

The cumulative gains curve

INTRODUCTION TO PREDICTIVE ANALYTICS IN PYTHON



Nele Verbiest, Ph.D

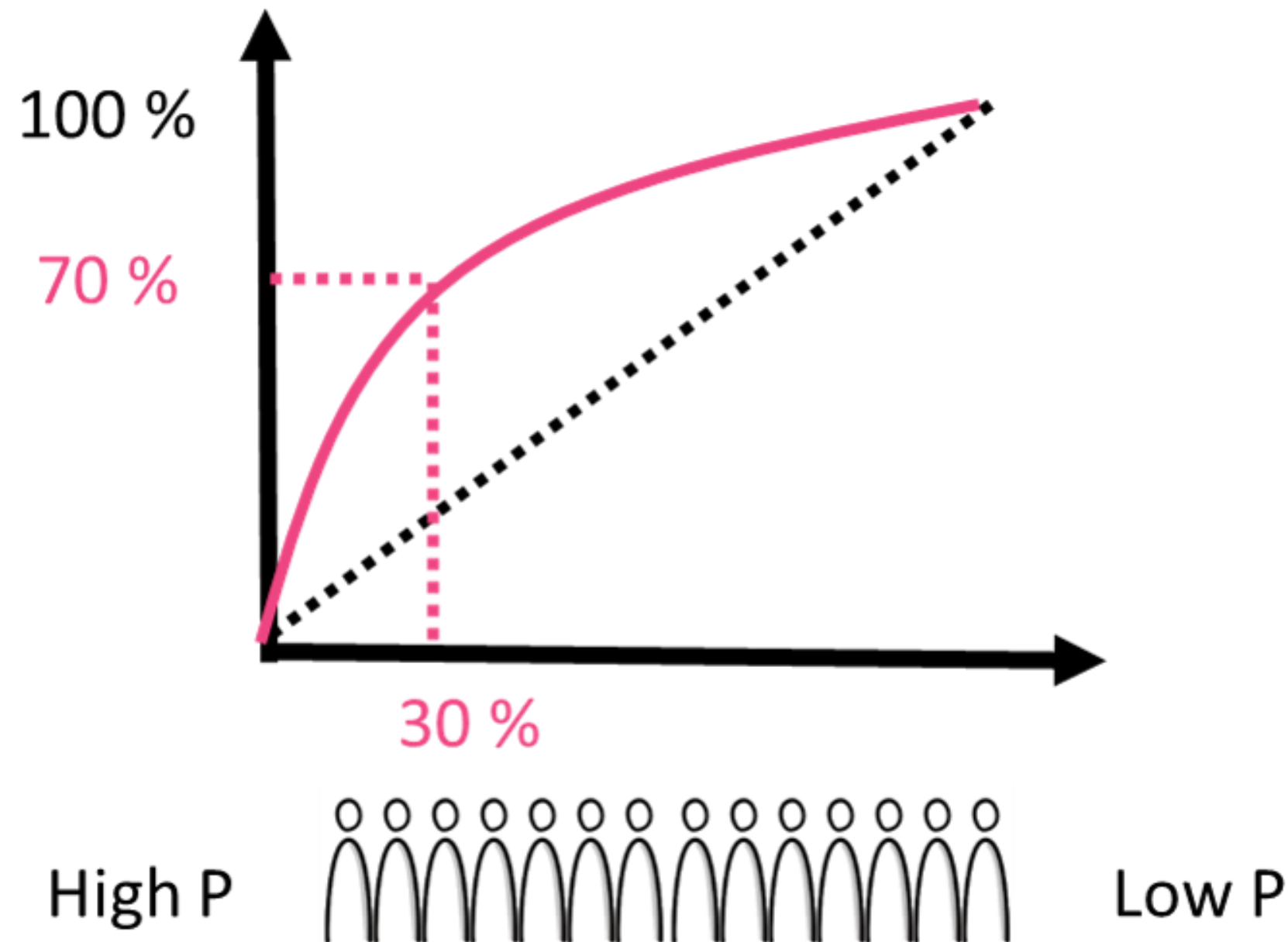
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Evaluation curves

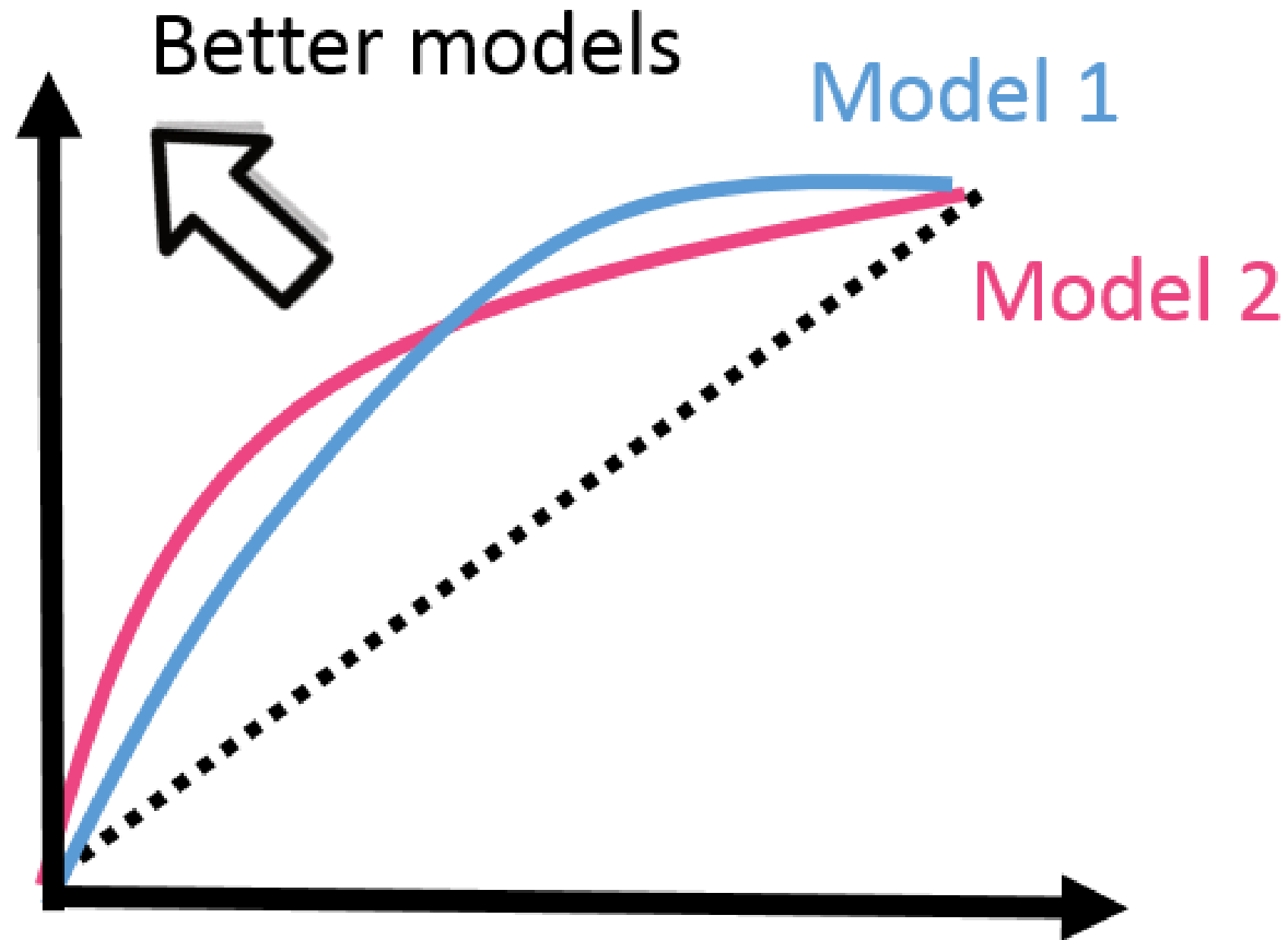
AUC:

- Complex
- Single number

Cumulative gains construction



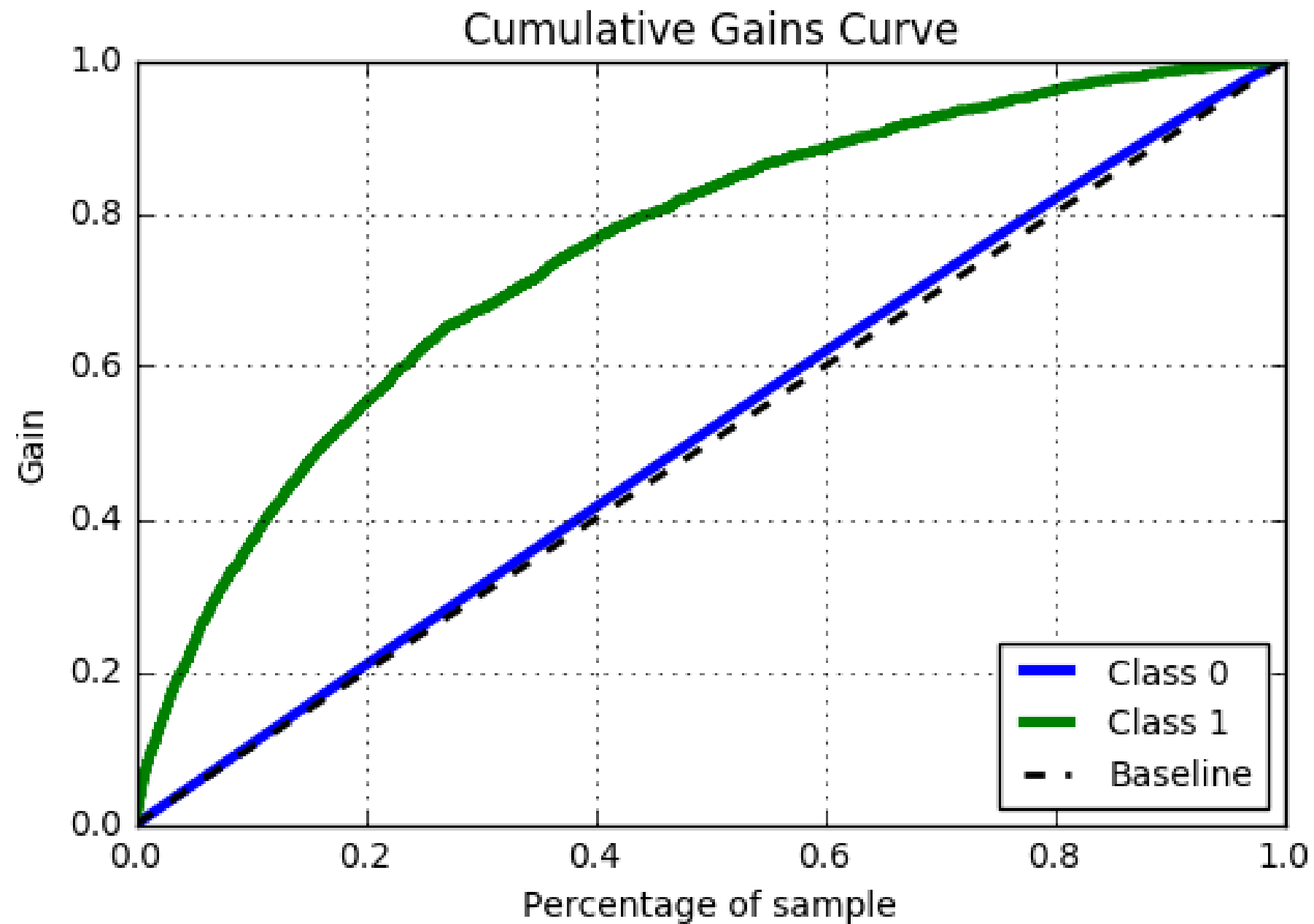
Cumulative gains interpretation



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



Let's practice!

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The lift curve

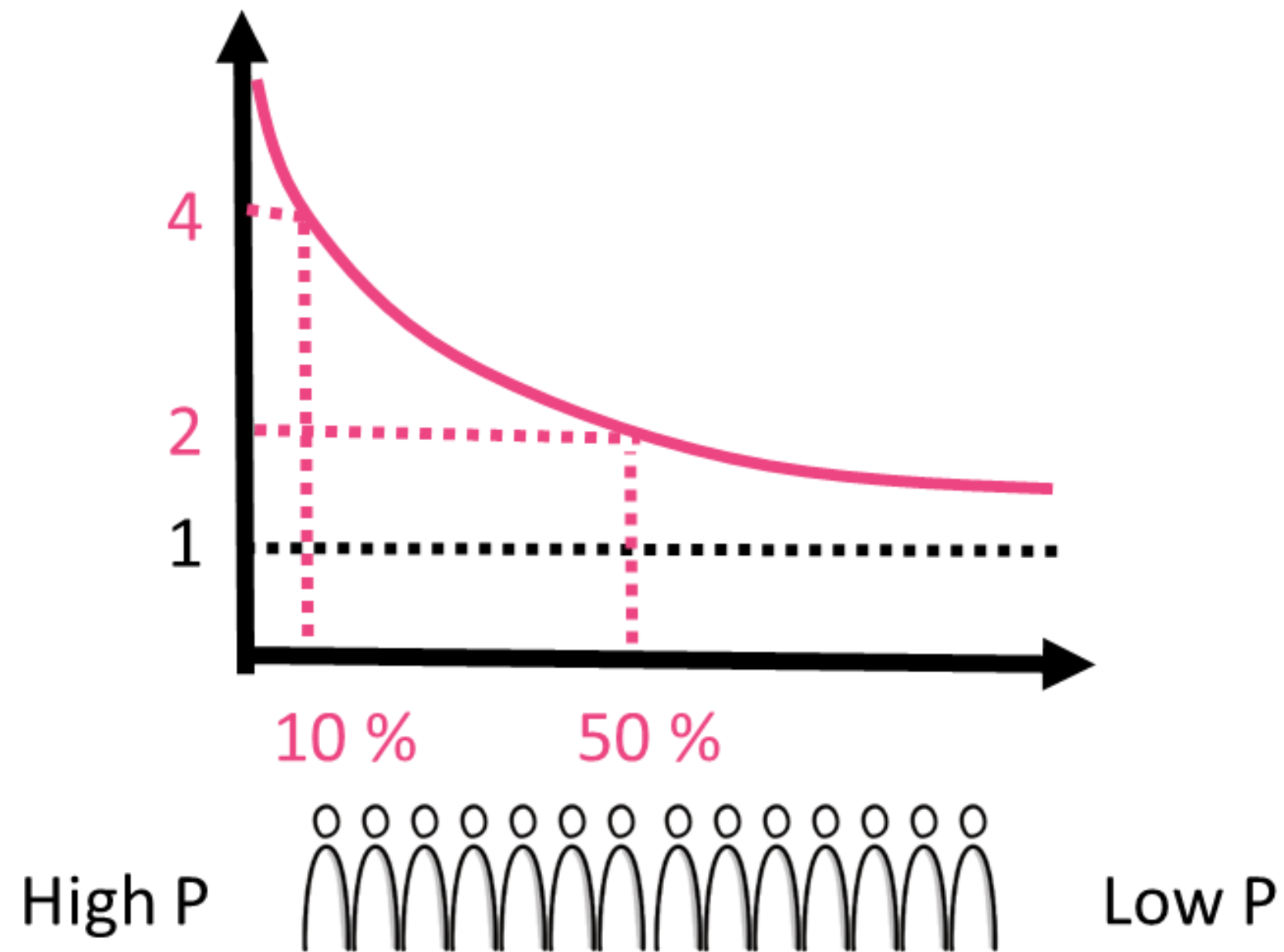
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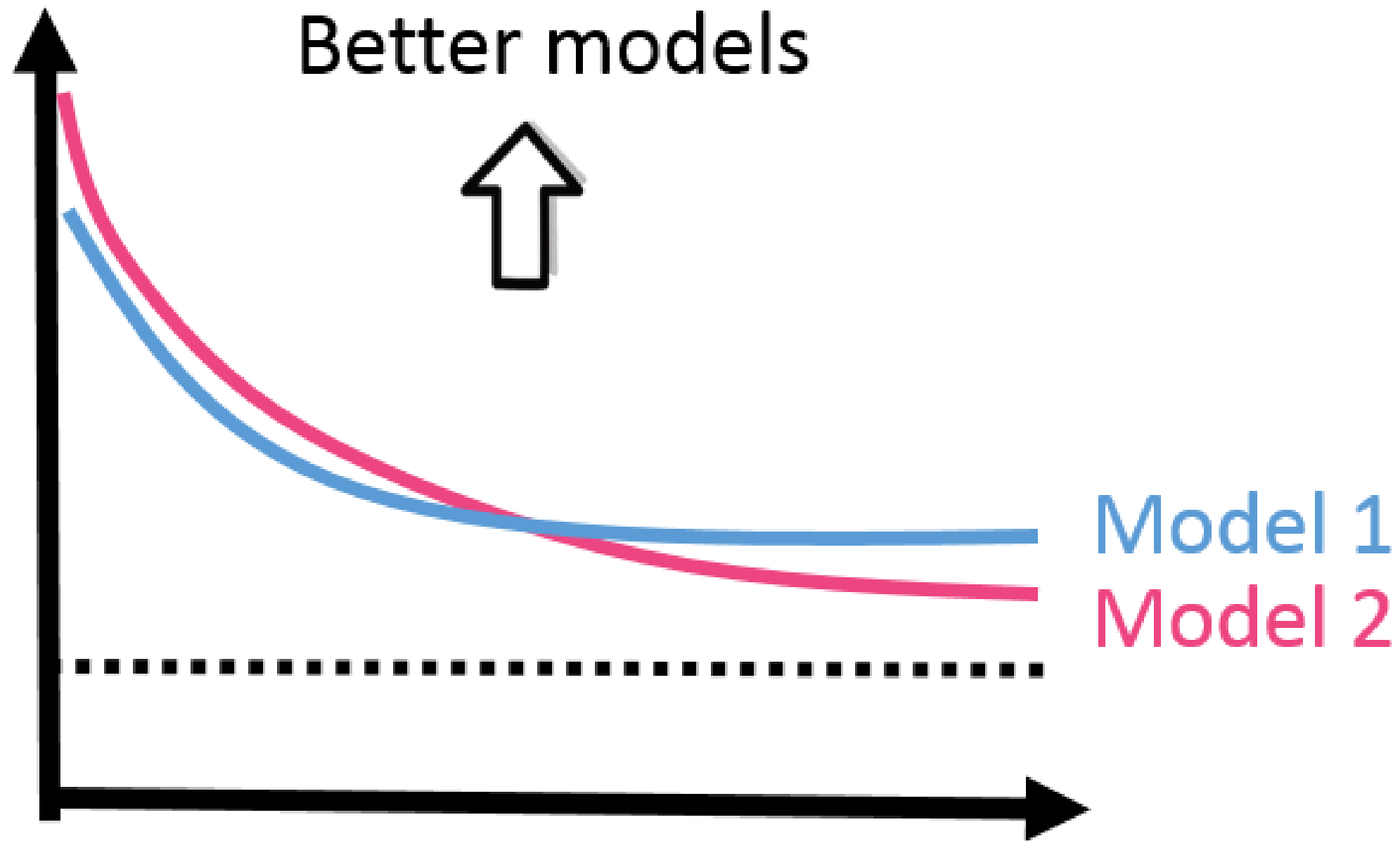
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Lift curve construction



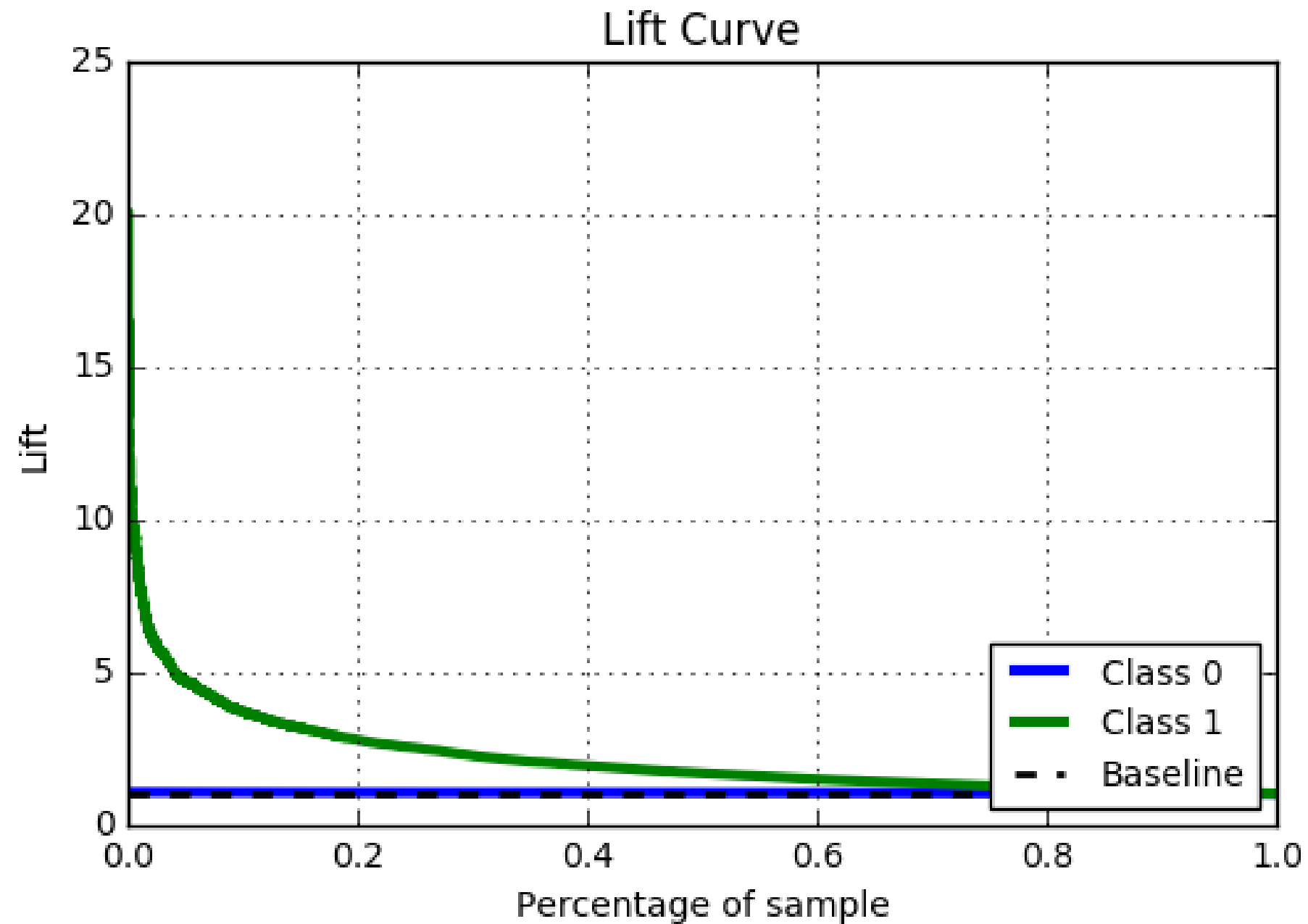
Lift curve interpretation



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



Let's practice!

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Guiding business to better decisions

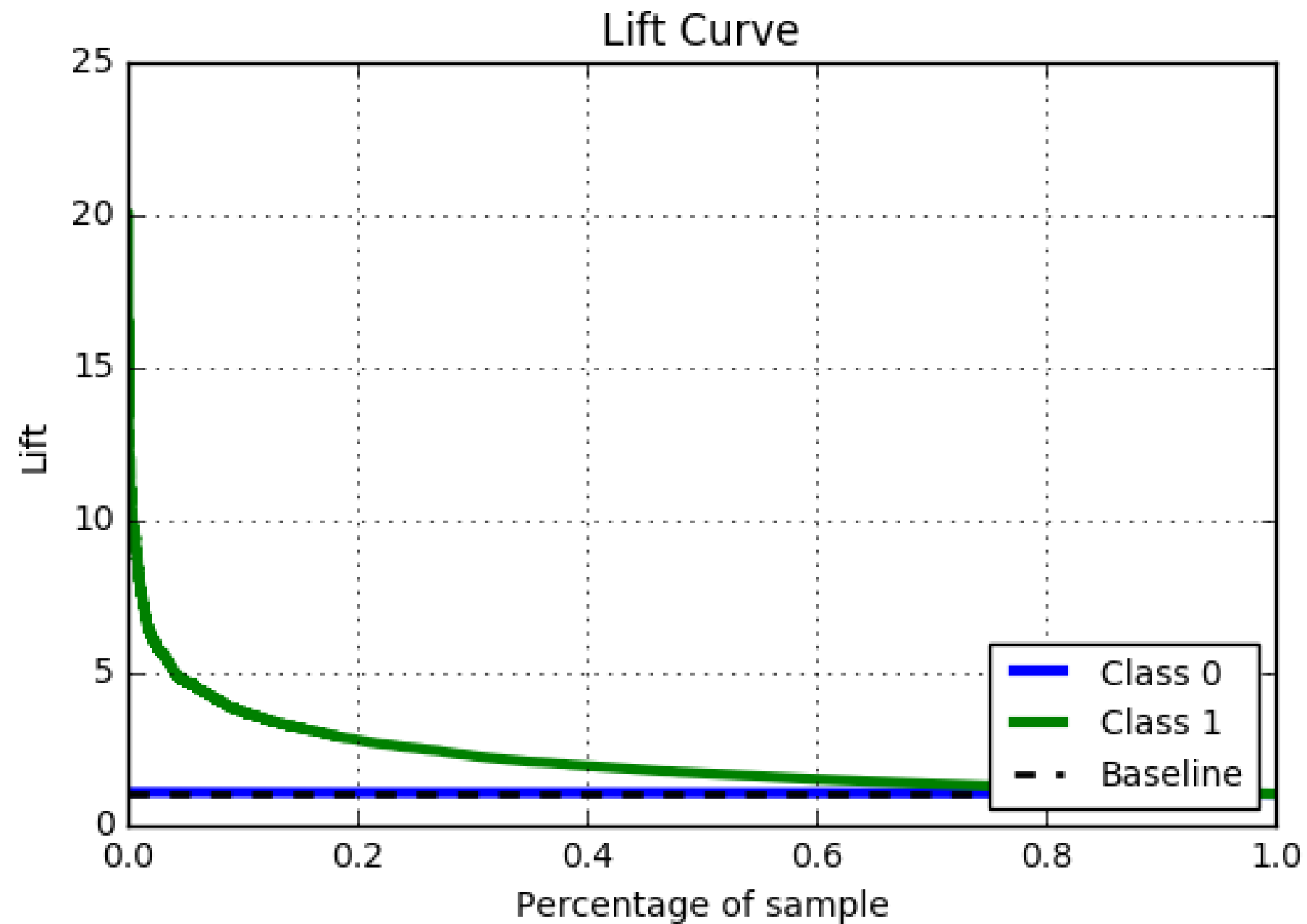
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Estimating profit



Estimating profit

```
population_size = 1000000
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)
```


Estimating profit

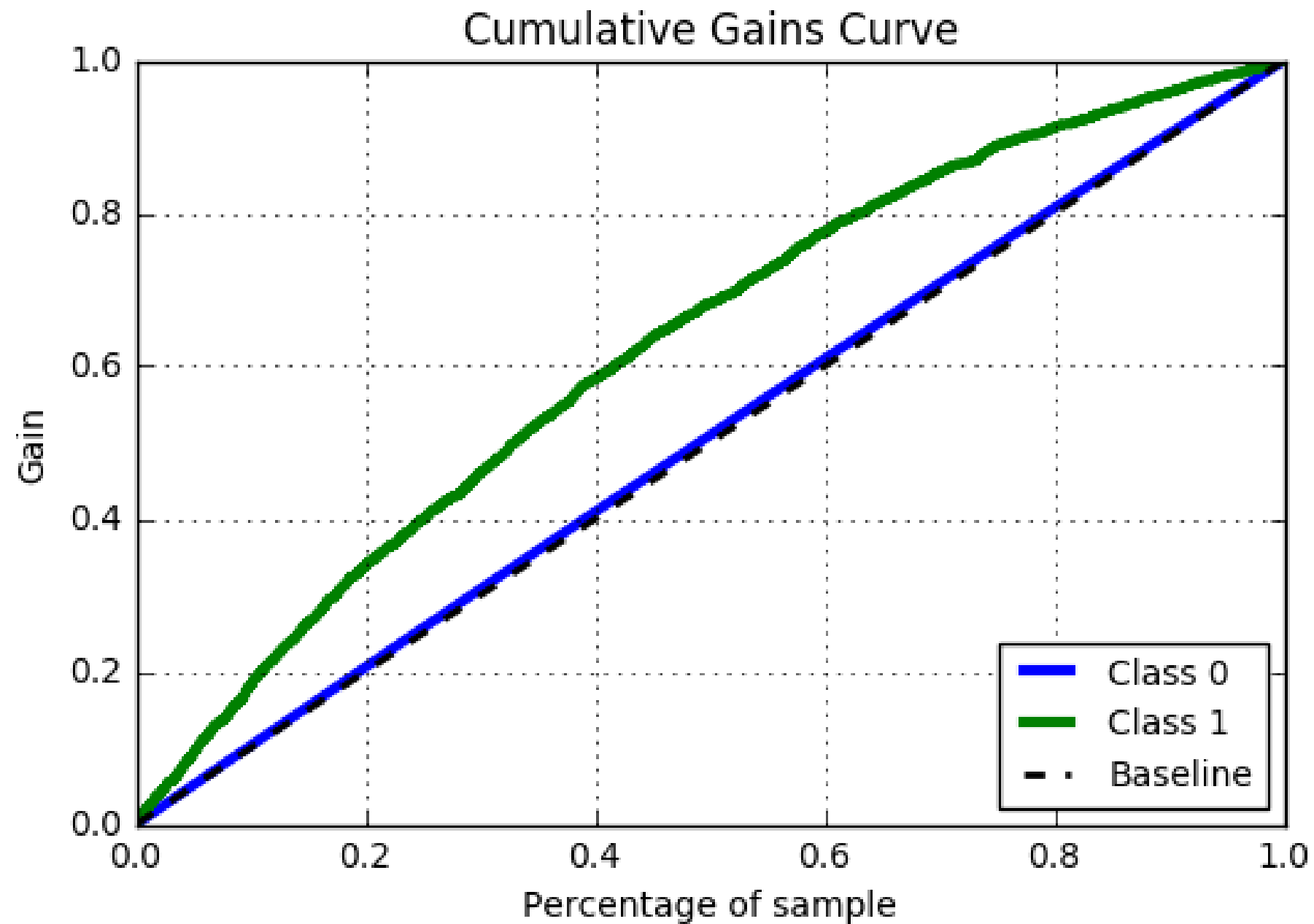
```
perc_selected = 0.20  
lift = 2.5  
perc_targets = lift * target_incidence  
print(profit(perc_targets, perc_selected, population_size,  
            reward_target, cost_campaign))
```

60000

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

-50000

Campaign selection



```
# 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)
```

600000

Let's practice!

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