

Domain Learning

Domain Learning

What: In this section, you are trying to acquire knowledge and identify patterns in the domain of recidivism (the tendency of a convicted criminal to re-offend) risk using the information provided by the AI system. The questions in this section test if you are able to gain a comprehensive understanding of how certain variables and features contribute to the prediction of recidivism risk. The idea here is that if you are able to use the information provided by the AI system to extract insights about how features contribute to AI predictions, you can apply this knowledge to obtain favorable outcomes.

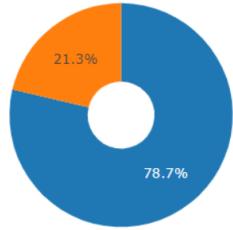
* Prediction

Instance:

8633

label	probability
Likely to commit crime	78.7 %
Unlikely to commit crime*	21.3 %

* indicates observed label



What is the model's prediction for defendant 8633?

💡 Tip: the model prediction for that instance is "likely to commit a crime" if its probability is above 50%, and consecutively that of "unlikely to commit a crime" is less than 50%.

① Please select one answer

- Likely to commit a crime.
- Unlikely to commit a crime.

*

Contributions Plot

Contribution to prediction probability = 21.33%

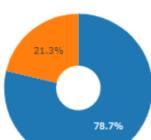


Prediction

label probability

Likely to commit crime

Unlikely to commit crime



COMMIT
crime

How does increasing the *age* attribute impact the model-predicted probability of defendant 8633 being *unlikely to commit a crime* of 21.33%?

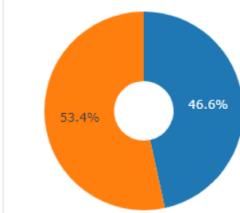
💡 Tip: The attributes coded as red, decrease the prediction probability if increased and vice versa. The attributes coded as green, increase the prediction probability if increased and vice versa.

① Please select one answer

- Increases the probability of unlikely to commit a crime.
- Decreases the probability of unlikely to commit a crime.

*

Prediction	
label	probability
Likely to commit crime	46.6 %
Unlikely to commit crime	53.4 %



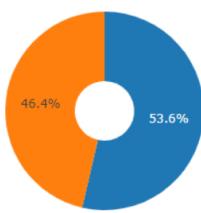
7077

number_of_prior_crimes

8

Range: 0-30

Prediction	
label	probability
Likely to commit crime	53.6 %
Unlikely to commit crime	46.4 %



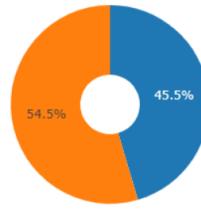
7077

number_of_prior_crimes

9

Range: 0-30

Prediction	
label	probability
Likely to commit crime	45.5 %
Unlikely to commit crime	54.5 %



7077

number_of_prior_crimes

7

Range: 0-30

If we want to flip the prediction for defendant 7077 of being *unlikely to commit a crime* (53.4%), should the *number of previous crimes* be increased or decreased?

① Please select one answer

- Should be increased.
- Should be decreased.

*

Contribution to prediction probability = 83.66%



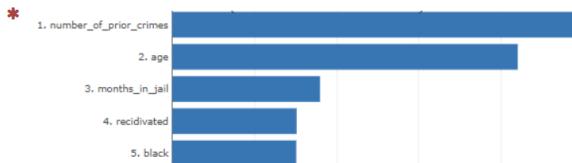
average
months_in_jail
features combined
Recidivated
number_of_prior_crimes
Prediction

Increasing the value of which two attributes would increase the prediction probability of *unlikely to commit a crime* for defendant 10579 (83.7%)?

💡 Tip: The attributes coded as red decrease the prediction probability if increased and vice versa. The attributes coded as green increase the prediction probability if their values are increased and vice versa.

ⓘ Please select one answer

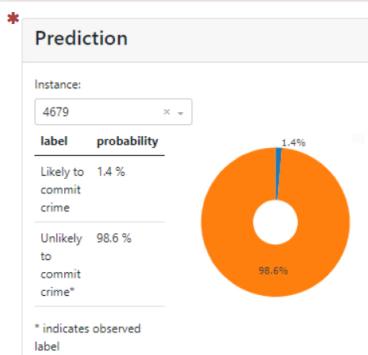
- "Age" and "number of prior crimes".
- "Recidivated" and "months in jail".
- "Age" and "months in jail".



What are the three most important features for determining whether someone is likely or unlikely to commit a crime again?

ⓘ Please select one answer

- Age, number of prior crimes, and months in jail.
- Age, months in jail, and recidivated.
- Black, number of prior crimes, and age.



How certain is the model about its prediction for defendant 4679 being *unlikely to commit a crime*?

ⓘ Please select one answer

- Very certain (more than 75%).
- Very uncertain (less than 25%).

Decision Support

Decision Support

What: In this section, you are trying to make decisions with the help of the Recidivism (the tendency of a convicted criminal to re-offend) risk prediction AI. The questions in the section assess if you understand the reasons behind the AI system's predictions and when you should exercise caution while considering the AI predictions for your decision. The idea here is that the AI system should communicate the uncertainty and limitations of the predictions. It should give you easy-to-understand information that is actionable for making decisions.

*

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For all the instances in the data, the model
typically predicts incorrect

if (numberofpriorcrimes > 4.5) and (age <= 34.5) and
(monthsinjail <= 138.0) and (black > 0.5) and
(felony <= 0.5) then then the model is incorrect
68.42% over 19 samples

if (numberofpriorcrimes > 4.5) and (age > 34.5) and
(38.5 < monthsinjail <= 65.5) then then the mode is
incorrect 87.5% over 8 samples
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For the data with id equal to 6336, the features are

age: 40
recidivated: 1
numberofpriorcrimes: 5
monthsinjail: 55
felony: 0
misdemeanor: 0
```

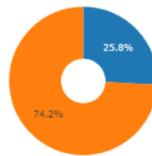
Prediction

Instance:

6336

label	probability
Likely to commit crime*	25.8 %
Unlikely to commit crime	74.2 %

* indicates observed label



You are given the information about where the model is typically correct, some information about defendant 6336's profile, and the model's prediction. How likely is it that the model is correct about this prediction?

💡 Tip: You need to consider the error probabilities along with the prediction probabilities to answer this question.

➊ Please select one answer

- Most likely incorrect (more than 75% chance of error).
- Most likely correct (less than 25% chance of error).

*

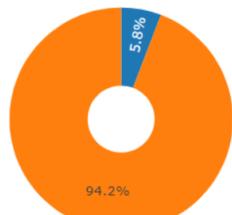
Prediction

Instance:

807

label	probability
Likely to commit crime*	5.8 %
Unlikely to commit crime	94.2 %

* indicates observed label



What is the model's prediction for defendant 807?

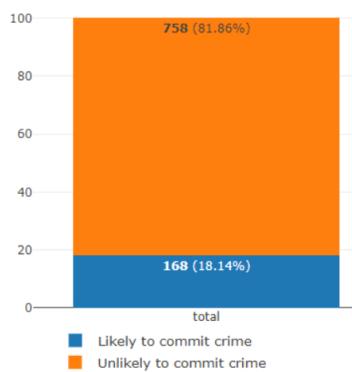
💡 Tip: the model prediction for that instance is "likely to commit a crime" if its probability is above 50%, and consecutively that of "unlikely to commit a crime" is less than 50%.

① Please select one answer

- Likely to commit a crime.
- Unlike to commit a crime.

* Classification Plot

Distribution of labels

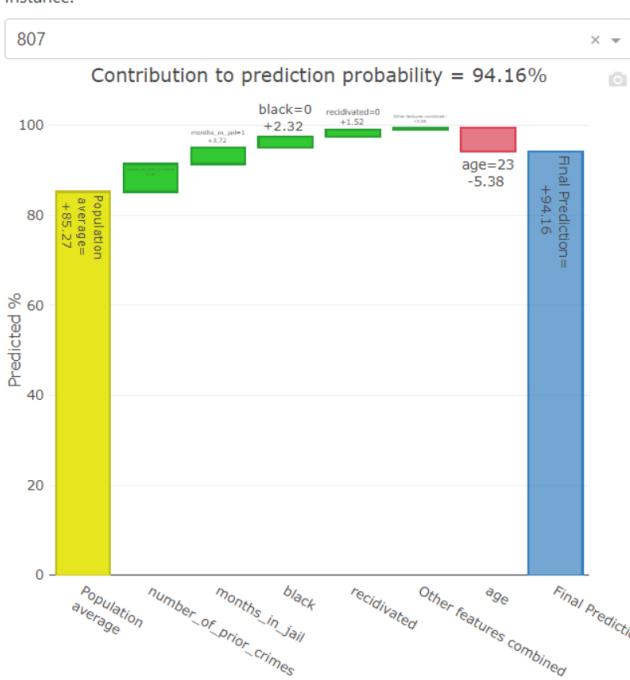


Select the statement that is true about the distribution of the model prediction classes.

① Please select one answer

- The model predicts less than a quarter defendants as "Unlikely to commit a crime".
- The model predicts less than a quarter defendants as "Likely to commit a crime".

* Instance:



Which attribute impacts the model's prediction for defendant 807 more, the *recidivated*, or the *number of previous crimes committed*?

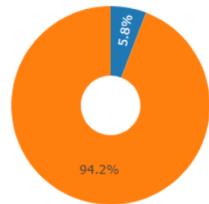
① Please select one answer

- Recidivated.
- Number of previous crimes committed.

*

Prediction

label	probability
Likely to commit crime	5.8 %
Unlikely to commit crime	94.2 %



807

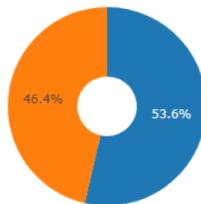
age

23

Range: 19-77

Prediction

label	probability
Likely to commit crime	53.6 %
Unlikely to commit crime	46.4 %



807

age

19

Range: 19-77

How is the model-predicted probability of being *unlikely to commit a crime* impacted if defendant 807 was 19 years old instead of 23?

① Please select one answer

- Model prediction is flipped from "unlikely to commit a crime" to "likely to commit a crime".
- Model prediction remains the same.

Capability Assessment

Capability Assessment

What: You were just introduced to the Recidivism (the tendency of a convicted criminal to re-offend) risk prediction AI. Your task is to explore the AI system's functionality and assess its applicability to your role if you were a judge. The questions in this section will be investigating your perception of the system's predictive abilities, the reasons prompting those predictions, and the specific scenarios or conditions where the system may produce incorrect predictions. The idea here is, by gaining insights into the system's strengths and weaknesses, you will be better equipped to decide when and how to utilize the AI system in the recidivism risk assessment process.

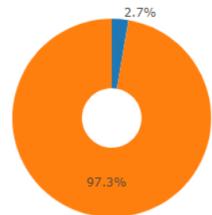
* Prediction

Instance:

7645 x ▾

label	probability
Likely to commit crime	2.7 %
Unlikely to commit crime*	97.3 %

* indicates observed label



What is the model's prediction for defendant 7645?

💡 Tip: the model prediction for that instance is "likely to commit a crime" if its probability is above 50%, and consecutively that of "unlikely to commit a crime" is less than 50%.

① Please select one answer

- Likely to commit a crime.
- Unlikely to commit a crime.

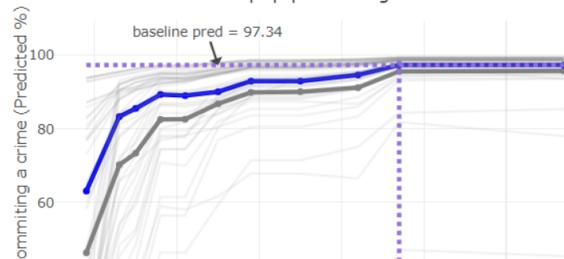
* Feature:

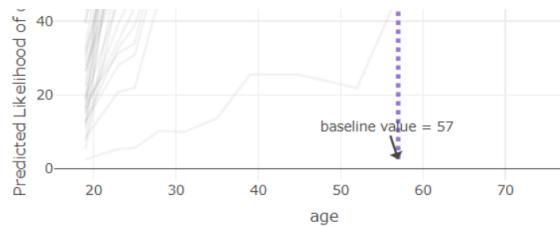
age

Instance:

7645

pdp plot for age





What is defendant 7645's age?

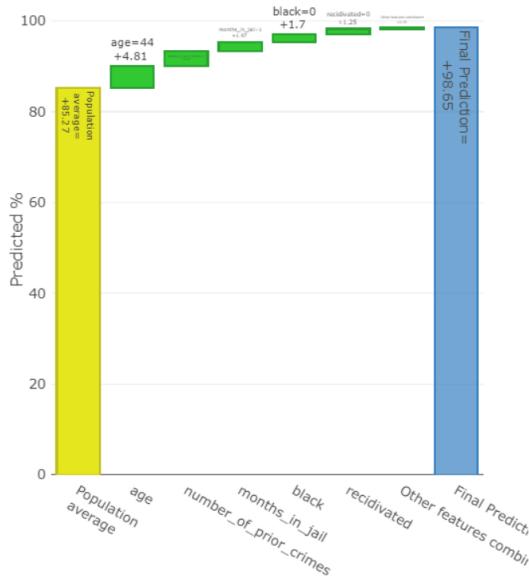
💡 Tip: For the feature values you need to look next to the baseline value field.

➊ Please select one answer

- 57
- 50
- 56

*

Contribution to prediction probability = 98.65%



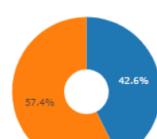
What are the two most important features for determining whether defendant 7645 is likely or unlikely to commit a crime again?

➊ Please select one answer

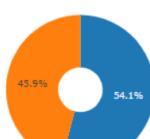
- "Number of prior crimes" and "months in jail".
- "Number of prior crimes" and "age".
- "Age" and "recidivated".

*

Prediction	
label	probability
Likely to commit crime	42.6 %
Unlikely to commit crime	57.4 %



Prediction	
label	probability
Likely to commit crime	54.1 %
Unlikely to commit crime	45.9 %



Feature Input

Adjust the feature values to change the prediction

1976
number_of_prior_crimes age
 23
Range: 0-30

Feature Input

Adjust the feature values to change the prediction

1976
number_of_prior_crimes age
 23
Range: 0-30

If the *number of prior crimes* for defendant 1976 increases from 5 to 6, would it increase or decrease his chances of being predicted as *unlikely to commit a crime* (from 57.4%)?

① Please select one answer

- Prediction probability of "unlikely to commit a crime" increases.
- Prediction probability of "unlikely to commit a crime" decreases.

* **Prediction**

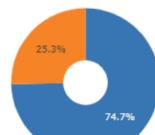
Instance:

label probability

Likely 74.7 %
to
commit
crime

Unlikely 25.3 %
to
commit
crime*

* indicates observed
label



Prediction

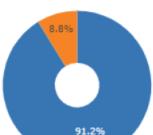
Instance:

label probability

Likely 91.2 %
to
commit
crime*

Unlikely 8.8 %
to
commit
crime

* indicates observed
label



Is the model more confident about its prediction of applicant 1542 or 3391?

① Please select one answer

- 3391
- 1542