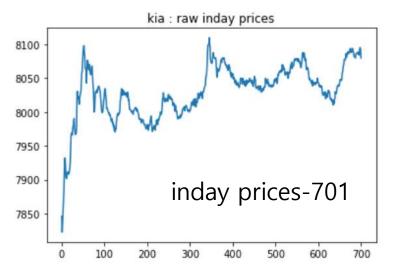
# ML: inday prices-701

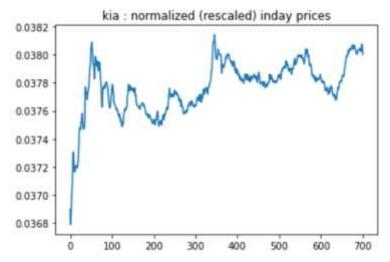
### 머신러닝 목표

- 하루의 주가 변화 시계열이 무엇을 예측할 수 있는가?
  - o 'C101', 'C201', '02C1', 'C2C1', 'C2O2'
- 문제점
  - Normalization or rescaling of time series

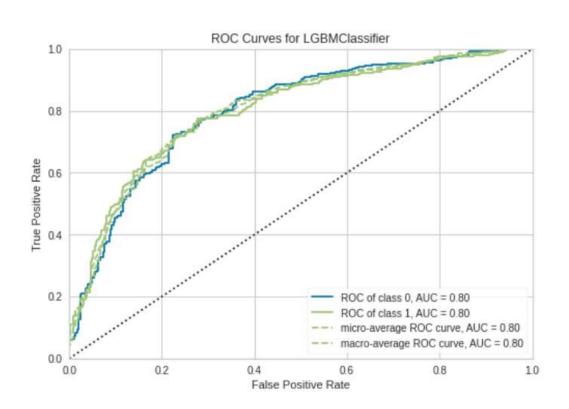
### Stock 10 Y

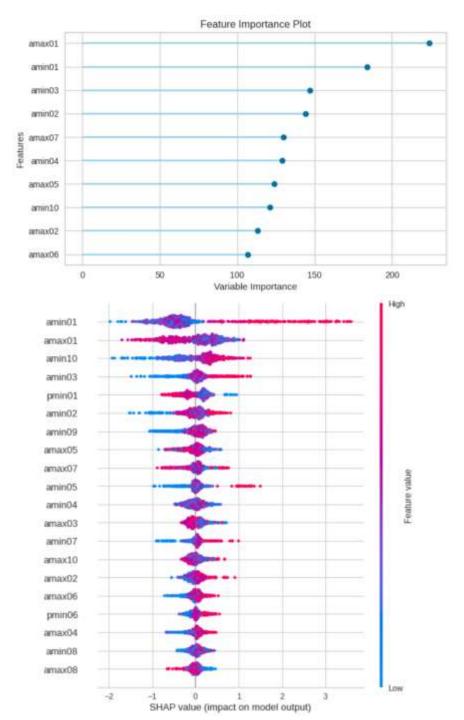
- period
  - o 2009-03-23 ~ 2018-05-30



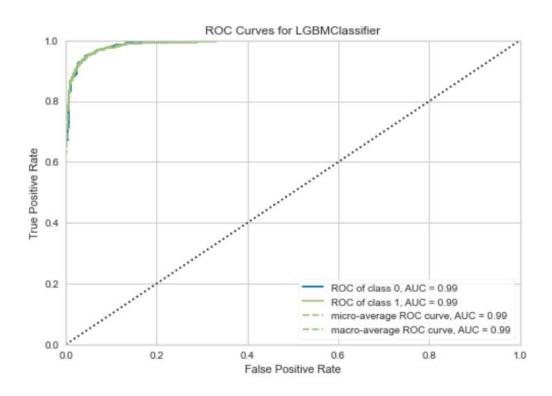


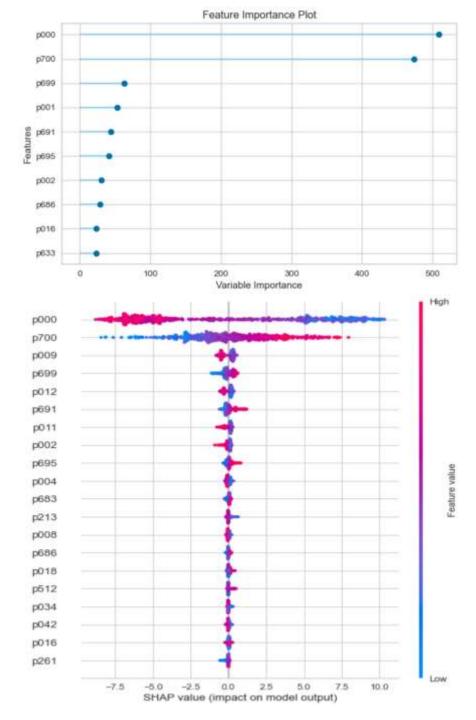
| Kia-act <mark>-max-mi</mark> n |        |        |        |        |        |
|--------------------------------|--------|--------|--------|--------|--------|
|                                | C101   | C201   | 0201   | C2C1   | C202   |
| model-ACC                      | rf     | rf     | nb     | nb     | gbc    |
| acc                            | 0.7065 | 0.6226 | 0.5624 | 0.5314 | 0.5631 |
| model-AUC                      | lgbm   | rf     | nb     | nb     | lgbm   |
| auc                            | 0.7806 | 0.6802 | 0.5851 | 0.54   | 0.5548 |



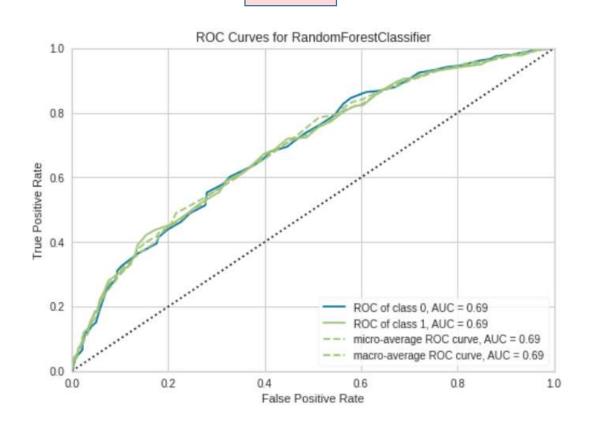


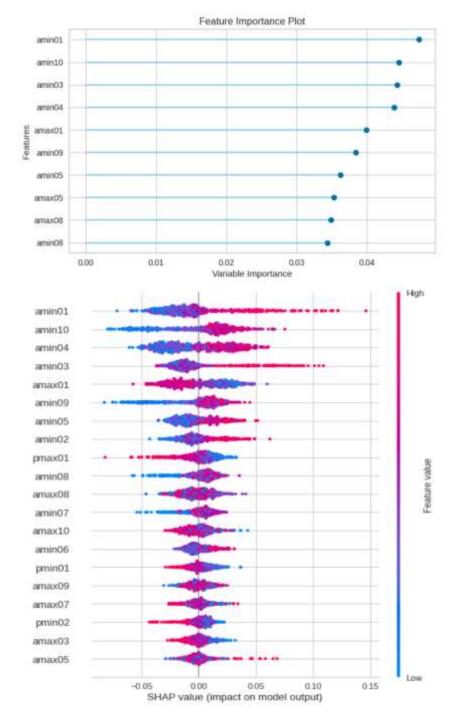
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | lgbm   | rf     | nb     | ridge  | qda    |
| acc       | 0.9524 | 0.727  | 0.5439 | 0.5472 | 0.5525 |
| model-AUC | lgbm   | et     | nb     | lr     | lr     |
| auc       | 0.9905 | 0.8037 | 0.5504 | 0.5572 | 0.5232 |



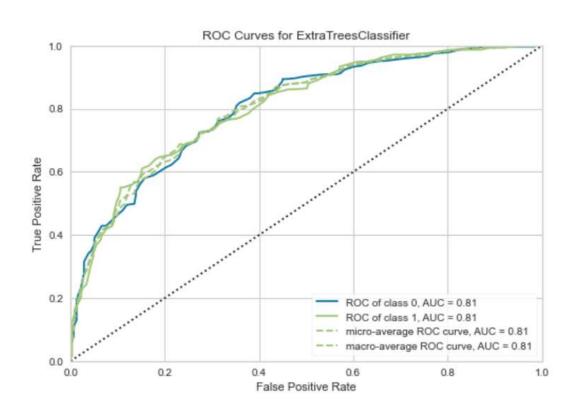


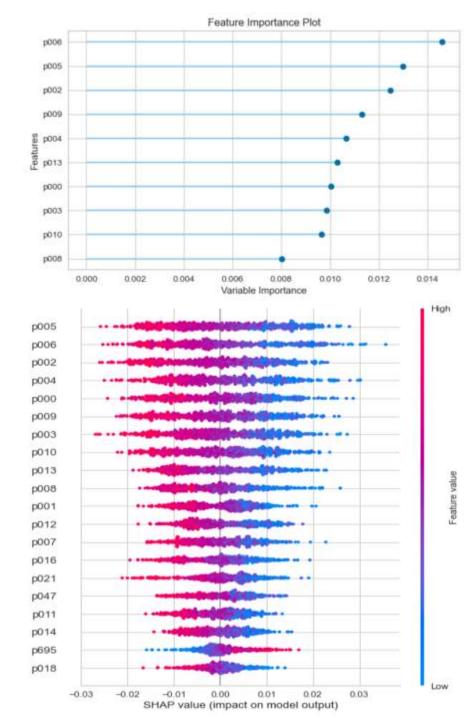
| Kia-act   | -max-mi | n      | _      |        |        |
|-----------|---------|--------|--------|--------|--------|
|           | C101    | C201   | 0201   | C2C1   | C202   |
| model-ACC | rf      | rf     | nb     | nb     | gbc    |
| acc       | 0.7065  | 0.6226 | 0.5624 | 0.5314 | 0.5631 |
| model-AUC | lgbm    | rf     | nb     | nb     | lgbm   |
| auc       | 0.7806  | 0.6802 | 0.5851 | 0.54   | 0.5548 |





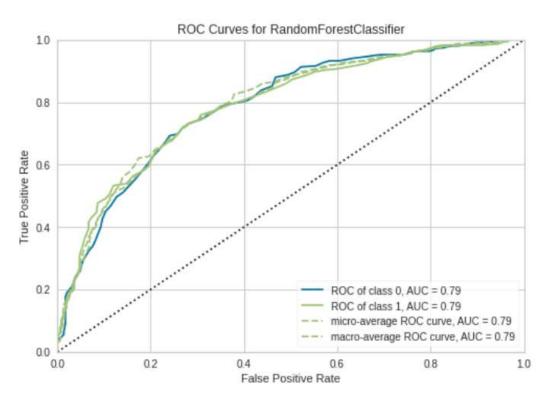
|           | C101   | C2O1   | 02C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | lgbm   | rf     | nb     | ridge  | qda    |
| acc       | 0.9524 | 0.727  | 0.5439 | 0.5472 | 0.5525 |
| model-AUC | lgbm   | et     | nb     | lr     | lr     |
| auc       | 0.9905 | 0.8037 | 0.5504 | 0.5572 | 0.5232 |

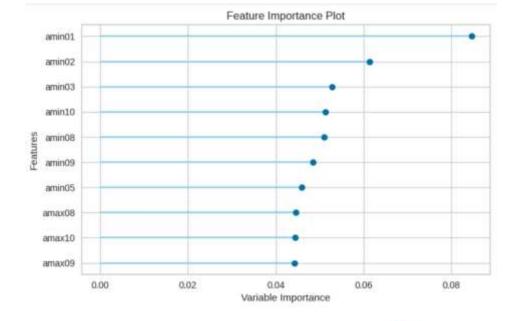


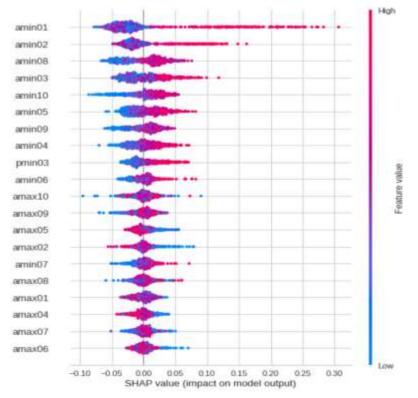


|                        | •                          | •    |
|------------------------|----------------------------|------|
| LI 3 / P               | uv act may m               | \ ID |
| $\square \vee \square$ | 11X-a( 1-111aX-11          | 1111 |
|                        | <mark>iix-act-max-m</mark> |      |

| J         |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|
|           | C101   | C201   | 0201   | C2C1   | C202   |
| model-ACC | rf     | qda    | lr     | knn    | ada    |
| acc       | 0.7231 | 0.6167 | 0.5684 | 0.5221 | 0.538  |
| model-AUC | rf     | rf     | nb     | gbc    | ada    |
| auc       | 0.793  | 0.6531 | 0.5516 | 0.5214 | 0.5067 |

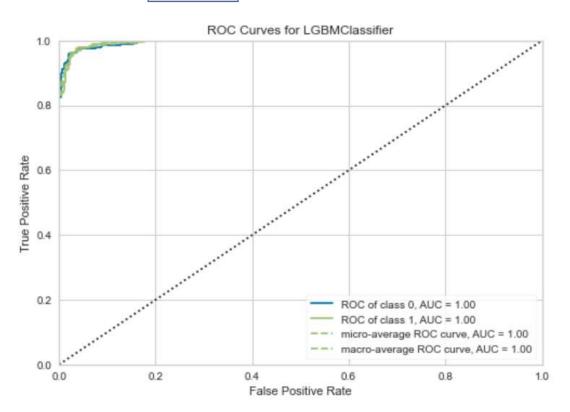


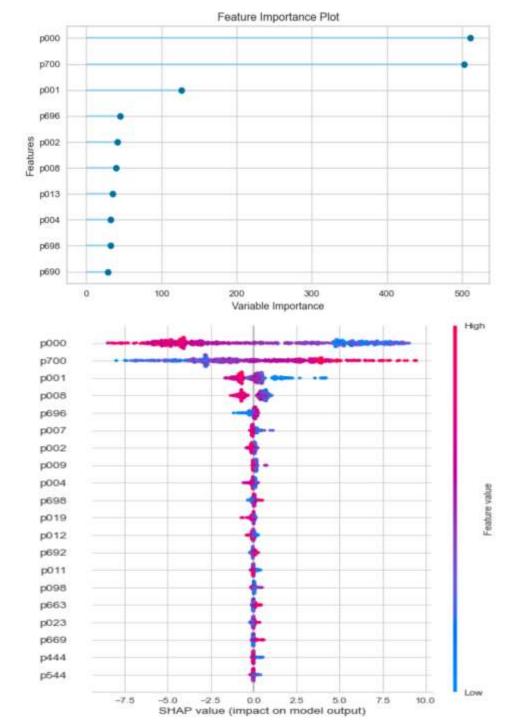




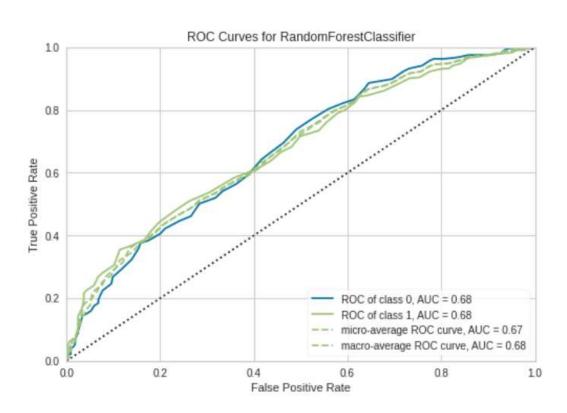
Hynix-prices-701

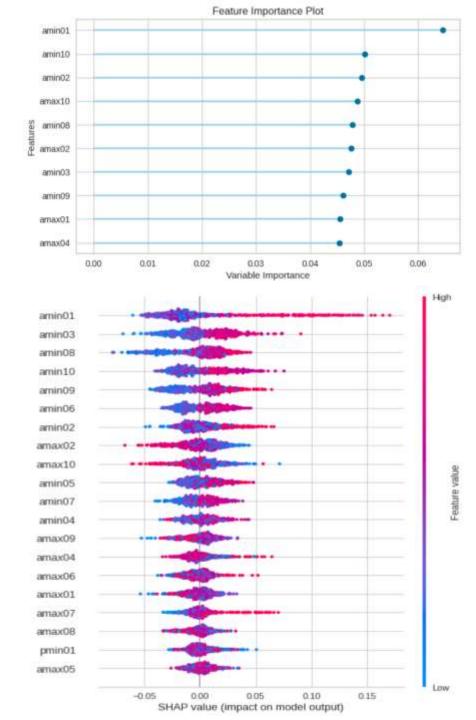
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | gbc    | lgbm   | qda    | lr     | qda    |
| acc       | 0.9537 | 0.694  | 0.5671 | 0.5334 | 0.5598 |
| model-AUC | lgbm   | gbc    | lgbm   | lr     | dt     |
| auc       | 0.9922 | 0.7707 | 0.541  | 0.5227 | 0.512  |





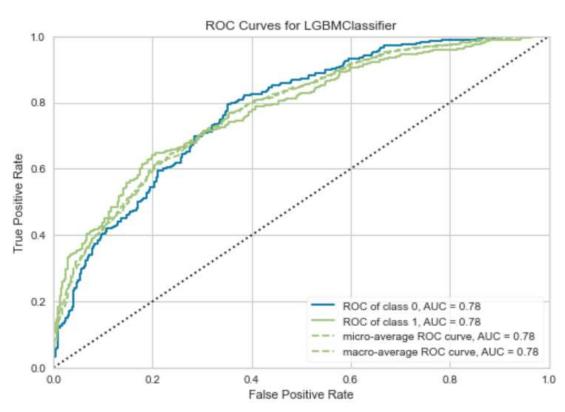
| Hynix-act-max-min |        |        |        |        |        |
|-------------------|--------|--------|--------|--------|--------|
|                   | C101   | C201   | 0201   | C2C1   | C202   |
| model-ACC         | rf     | qda    | lr     | knn    | ada    |
| acc               | 0.7231 | 0.6167 | 0.5684 | 0.5221 | 0.538  |
| model-AUC         | rf     | rf     | nb     | gbc    | ada    |
| auc               | 0.793  | 0.6531 | 0.5516 | 0.5214 | 0.5067 |

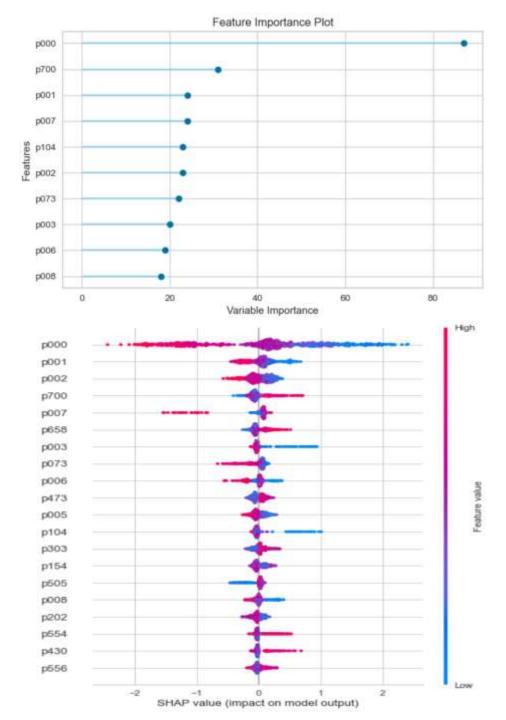




Hynix-prices-701

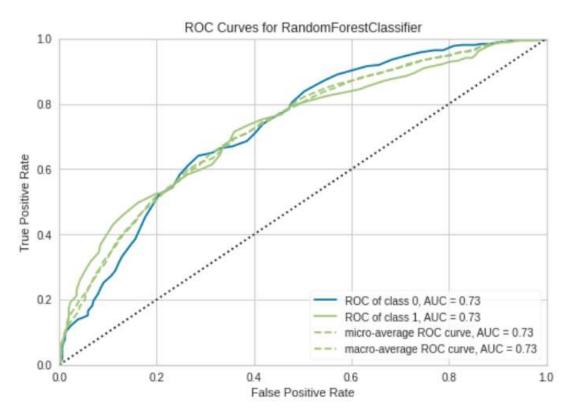
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | gbc    | lgbm   | qda    | lr     | qda    |
| acc       | 0.9537 | 0.694  | 0.5671 | 0.5334 | 0.5598 |
| model-AUC | lgbm   | gbc    | Igbm   | lr     | dt     |
| auc       | 0.9922 | 0.7707 | 0.541  | 0.5227 | 0.512  |

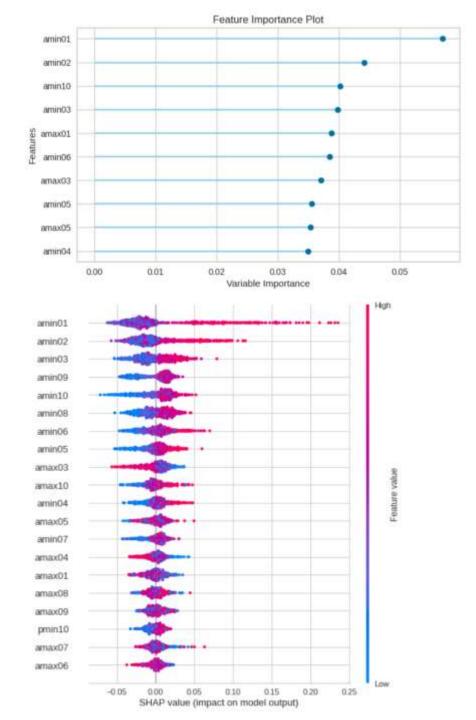




### TKco-act-max-min

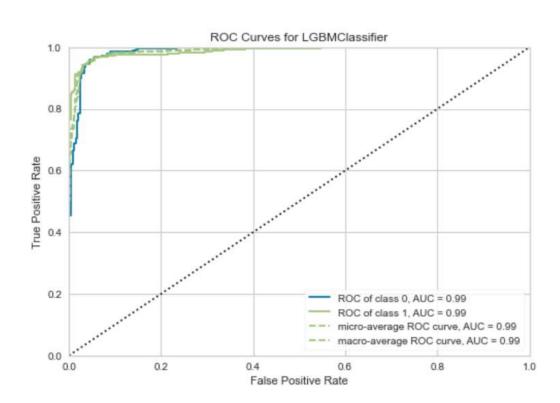
|           |        | 1      |        |        |        |
|-----------|--------|--------|--------|--------|--------|
|           | C101   | C201   | 0201   | C2C1   | C202   |
| model-ACC | rf     | rf     | et     | et     | dt     |
| acc       | 0.6518 | 0.6226 | 0.6252 | 0.5472 | 0.5314 |
| model-AUC | rf     | et     | nb     | et     | et     |
| auc       | 0.7024 | 0.6712 | 0.5361 | 0.5486 | 0.5406 |

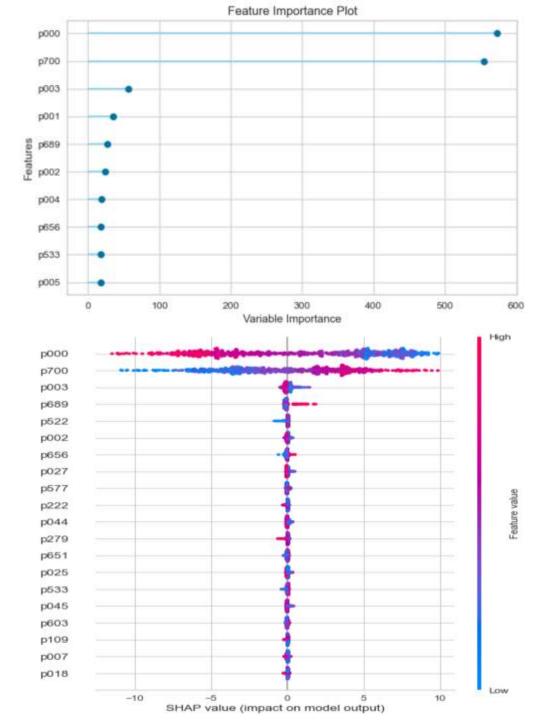




TKco-prices-701

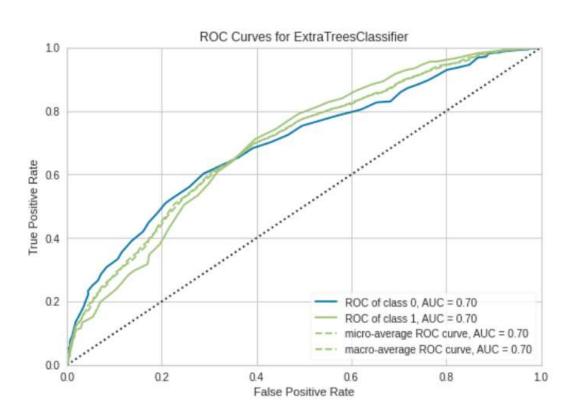
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | gbc    | gbc    | qda    | nb     | lda    |
| acc       | 0.9584 | 0.7417 | 0.6266 | 0.5347 | 0.5109 |
| model-AUC | lgbm   | gbc    | gbc    | nb     | nb     |
| auc       | 0.991  | 0.8137 | 0.5532 | 0.5239 | 0.5104 |

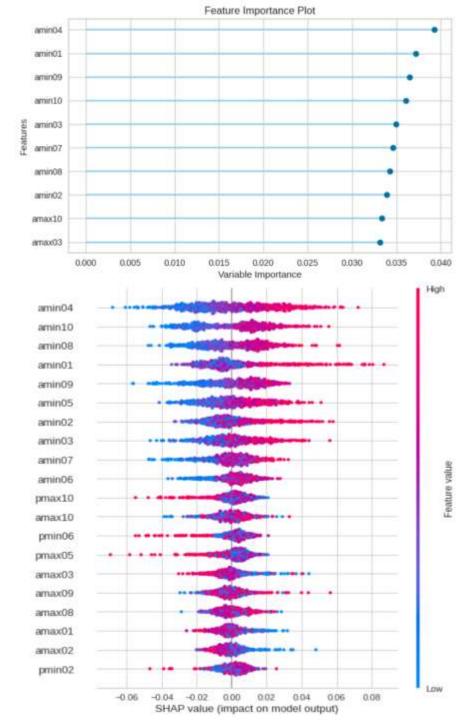




#### TKco-act-max-min

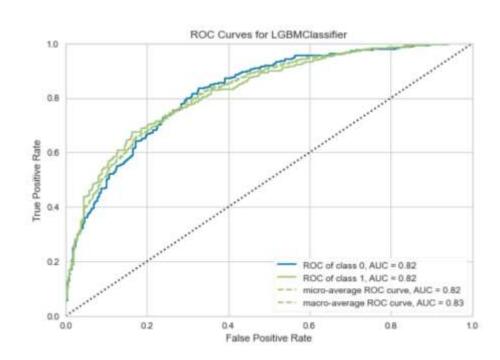
|           |        |        | 1      |        |        |
|-----------|--------|--------|--------|--------|--------|
|           | C101   | C201   | 0201   | C2C1   | C202   |
| model-ACC | rf     | rf     | et     | et     | dt     |
| acc       | 0.6518 | 0.6226 | 0.6252 | 0.5472 | 0.5314 |
| model-AUC | rf     | et     | nb     | et     | et     |
| auc       | 0.7024 | 0.6712 | 0.5361 | 0.5486 | 0.5406 |

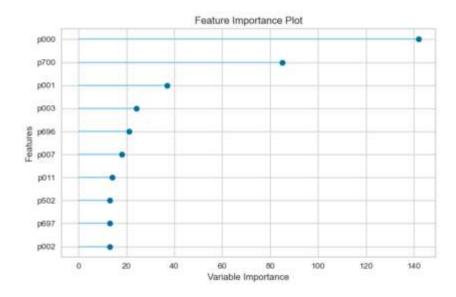


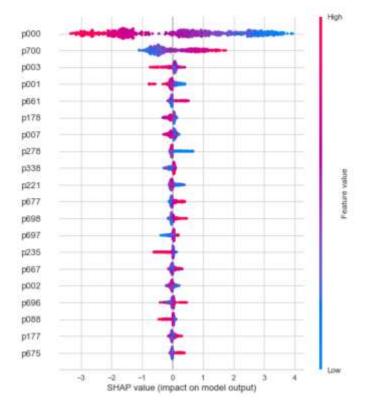


## TKco-prices-701

|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | gbc    | gbc    | qda    | nb     | lda    |
| acc       | 0.9584 | 0.7417 | 0.6266 | 0.5347 | 0.5109 |
| model-AUC | lgbm   | gbc    | gbc    | nb     | nb     |
| auc       | 0.991  | 0.8137 | 0.5532 | 0.5239 | 0.5104 |







# ML: inday prices-OHLC

### 머신러닝 목표

- 하루 동안 주식을 대표하는 값들(OHLC)이 무엇을 예측할 수 있는가?
  - 'C101', 'C201', 'O2C1', 'C2C1', 'C2O2'
- 문제점
  - Normalization or rescaling of prices

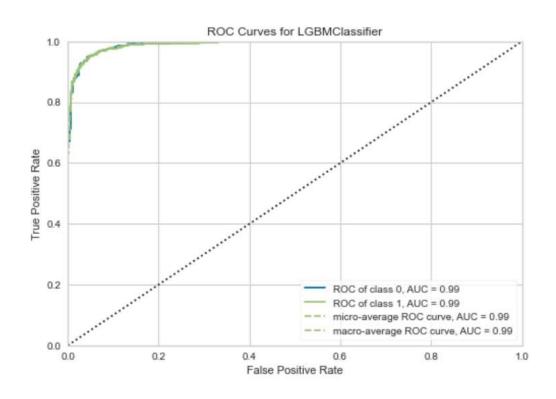
### Stock 10 Y

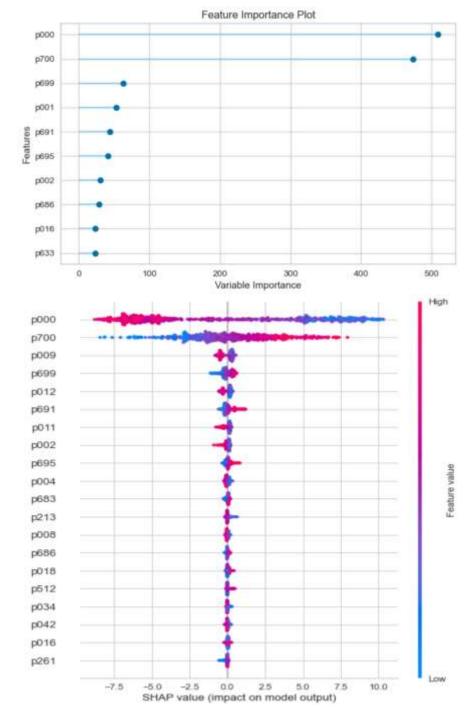
period

o 2009-03-23 ~ 2018-05-30

| Date           | Open | High | Low  | Close | Volume   | Change    | C101 | C201 | 02C1 | C2C1 | C2O2 |
|----------------|------|------|------|-------|----------|-----------|------|------|------|------|------|
| 2009-<br>03-23 | 7850 | 8120 | 7800 | 8080  | 8344058  | 0.049351  | 1    | 1    | 1    | 1    | 0    |
| 2009-<br>03-24 | 8240 | 8260 | 8010 | 8180  | 6652120  | 0.012376  | 0    | 0    | 0    | 0    | 0    |
| 2009-<br>03-25 | 8120 | 8180 | 7970 | 8100  | 5107740  | -0.009780 | 0    | 1    | 1    | 1    | 1    |
| 2009-<br>03-26 | 8170 | 8480 | 8110 | 8420  | 13682048 | 0.039506  | 1    | 1    | 1    | 1    | 0    |
| 2009-<br>03-27 | 8570 | 9070 | 8470 | 8490  | 16489312 | 0.008314  | 0    | 0    | 1    | 0    | 0    |

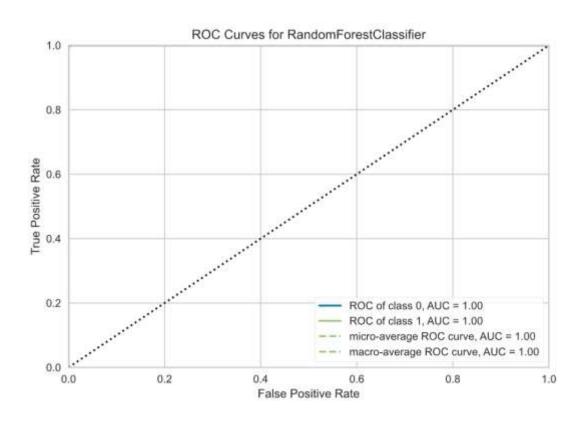
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | lgbm   | rf     | nb     | ridge  | qda    |
| acc       | 0.9524 | 0.727  | 0.5439 | 0.5472 | 0.5525 |
| model-AUC | lgbm   | et     | nb     | lr     | lr     |
| auc       | 0.9905 | 0.8037 | 0.5504 | 0.5572 | 0.5232 |

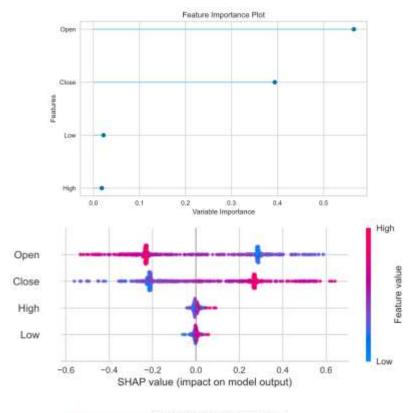


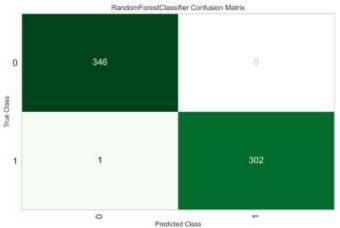


## Kia-prices-OHLC

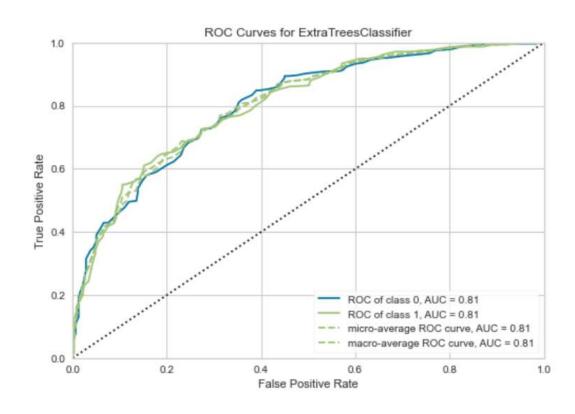
|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | et/lr  | ridge  | ridge  | lr     | lr     |
| acc       | 0.9993 | 0.7436 | 0.5631 | 0.5334 | 0.5585 |
| model-AUC | et/lr  | nb     | lr     | lr     | nb     |
| auc       | 1.0    | 0.8155 | 0.5824 | 0.5431 | 0.5394 |

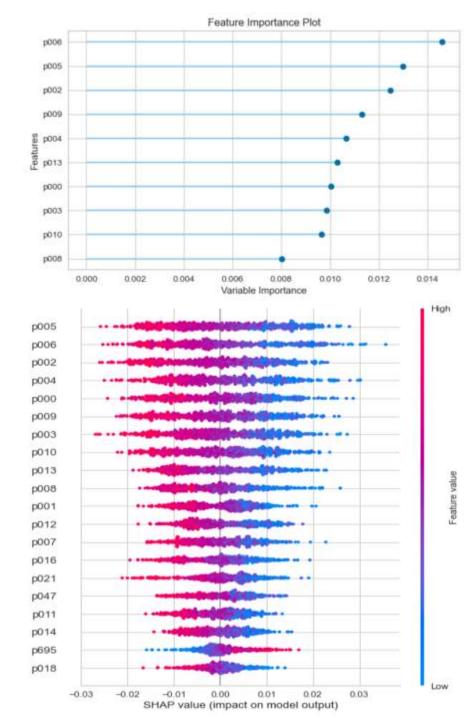






|           | C101   | C2O1   | 02C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | lgbm   | rf     | nb     | ridge  | qda    |
| acc       | 0.9524 | 0.727  | 0.5439 | 0.5472 | 0.5525 |
| model-AUC | lgbm   | et     | nb     | lr     | lr     |
| auc       | 0.9905 | 0.8037 | 0.5504 | 0.5572 | 0.5232 |





## Kia-prices-OHLC

|           | C101   | C2O1   | O2C1   | C2C1   | C2O2   |
|-----------|--------|--------|--------|--------|--------|
| model-ACC | et/lr  | ridge  | ridge  | lr     | lr     |
| acc       | 0.9993 | 0.7436 | 0.5631 | 0.5334 | 0.5585 |
| model-AUC | et/lr  | nb     | lr     | lr     | nb     |
| auc       | 1.0    | 0.8155 | 0.5824 | 0.5431 | 0.5394 |

