INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON

The cumulative gains curve

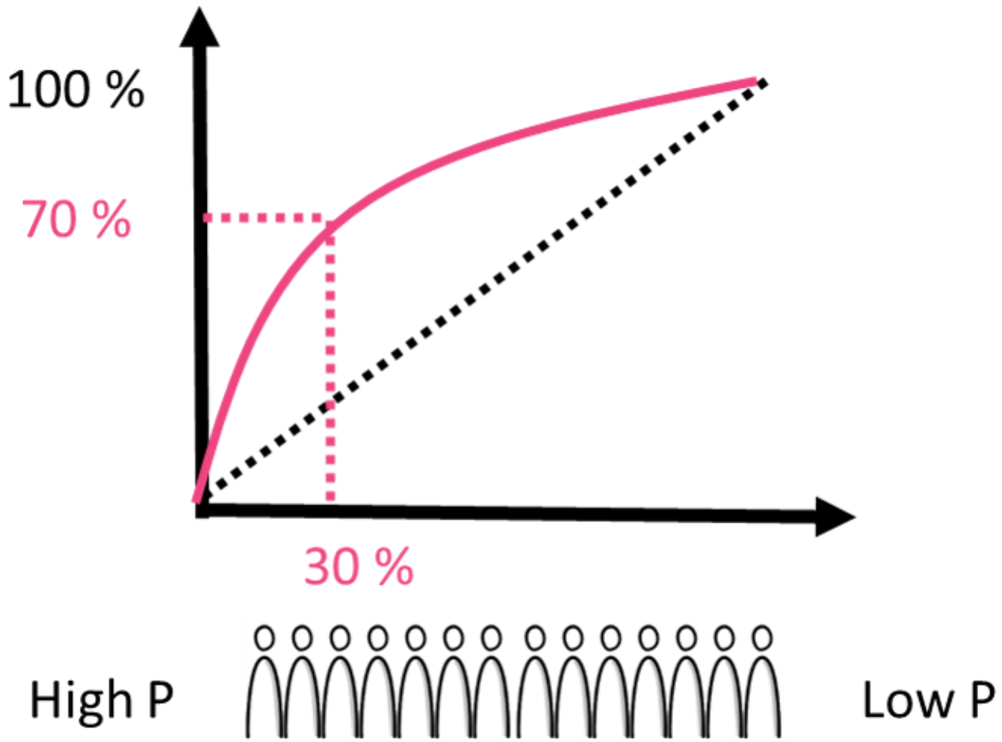
Nele Verbiest, Ph.D
Data Scientist
Python Predictions

Evaluation curves

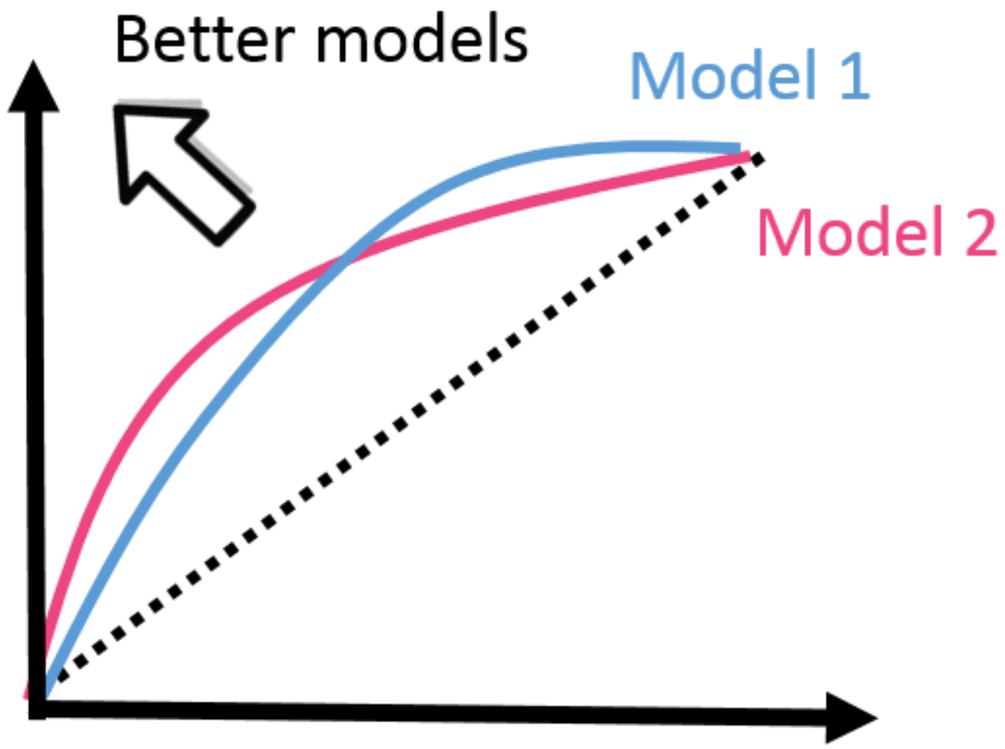
AUC:

- Complex
- Single number

Cumulative gains construction



Cumulative gains interpretation

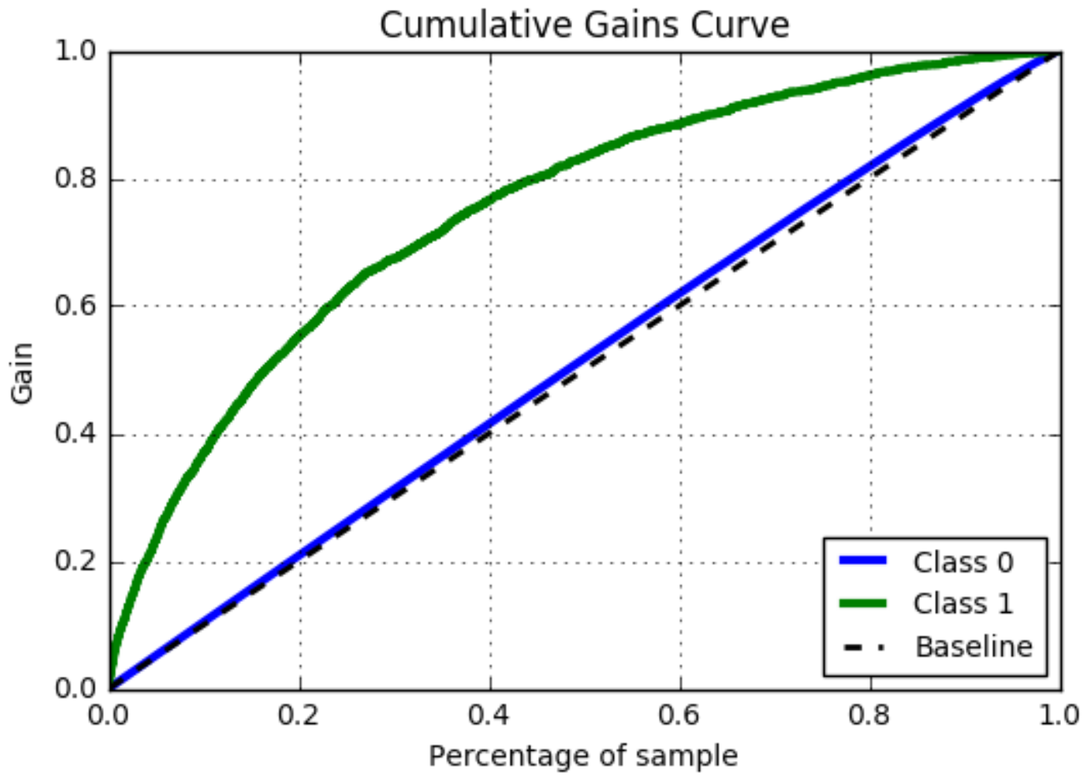


Cumulative gains in Python

```
import scikitplot as skplt
import matplotlib.pyplot as plt

skplt.metrics.plot_cumulative_gain(true_values, predictions)
plt.show()
```

Cumulative gains in Python



INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON

Let's practice!

INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON

The lift curve

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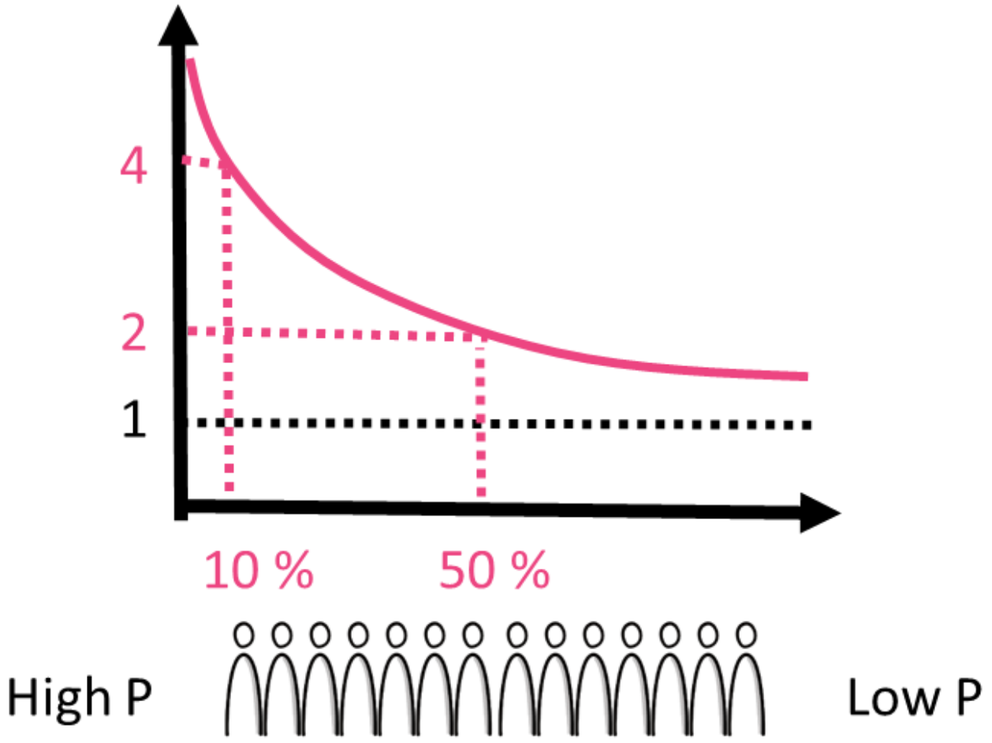
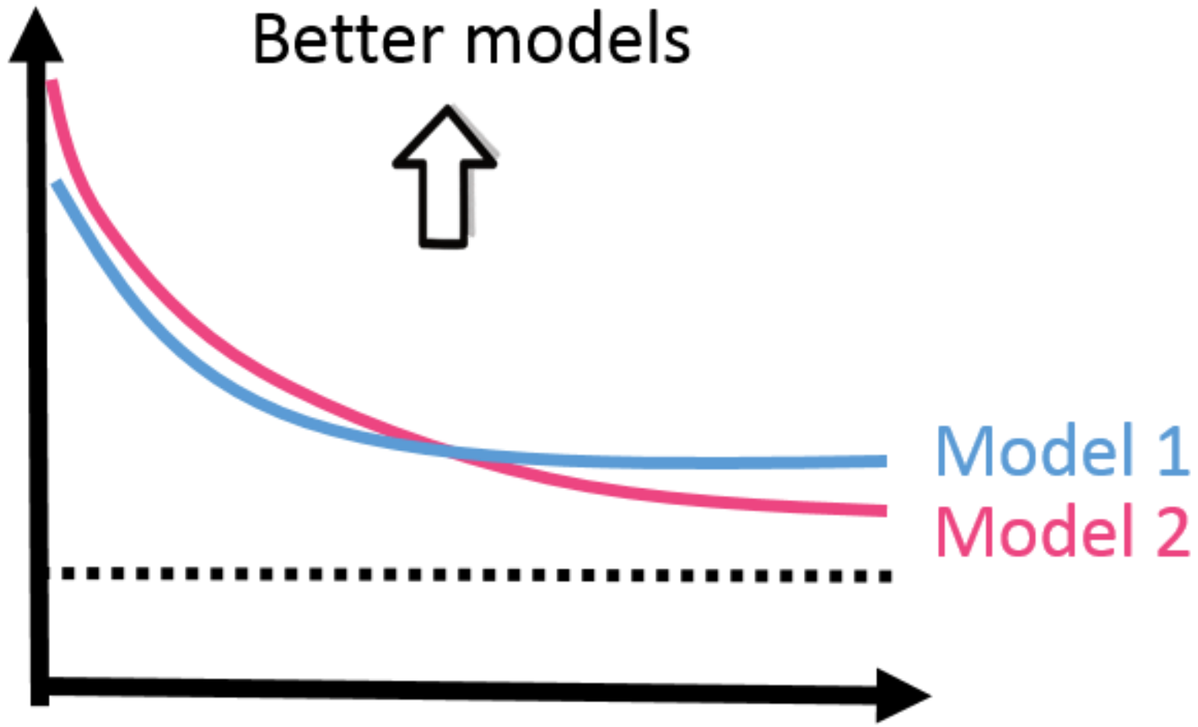
Lift curve construction



Lift curve interpretation

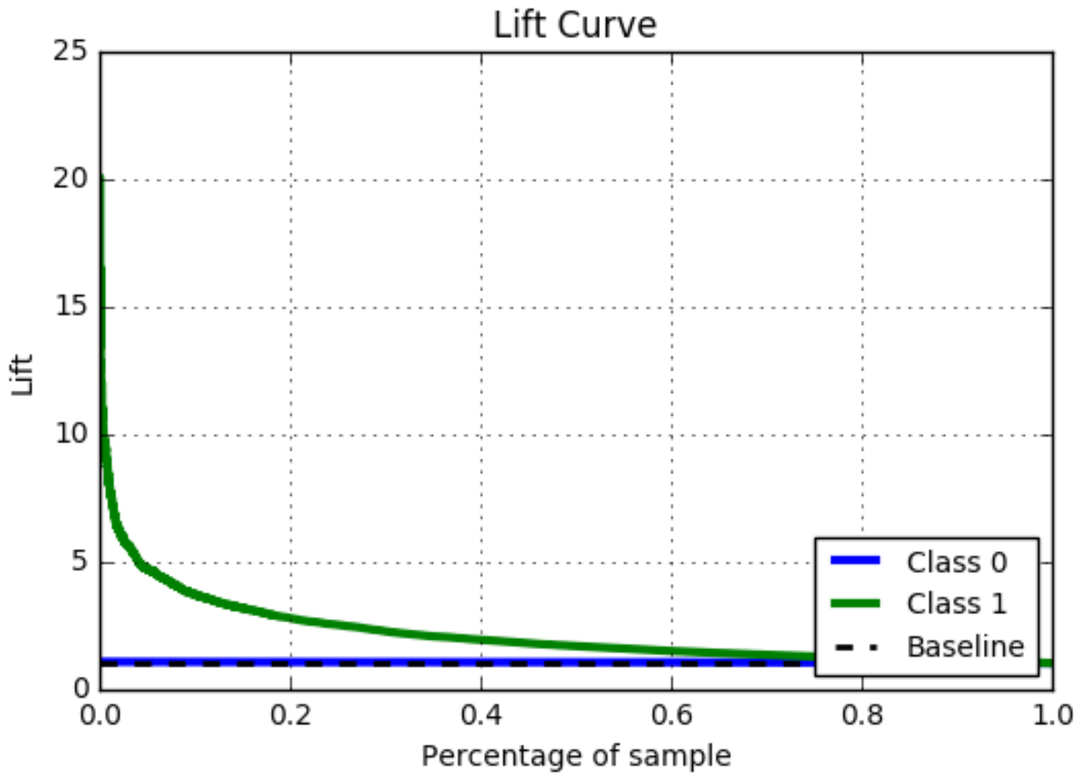


The lift curve in Python

```
import scikitplot as skplt
import matplotlib.pyplot as plt

skplt.metrics.plot_lift_curve(true_values, predictions)
plt.show()
```

The lift curve in Python



INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON

Let's practice!

INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON

Guiding business to better decisions

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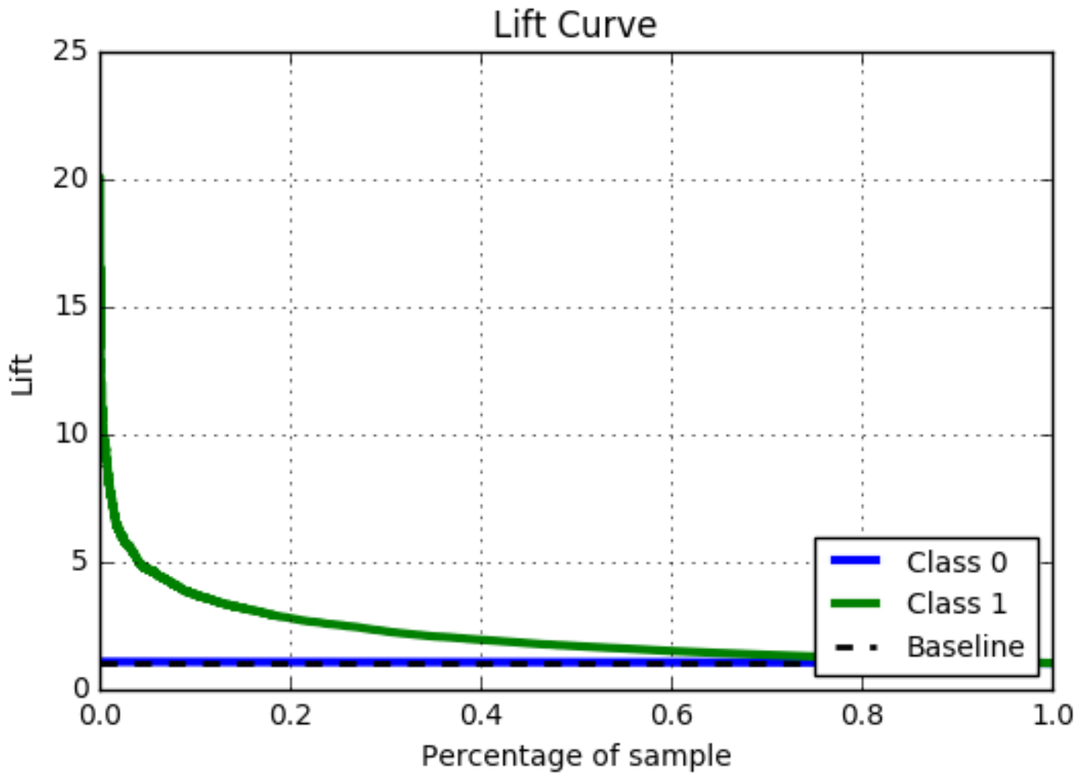
Python Predictions

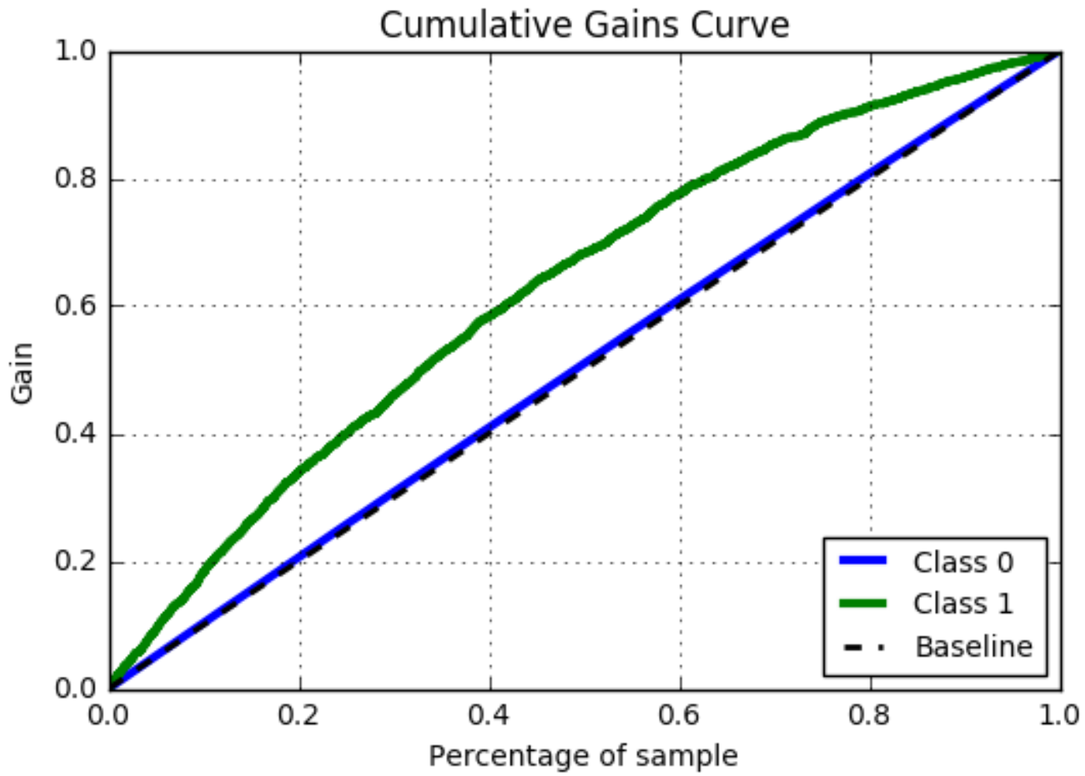
Estimating profit



Estimating profit

```
population_size = 100 000
target_incidence = 0.05
reward_target = 50
cost_campaign = 2

def profit(perc_targets, perc_selected, population_size,reward_target,
           cost_campaign)
           cost = cost_campaign * perc_selected *
           population_size
           reward = reward_target * perc_targets * perc_selected *
               population_size
    return(reward - cost)

perc_selected = 0.20
lift = 2.5
perc_targets = lift * target_incidence
print(profit(perc_targets, perc_selected, population_size,
           reward_target, cost_campaign))

60000

print(profit(target_incidence, 1, population_size, reward_target, cost_campaign)

-50000
```

Campaign selection



Campaign Selection

```
# Information about the campaign
population_size = 1000000
target_incidence = 0.02

# Number of targets you want to reach
number_targets_toreach = 16000
perc_targets = number_targets_toreach/(target_incidence*population_size)
print(perc_targets_toreach)

0.8

cumulative_gains = 0.60
# Number of donors to reach
number_donors_toreach = cumulative_gains*population_size
print(number_donors_toreach)

600 000
```

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Let's practice!