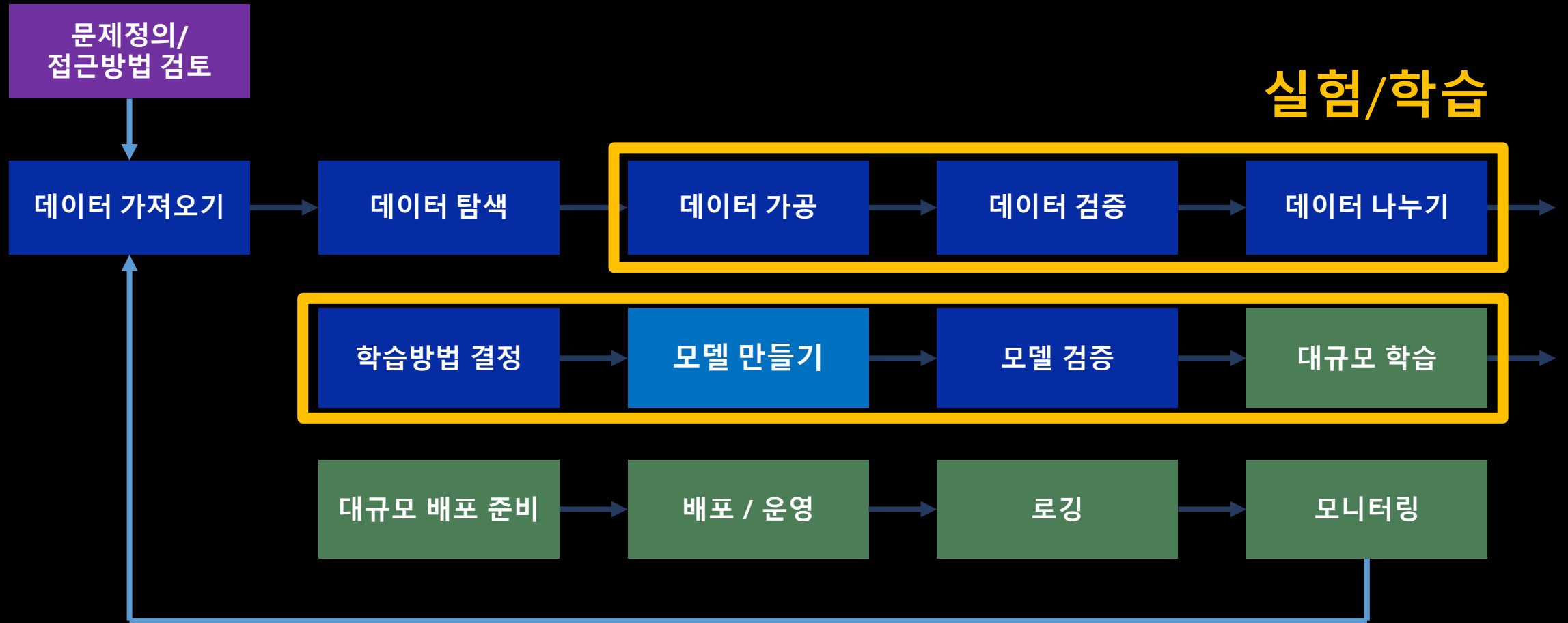
ML 생애주기 (2)

실험/학습

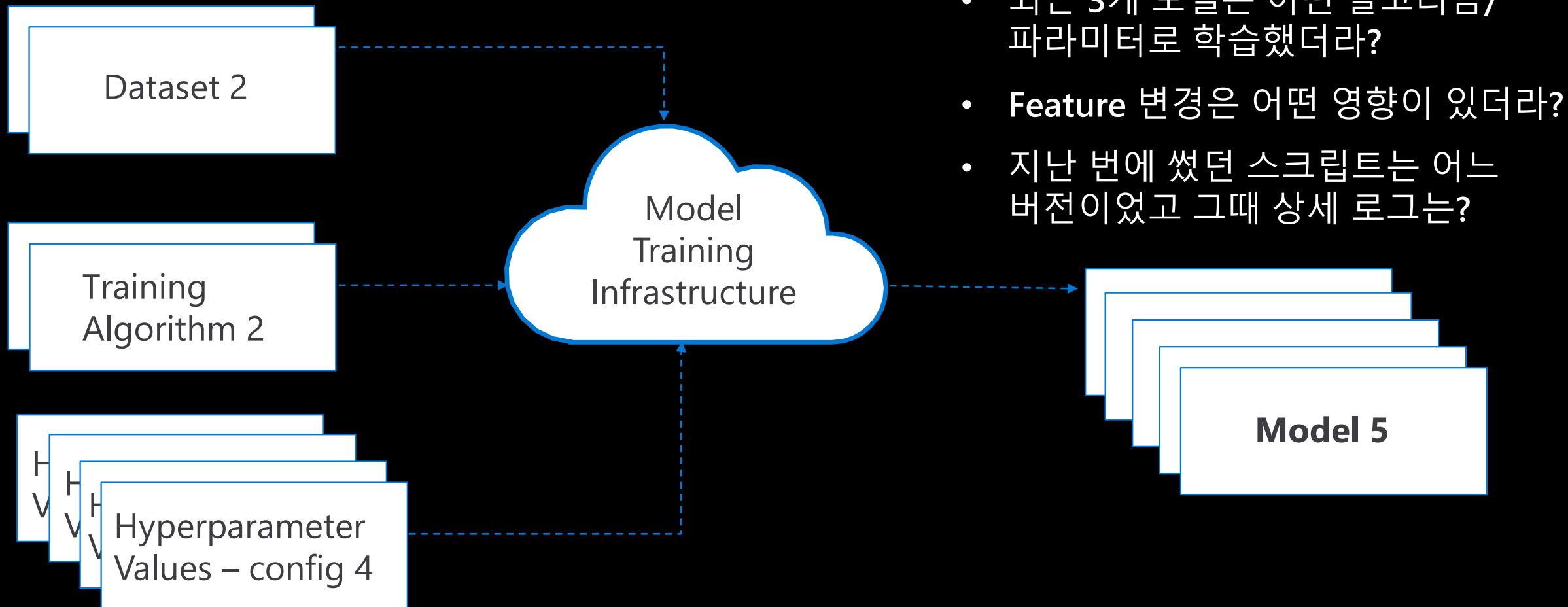
ML 생애주기 (2) 실험/학습

- 실험, 모델 학습/최적화/비교평가
- 실험 추적관리
 - 데이터셋, 코드, 환경, 모델, 서빙 추적 *DEMO*
- 자동화된 ML (Automated ML)
 - 자동화된 ML 엿보기 *DEMO*
- 모델의 검증: 예측성능, 처리성능
 - 예측 성능 *DEMO*
 - 처리 성능 *DEMO*

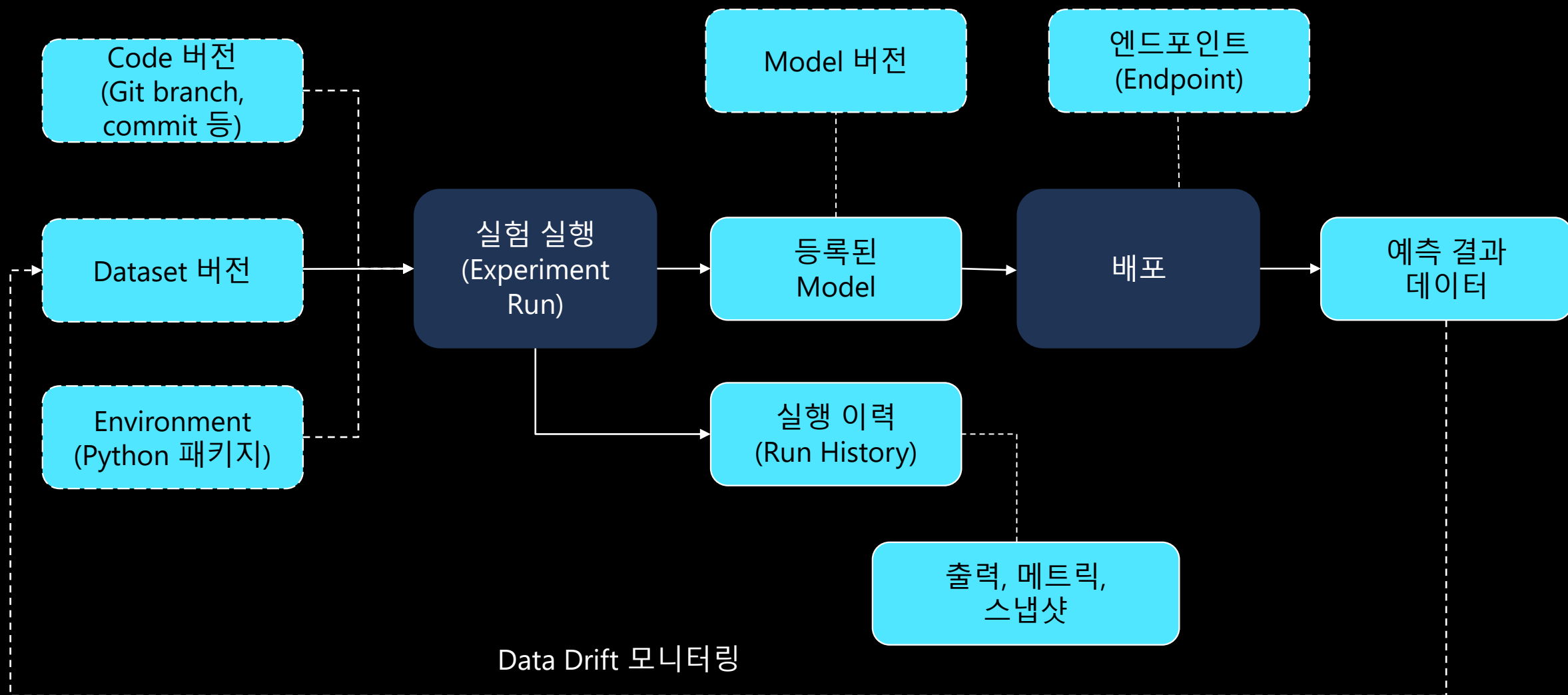
ML 생애주기



실험, 모델 학습/최적화/비교평가

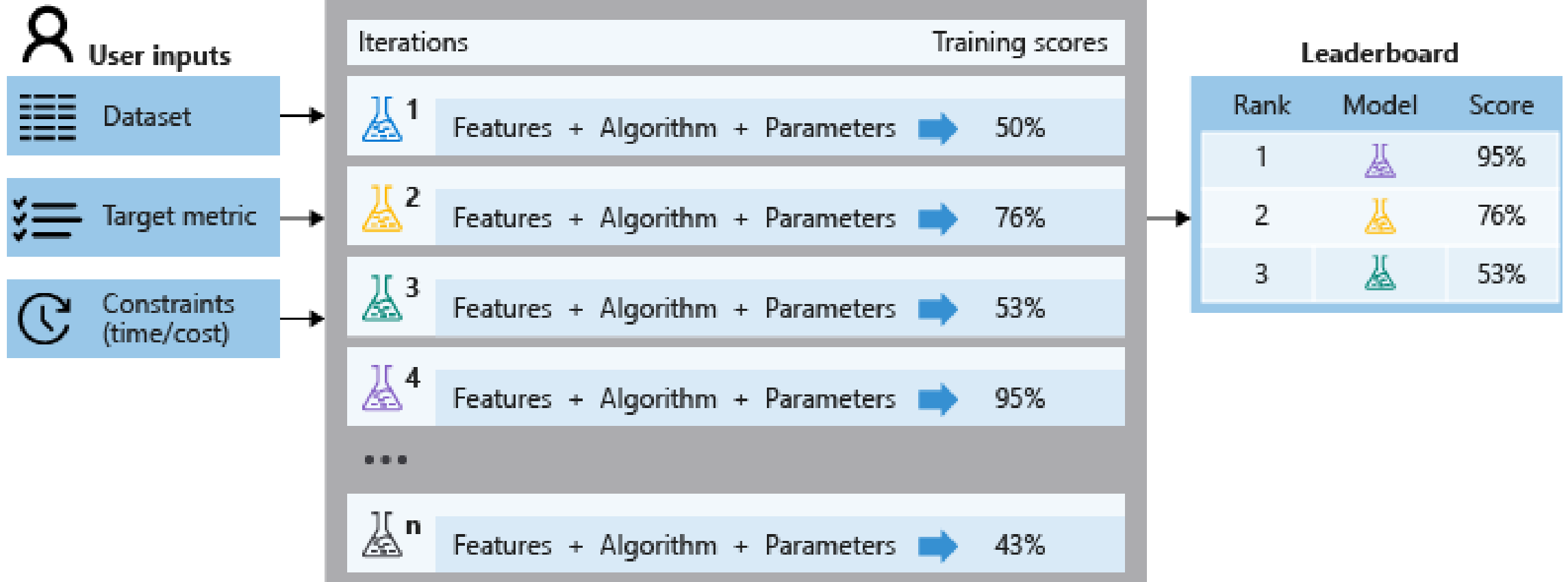


실험 추적관리



자동화된 ML (Automated ML)

Automated machine learning



모델의 검증: 예측성능/처리성능

예측 성능

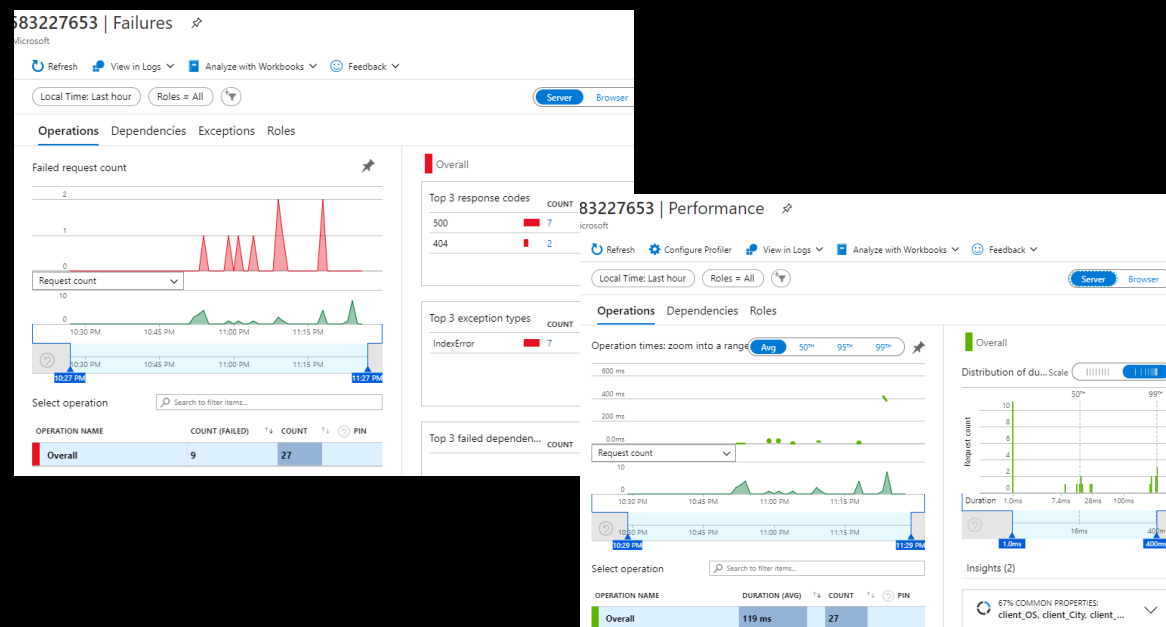
- 모델의 예측값이 실제값에 얼마나 가까운지
- 얼마나 잘 일반화(Generalized)됐는지
= 적정 수준으로 적합화(fit)했는지

- ✓ accuracy
- ✓ accuracy_table
- ✓ AUC_macro
- ✓ AUC_micro
- ✓ AUC_weighted
- ✓ average_precision_score_macro
- ✓ average_precision_score_micro
- ✓ average_precision_score_weighted
- ✓ balanced_accuracy
- ✓ confusion_matrix

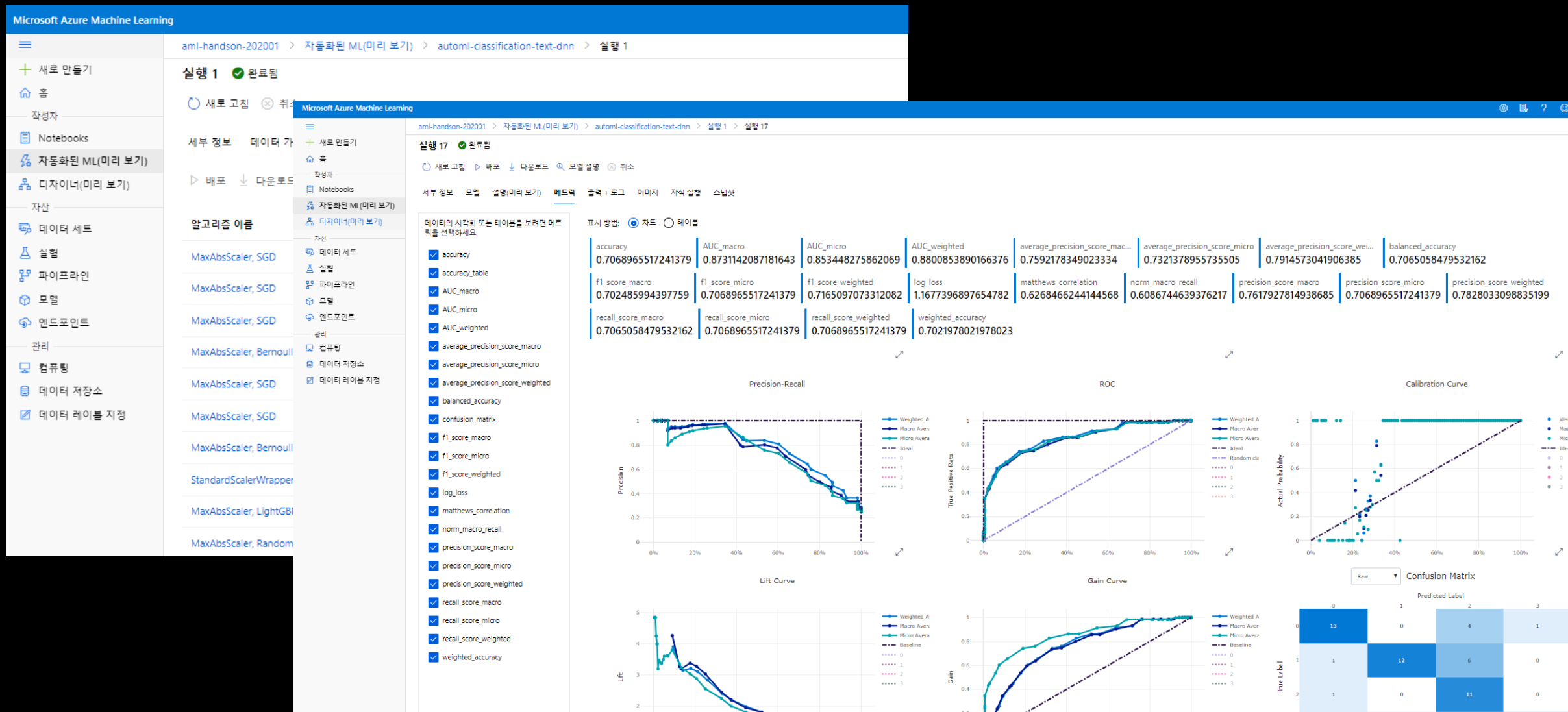
- ✓ f1_score_macro
- ✓ f1_score_micro
- ✓ f1_score_weighted
- ✓ log_loss
- ✓ matthews_correlation
- ✓ norm_macro_recall
- ✓ precision_score_macro
- ✓ precision_score_micro
- ✓ precision_score_weighted
- ✓ recall_score_macro
- ✓ recall_score_micro
- ✓ recall_score_weighted
- ✓ weighted_accuracy

처리 성능

- 모델이 예측값을 계산해내는데 소요되는 시간,
사용하는 컴퓨팅 자원
- 안정적으로 얻을 수 있는 추론 성능



예측성능



처리성능

83227653 | Failures

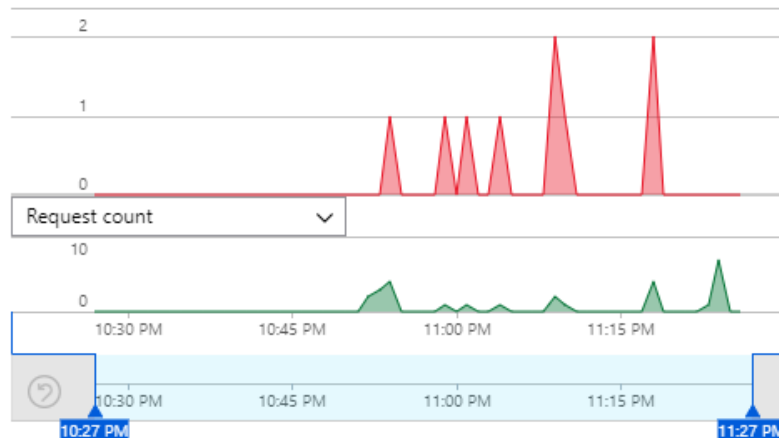
Microsoft

Refresh View in Logs Analyze with Workbooks Feedback

Local Time: Last hour Roles = All

Operations Dependencies Exceptions Roles

Failed request count



Select operation

Search to filter items...

OPERATION NAME	COUNT (FAILED)	↑↓	COUNT	↑↓	PIN
Overall	9		27		

83227653 | Performance

Microsoft

Refresh Configure Profiler View in Logs Analyze with Workbooks Feedback

Local Time: Last hour Roles = All

Server Browser

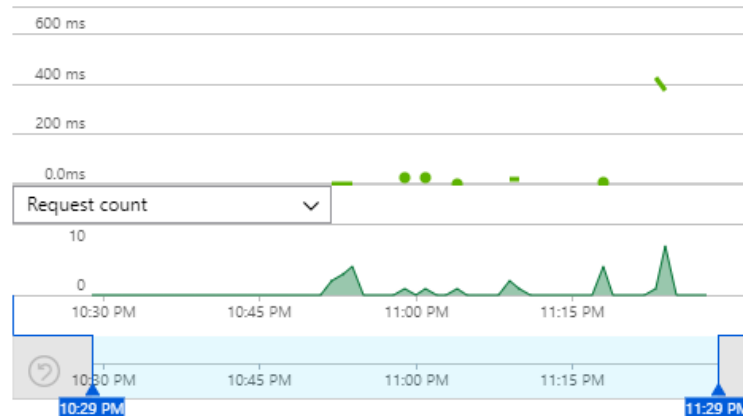
Top 3 response

500
404

Operations Dependencies Roles

Operation times: zoom into a range

Avg 50TH 95TH 99TH



Select operation

Search to filter items...

OPERATION NAME	DURATION (AVG)	↑↓	COUNT	↑↓	PIN
Overall	119 ms		27		

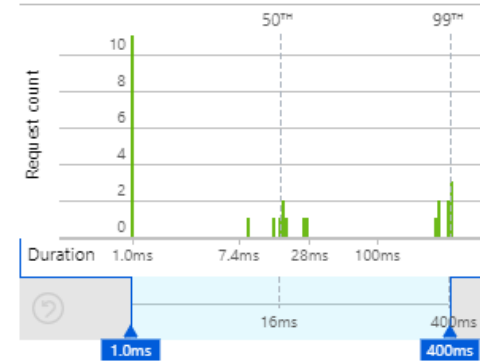
Top 3 exception

IndexError

Top 3 failed dep

Overall

Distribution of du... Scale



Insights (2)

67% COMMON PROPERTIES:
client_OS, client_City, client_...

Episode 3

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실험/학습

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 - 처리 성능 *DEMO*

{다음 시간에는}

Episode 4

ML 생애주기 (3)

모델 해석

ML 생애주기 (3) 모델 해석

- 모델 해석이 왜 중요한가
- 모형을 해석하려는 시도
- azureml.interpret 들여다보기
 - 애저머신러닝에서 모델 해석 *DEMO*