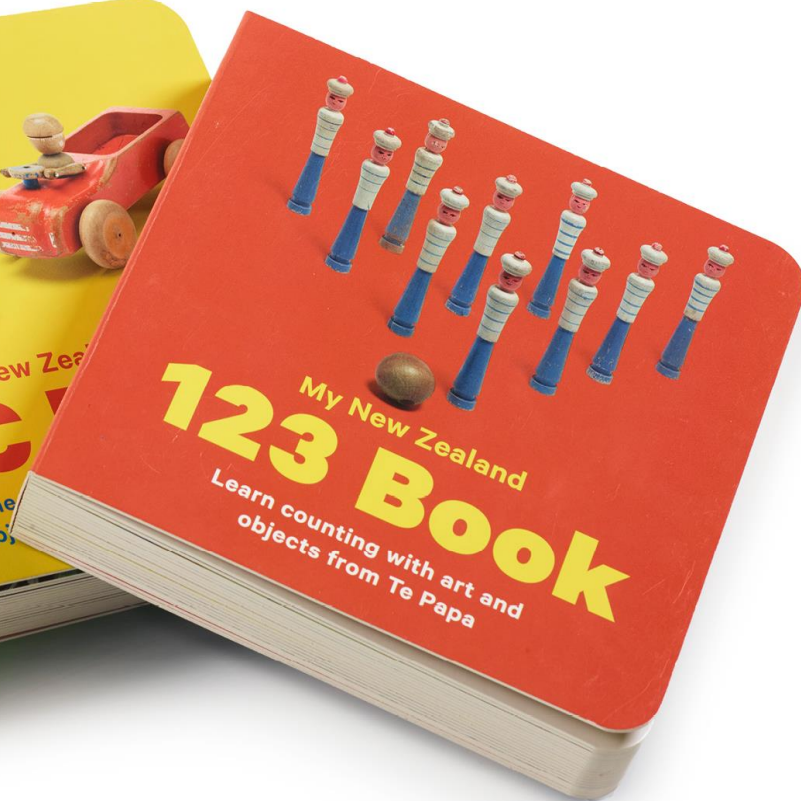
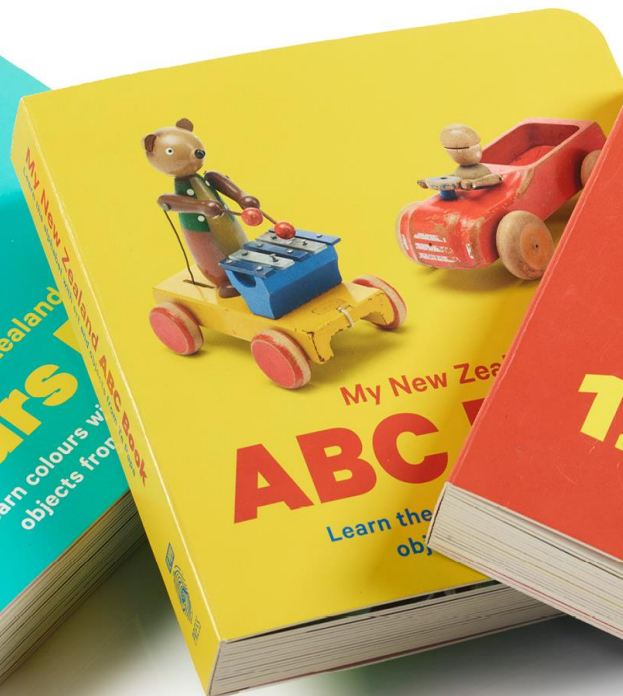


AI와 머신러닝 분류(Classification)

제주대학교 변영철





개



토끼



돼지



오리



지도학습

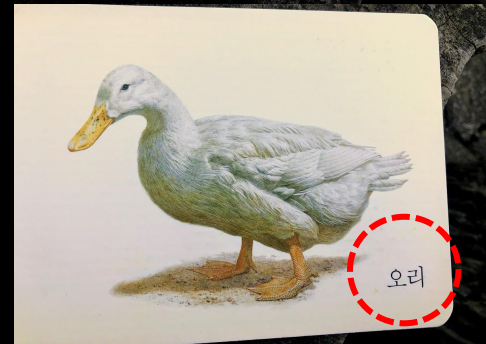
Supervised Learning

키 몸무게 발 크기 학년 성별



번호, 키, 몸무게, 발 크기, 학년, 성별

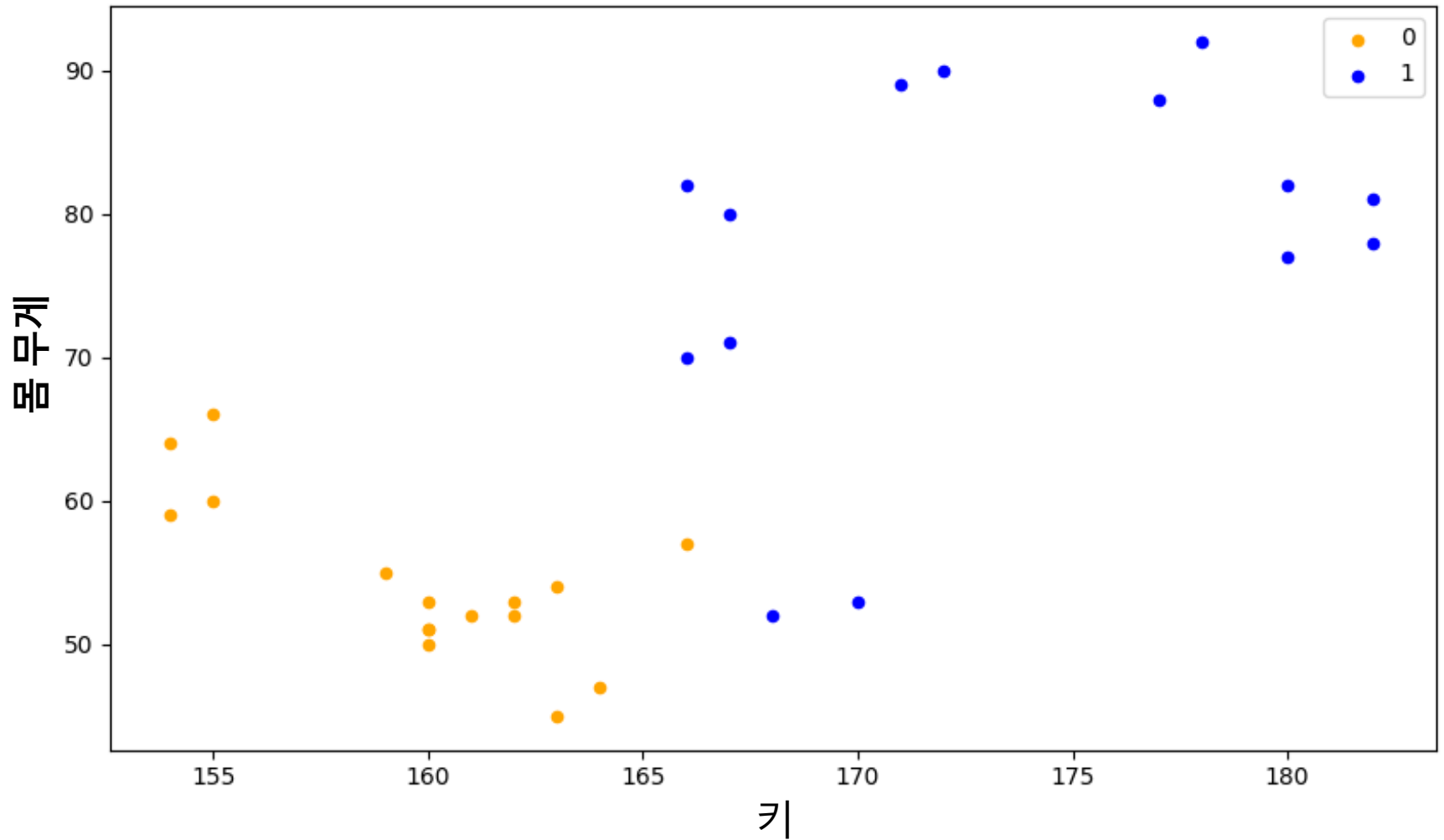
1,166,57,240,1,0
2,178,92,265,1,1
3,167,80,270,1,1
4,168,52,245,2,1
5,155,60,235,2,0
6,163,45,230,2,0
7,160,53,235,3,0
8,180,77,260,4,1
9,167,71,260,2,1
10,160,51,245,2,0
11,162,53,240,2,0
12,180,82,280,6,1
13,172,90,255,6,1
14,160,51,245,5,0
15,155,66,245,5,0
16,163,54,242,5,0
17,177,88,263,5,1
18,166,82,268,6,1
19,170,53,247,6,1
20,154,59,234,1,0
21,164,47,232,1,0



키에 따라
몸무게는 어떻게 변할까?
(성별에 따라 다른 색으로 표시)

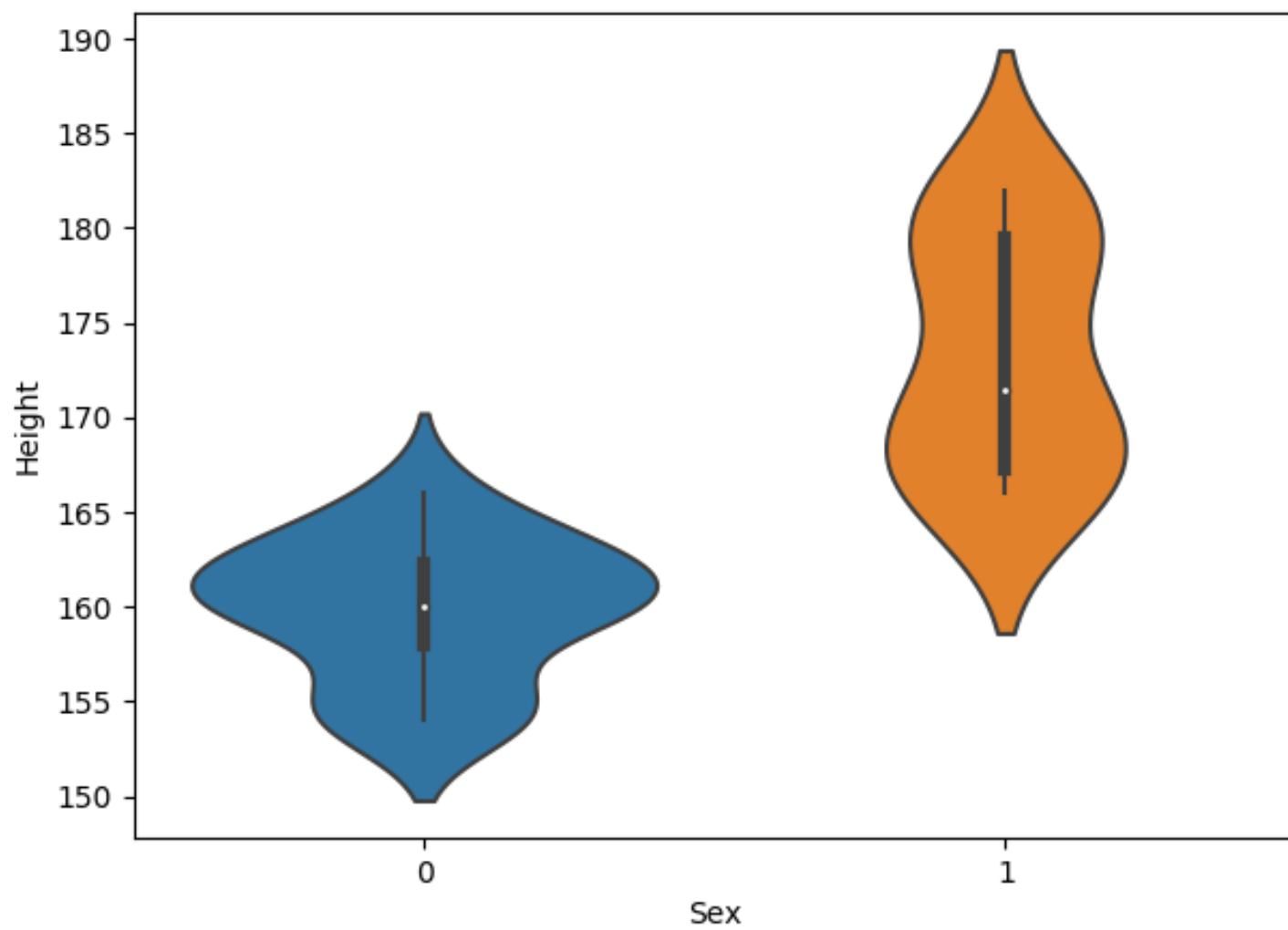
plot(df, '키', '몸무게', '성별')

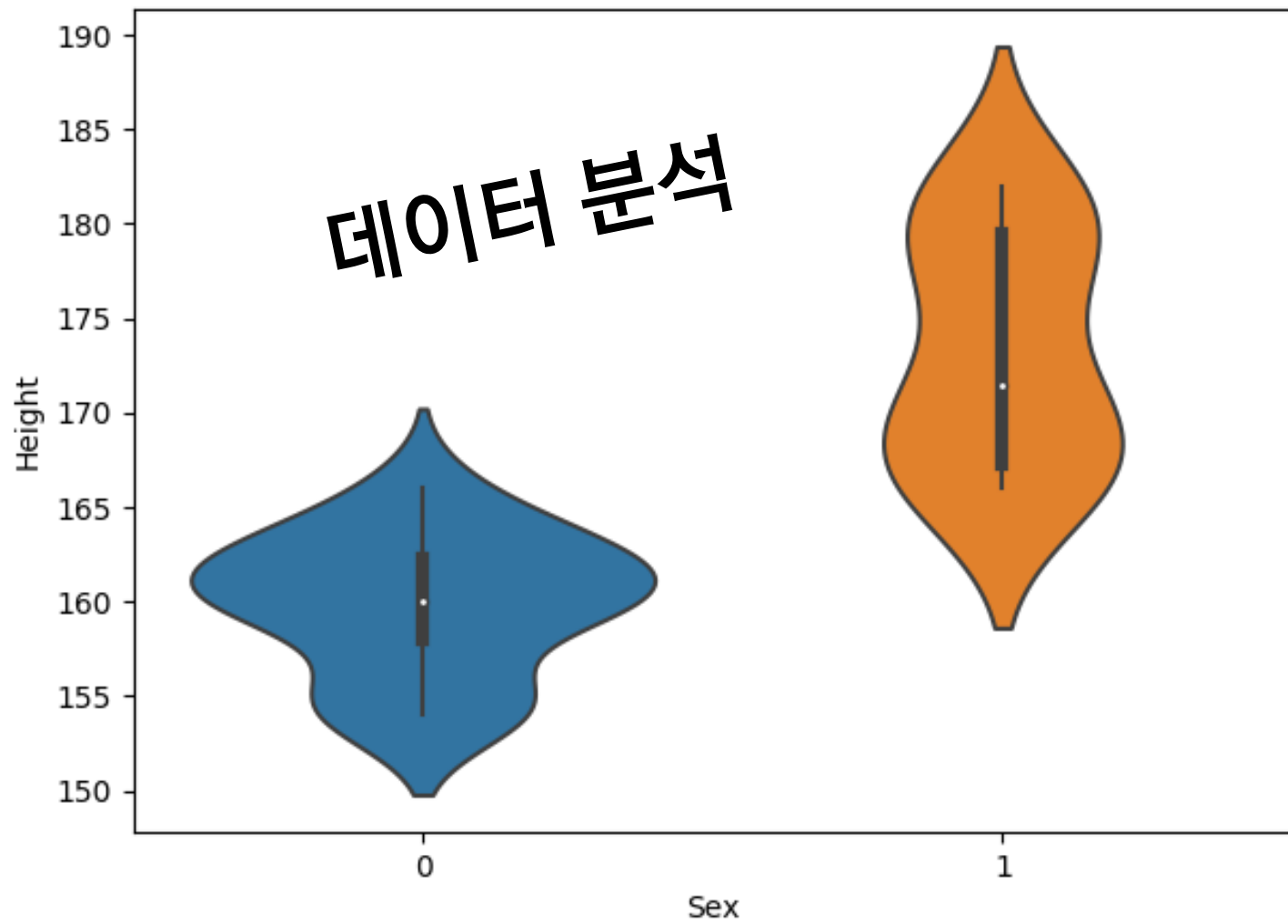
키 vs. 몸무게



```
violinplot(df, '성별', '키')
```

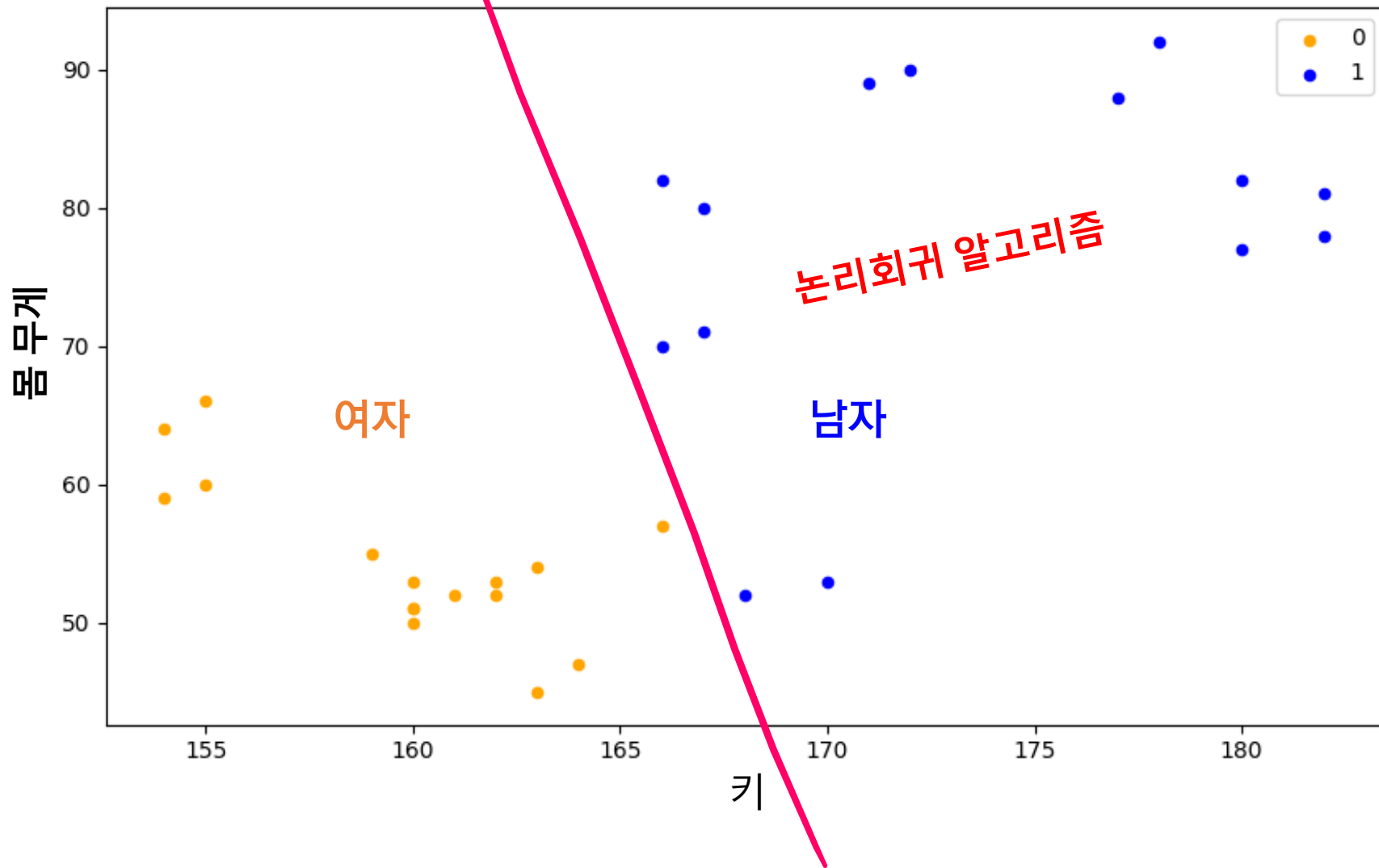
성별에 따라 키가 어떻게 변하는지
바이올린 모양으로 표시해보라!





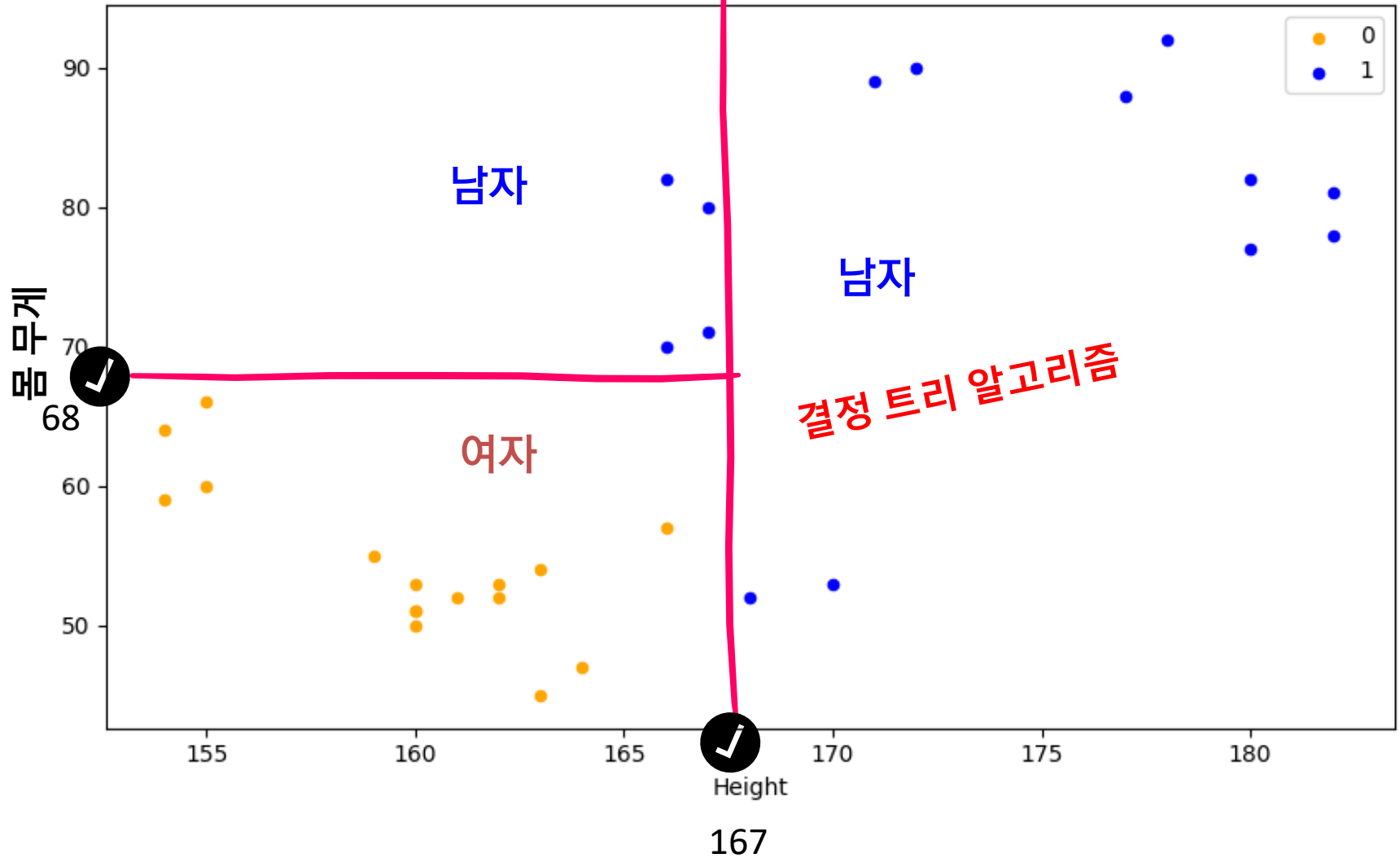
분류

Classification
키 vs. 몸무게



분류

Classification
키 vs. 몸무게





키, 몸무게, 발 크기, 학년, 성별



학습용
문제

166,57,240,1,0
178,92,265,1,1
167,80,270,1,1
168,52,245,2,1
155,60,235,2,0
163,45,230,2,0
160,53,235,3,0
180,77,260,4,1
167,71,260,2,1
160,51,245,2,0
162,53,240,2,0
180,82,280,6,1
172,90,255,6,1
160,51,245,5,0

정답

테스트용
문제

155,66,245,5,0
163,54,242,5,0
177,88,263,5,1
166,82,268,6,1
170,53,247,6,1
154,59,234,1,0
164,47,232,1,0

정답

키, 몸무게, 발 크기, 학년, 성별

학습용
문제

166,57,240,1,0
178,92,265,1,1
167,80,270,1,1
168,52,245,2,1
155,60,235,2,0
163,45,230,2,0
160,53,235,3,0
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160,51,245,2,0
162,53,240,2,0
180,82,280,6,1
172,90,255,6,1
160,51,245,5,0

정답

테스트용
문제

155,66,245,5,0
163,54,242,5,0
177,88,263,5,1
166,82,268,6,1
170,53,247,6,1
154,59,234,1,0
164,47,232,1,0

정답

```
youngJa = svm.SVC()  
youngJa.fit('학습용문제', '정답')  
prediction=youngJa.predict('테  
스트용 문제')
```

분류 알고리즘

Machine Learning

- SVC (서포트벡터머신)
- DecisionTreeClassifier (결정트리)
- RandomForestClassifier (랜덤포레스트)
- XGBClassifier (XGBoost, eXtreme Gradient Boosting, Boosting or Additive Training) (부스팅)

- LogisticRegression (논리회귀)
- Multilayer Neural Networks
- CNN/RCNN/GCNN

Deep Learning



IMPORTANT

코드 추상화와 재사용

머신러닝 절차

1. CSV 파일 로드
2. 데이터 시각화와 분석
3. 데이터 전처리 (정규화, 데이터 균형)
4. 특징 상관관계 분석
5. 데이터 분할
6. ML 알고리즘을 이용한 분류/예측
7. 평가 및 결론