

## Intro 1

People often rely on machine learning model outputs to make decisions.

Many factors can contribute to a machine learning model's output. For example, the output of a rain-predicting model can rely on factors such as the current temperature and wind speed.

Computer scientists refer to these factors as **model explanations**.

We will teach you how to interpret these explanations and ask you questions about them.

## Intro 2

Someone designed a machine learning model to predict whether it is a good idea to put on a coat or not.

It calculates the probability that you should put on a coat using

the current temperature, wind speed, and precipitation.

If that probability is greater than or equal to 0.5, then the model will recommend that you put on a coat. If the probability is less than 0.5, then the model will recommend that you do NOT put on a coat.

## Intro 3

Below, you can see a visual explanation for one instance of the model prediction, based on some input values for the three factors the model considers (temperature, wind speed, and precipitation).

Let's take a closer look at this visual explanation.

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## Intro 4

In the example box on the upper left, you can see the factors that the model uses to make predictions.

This model takes three factors into account when making predictions: temperature, wind, and precipitation.

These factors can take inputs that are numerical (e.g., 30, 0) or categorical (e.g., rain, snow).

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Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time
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## Intro 5

You can put different values of temperature, wind, and precipitation into your model to generate a **prediction**. The prediction is shown in the A.I. Prediction box in the middle.

The prediction is either 'YES' or 'NO'.

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## Intro Test 1

In the example below, what will the model predict?

- YES, you should wear a coat

NO, do not wear a coat

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Correct. In this case, A.I. prediction box in the middle says YES.

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## Intro Test 2

As another review, by looking at the explanation image, please select the value for **precipitation** input into the model:

- sleet
- snow
- hail
- rain
- none

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature <= 46.00 The A.I. will predict YES 81.0% of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <div>Precipitation = rain</div> <div>Temperature &lt;= 30.00</div> <div>Wind &gt; 35.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>30.00 &lt; Temperature &lt;= 46.00</div> <div>Wind &gt; 35.00</div> </div> <div style="text-align: center;"> <div>Precipitation = rain</div> <div>30.00 &lt; Temperature &lt;= 46.00</div> <div>8.00 &lt; Wind &lt;= 17.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>Temperature &lt;= 30.00</div> <div>17.00 &lt; Wind &lt;= 35.00</div> </div> <div style="text-align: center;"> <div>Precipitation = drizzle</div> <div>Temperature &lt;= 30.00</div> <div>Wind &gt; 35.00</div> </div> </div> <p>▼ Examples where the A.I. agent DOES NOT predict YES</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <div>Precipitation = None</div> <div>30.00 &lt; Temperature &lt;= 46.00</div> <div>8.00 &lt; Wind &lt;= 17.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>Temperature &lt;= 30.00</div> <div>8.00 &lt; Wind &lt;= 17.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>30.00 &lt; Temperature &lt;= 46.00</div> <div>Wind &lt;= 8.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>Temperature &lt;= 30.00</div> <div>Wind &lt;= 8.00</div> </div> <div style="text-align: center;"> <div>Precipitation = None</div> <div>Temperature &lt;= 30.00</div> <div>8.00 &lt; Wind &lt;= 17.00</div> </div> </div>		

Correct – the value is printed next to the word **Precipitation** in Example box on the upper left. This value is **hail**.

Example	A.I. prediction	Explanation of A.I. prediction	
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature <= 46.00 The A.I. will predict YES 81.0% of the time	
<b>▼ Examples where the A.I. agent predicts YES</b>		<b>▼ Examples where the A.I. agent DOES NOT predict YES</b>	
Precipitation = rain Temperature <= 30.00 Wind > 35.00			
Precipitation = sleet 30.00 < Temperature <= 46.00 Wind > 35.00			
Precipitation = rain 30.00 < Temperature <= 46.00 8.00 < Wind <= 17.00			
Precipitation = None Temperature <= 30.00 17.00 < Wind <= 35.00			
Precipitation = drizzle Temperature <= 30.00 Wind > 35.00			
Precipitation = None Temperature <= 30.00 8.00 < Wind <= 17.00			

Not quite - the value is printed next to the word Precipitation in Example box on the upper left. This value is **hail**.

Example	A.I. prediction	Explanation of A.I. prediction																														
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: ✓ Temperature <= 46.00 The A.I. will predict YES 81.0% of the time																														
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8.00 < Wind <= 17.00																																

By looking at the explanation image, please select the value for **wind speed** input into the model:

- 20 mph
- 0 mph
- 10 mph
- 5 mph
- 15 mph

Example	A.I. prediction	Explanation of A.I. prediction									
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time									
<p>▼ Examples where the A.I. agent predicts YES</p> <p>▼ Examples where the A.I. agent DOES NOT predict YES</p>											
<table border="1"><tbody><tr><td>Precipitation = rain Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></td><td>Precipitation = None 30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math> Wind <math>&gt; 35.00</math></td></tr><tr><td>Precipitation = sleet 30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math> Wind <math>&gt; 35.00</math></td><td>Precipitation = None Temperature <math>\leq 30.00</math> 8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr><tr><td>Precipitation = rain 30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math> 8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td><td>Precipitation = None 30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math> Wind <math>\leq 8.00</math></td></tr><tr><td>Precipitation = None Temperature <math>\leq 30.00</math> 17.00 <math>&lt;</math> Wind <math>\leq 35.00</math></td><td>Precipitation = None Temperature <math>\leq 30.00</math> Wind <math>\leq 8.00</math></td></tr><tr><td>Precipitation = drizzle Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></td><td>Precipitation = None Temperature <math>\leq 30.00</math> 8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr></tbody></table>		Precipitation = rain Temperature $\leq 30.00$ Wind $> 35.00$	Precipitation = None 30.00 $<$ Temperature $\leq 46.00$ Wind $> 35.00$	Precipitation = sleet 30.00 $<$ Temperature $\leq 46.00$ Wind $> 35.00$	Precipitation = None Temperature $\leq 30.00$ 8.00 $<$ Wind $\leq 17.00$	Precipitation = rain 30.00 $<$ Temperature $\leq 46.00$ 8.00 $<$ Wind $\leq 17.00$	Precipitation = None 30.00 $<$ Temperature $\leq 46.00$ Wind $\leq 8.00$	Precipitation = None Temperature $\leq 30.00$ 17.00 $<$ Wind $\leq 35.00$	Precipitation = None Temperature $\leq 30.00$ Wind $\leq 8.00$	Precipitation = drizzle Temperature $\leq 30.00$ Wind $> 35.00$	Precipitation = None Temperature $\leq 30.00$ 8.00 $<$ Wind $\leq 17.00$
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Correct – the value is printed in the Value column next to the word **Wind** in the Example box on the left. This value is **10 mph**.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: ✓ Temperature <= 46.00 The A.I. will predict YES 81.0% of the time
▼ Examples where the A.I. agent predicts YES		▼ Examples where the A.I. agent DOES NOT predict YES
Precipitation = rain Temperature <= 30.00 Wind > 35.00		Precipitation = None 30.00 < Temperature <= 46.00 8.00 < Wind <= 17.00
Precipitation = sleet 30.00 < Temperature <= 46.00 Wind > 35.00		Precipitation = None Temperature <= 30.00 8.00 < Wind <= 17.00
Precipitation = rain 30.00 < Temperature <= 46.00 8.00 < Wind <= 17.00		Precipitation = None 30.00 < Temperature <= 46.00 Wind <= 8.00
Precipitation = None Temperature <= 30.00 17.00 < Wind <= 35.00		Precipitation = None Temperature <= 30.00 Wind <= 8.00
Precipitation = drizzle Temperature <= 30.00 Wind > 35.00		Precipitation = None Temperature <= 30.00 8.00 < Wind <= 17.00

Not quite – the value is printed in the Value column next to the word **Wind** in the Example box on the left. This value is **10 mph**.

Example	A.I. prediction	Explanation of A.I. prediction																														
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: ✓ Temperature <= 46.00 The A.I. will predict YES 81.0% of the time																														
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## Intro 8

Each input value of temperature, wind, and precipitation can push the model's **prediction** toward YES or toward NO.

Example	A.I. prediction	Explanation of A.I. prediction																														
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: ✓ Temperature <= 46.00 The A.I. will predict YES 81.0% of the time																														
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In the explanation box in the upper right, you can see that the model **usually** (>80% of the time) predicts YES when temperature is below 46 degrees.

This means the value of the temperature, 23, is pushing the model towards returning 'YES'.

## Intro 9

To understand what the other values are doing, we can look at the examples below the explanation.

These examples help give context to the explanation.

The examples on the **LEFT** show other inputs where the model predicts **YES**.

The examples on the **RIGHT** show other inputs where the model predicts **NO**.

**All** of these examples include a temperature that is below 46 degrees, like the explanation says.

That is why the temperature row is always **highlighted**.

Example	A.I. prediction	Explanation of A.I. prediction																														
Precipitation = hail Temperature = 23.00 Wind = 10.00	YES	If ALL of these are true: ✓ Temperature <= 46.00 The A.I. will predict YES 81.0% of the time																														
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8.00 < Wind <= 17.00																																
Precipitation = None																																
Temperature <= 30.00																																
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Temperature <= 30.00																																
8.00 < Wind <= 17.00																																

## Intro 9.5

First, let's think about precipitation. We see from the examples list on the left (examples where the model returns YES) that precipitation values like snow, sleet, or hail tend to result in the model returning YES. On the right, we see that precipitation values of 'none' tend to result in the model returning NO.

This means our current value of 'hail' is pushing the model toward

returning YES.

Example	A.I. prediction	Explanation of A.I. prediction															
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time															
<p>▼ Examples where the A.I. agent predicts YES</p> <table border="1"> <tr><td>Precipitation = rain</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>Wind <math>&gt; 35.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = sleet</td></tr> <tr><td>30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math></td></tr> <tr><td>Wind <math>&gt; 35.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = rain</td></tr> <tr><td>30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math></td></tr> <tr><td>8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>17.00 <math>&lt;</math> Wind <math>\leq 35.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = drizzle</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>Wind <math>&gt; 35.00</math></td></tr> </table>			Precipitation = rain	Temperature $\leq 30.00$	Wind $> 35.00$	Precipitation = sleet	30.00 $<$ Temperature $\leq 46.00$	Wind $> 35.00$	Precipitation = rain	30.00 $<$ Temperature $\leq 46.00$	8.00 $<$ Wind $\leq 17.00$	Precipitation = None	Temperature $\leq 30.00$	17.00 $<$ Wind $\leq 35.00$	Precipitation = drizzle	Temperature $\leq 30.00$	Wind $> 35.00$
Precipitation = rain																	
Temperature $\leq 30.00$																	
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<p>▼ Examples where the A.I. agent DOES NOT predict YES</p> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math></td></tr> <tr><td>8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>30.00 <math>&lt;</math> Temperature <math>\leq 46.00</math></td></tr> <tr><td>Wind <math>\leq 8.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>Wind <math>\leq 8.00</math></td></tr> </table> <table border="1"> <tr><td>Precipitation = None</td></tr> <tr><td>Temperature <math>\leq 30.00</math></td></tr> <tr><td>8.00 <math>&lt;</math> Wind <math>\leq 17.00</math></td></tr> </table>			Precipitation = None	30.00 $<$ Temperature $\leq 46.00$	8.00 $<$ Wind $\leq 17.00$	Precipitation = None	Temperature $\leq 30.00$	8.00 $<$ Wind $\leq 17.00$	Precipitation = None	30.00 $<$ Temperature $\leq 46.00$	Wind $\leq 8.00$	Precipitation = None	Temperature $\leq 30.00$	Wind $\leq 8.00$	Precipitation = None	Temperature $\leq 30.00$	8.00 $<$ Wind $\leq 17.00$
Precipitation = None																	
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Wind $\leq 8.00$																	
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Wind $\leq 8.00$																	
Precipitation = None																	
Temperature $\leq 30.00$																	
8.00 $<$ Wind $\leq 17.00$																	

## Intro 9.7

Now, let's think about wind. We see from the examples list on the left (examples where the model returns YES) that higher wind

speed values tend to result in the model returning YES. On the right, we see that lower wind speed tend to result in the model returning NO.

This means our current (lower) wind speed value of 10.00 is pushing the model toward returning NO.

Example	A.I. prediction	Explanation of A.I. prediction										
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time										
<p>▼ Examples where the A.I. agent predicts YES</p> <table border="1"> <tr><td>Precipitation = rain Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></td></tr> <tr><td>Precipitation = sleet <math>30.00 &lt; \text{Temperature} \leq 46.00</math> Wind <math>&gt; 35.00</math></td></tr> <tr><td>Precipitation = rain <math>30.00 &lt; \text{Temperature} \leq 46.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></td></tr> <tr><td>Precipitation = None Temperature <math>\leq 30.00</math> <math>17.00 &lt; \text{Wind} \leq 35.00</math></td></tr> <tr><td>Precipitation = drizzle Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></td></tr> </table> <p>▼ Examples where the A.I. agent DOES NOT predict YES</p> <table border="1"> <tr><td>Precipitation = None <math>30.00 &lt; \text{Temperature} \leq 46.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></td></tr> <tr><td>Precipitation = None Temperature <math>\leq 30.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></td></tr> <tr><td>Precipitation = None <math>30.00 &lt; \text{Temperature} \leq 46.00</math> Wind <math>\leq 8.00</math></td></tr> <tr><td>Precipitation = None Temperature <math>\leq 30.00</math> Wind <math>\leq 8.00</math></td></tr> <tr><td>Precipitation = None Temperature <math>\leq 30.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></td></tr> </table>			Precipitation = rain Temperature $\leq 30.00$ Wind $> 35.00$	Precipitation = sleet $30.00 < \text{Temperature} \leq 46.00$ Wind $> 35.00$	Precipitation = rain $30.00 < \text{Temperature} \leq 46.00$ $8.00 < \text{Wind} \leq 17.00$	Precipitation = None Temperature $\leq 30.00$ $17.00 < \text{Wind} \leq 35.00$	Precipitation = drizzle Temperature $\leq 30.00$ Wind $> 35.00$	Precipitation = None $30.00 < \text{Temperature} \leq 46.00$ $8.00 < \text{Wind} \leq 17.00$	Precipitation = None Temperature $\leq 30.00$ $8.00 < \text{Wind} \leq 17.00$	Precipitation = None $30.00 < \text{Temperature} \leq 46.00$ Wind $\leq 8.00$	Precipitation = None Temperature $\leq 30.00$ Wind $\leq 8.00$	Precipitation = None Temperature $\leq 30.00$ $8.00 < \text{Wind} \leq 17.00$
Precipitation = rain Temperature $\leq 30.00$ Wind $> 35.00$												
Precipitation = sleet $30.00 < \text{Temperature} \leq 46.00$ Wind $> 35.00$												
Precipitation = rain $30.00 < \text{Temperature} \leq 46.00$ $8.00 < \text{Wind} \leq 17.00$												
Precipitation = None Temperature $\leq 30.00$ $17.00 < \text{Wind} \leq 35.00$												
Precipitation = drizzle Temperature $\leq 30.00$ Wind $> 35.00$												
Precipitation = None $30.00 < \text{Temperature} \leq 46.00$ $8.00 < \text{Wind} \leq 17.00$												
Precipitation = None Temperature $\leq 30.00$ $8.00 < \text{Wind} \leq 17.00$												
Precipitation = None $30.00 < \text{Temperature} \leq 46.00$ Wind $\leq 8.00$												
Precipitation = None Temperature $\leq 30.00$ Wind $\leq 8.00$												
Precipitation = None Temperature $\leq 30.00$ $8.00 < \text{Wind} \leq 17.00$												

## Intro 10

Factors listed in the 'Explanation' box have high **predictive power** – keeping them the same will probably keep the model output the same. Sometimes this list will have more than one factor. In that case, the **first value in the list** has the highest predictive power. Keeping this value the same is **most likely** to keep the model output the same.

We created an example by asking our explanation to tell us what we would need for the model to ALWAYS say yes. Now, the list in our example box includes Temperature AND precipitation – but Temperature still has the highest predictive power.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature <= 30.00 <input checked="" type="checkbox"/> Precipitation = hail The A.I. will predict YES 100.0% of the time

> Examples where the A.I. agent predicts YES

> Examples where the A.I. agent DOES NOT predict YES

## Intro Test 3

As a review, by looking at the explanation image, which factor(s) are pushing the model toward predicting 'YES'?

- Temperature
- Wind
- Precipitation

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	<span style="color: blue;">●</span> YES	If ALL of these are true: <span style="color: blue;">✓</span> Temperature <= 46.00 The A.I. will predict YES 81.0% of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            Temperature &lt;= 30.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = sleet            30.00 &lt; Temperature &lt;= 46.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            30.00 &lt; Temperature &lt;= 46.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            17.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = drizzle            Temperature &lt;= 30.00            Wind &gt; 35.00         </div> </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            30.00 &lt; Temperature &lt;= 46.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            30.00 &lt; Temperature &lt;= 46.00            Wind &lt;= 8.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            Wind &lt;= 8.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            8.00 &lt; Wind &lt;= 17.00         </div> </div> </div>		

Correct – In this case, Temperature is listed in the explanation because this input value USUALLY results in the model returning YES. Additionally, we see from the examples list on the left (examples where the model returns YES) that precipitation values like snow, sleet or hail tend to result in the model returning YES. This means the values of these factors are pushing the model toward predicting 'YES'.

Example	A.I. prediction	Explanation of A.I. prediction										
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature <= 46.00 The A.I. will predict YES 81.0% of the time										
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Not quite - In this case, Temperature is listed in the explanation because this input value USUALLY results in the model returning YES. Additionally, we see from the examples list on the left (examples where the model returns YES) that precipitation values like snow, sleet or hail tend to result in the model returning YES. This means the values of these factors are pushing the model toward predicting 'YES'.

Example	A.I. prediction	Explanation of A.I. prediction										
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time										
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Precipitation = None Temperature $\leq 30.00$ $8.00 < \text{Wind} \leq 17.00$												

By looking at the explanation image, which factor(s) are pushing the model toward predicting 'NO'?

- Temperature
- Wind
- Precipitation

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time
<div style="border: 1px solid #ccc; padding: 5px;"><p>▼ Examples where the A.I. agent predicts YES</p><p>Precipitation = rain Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></p><p>Precipitation = sleet <math>30.00 &lt; \text{Temperature} \leq 46.00</math> Wind <math>&gt; 35.00</math></p><p>Precipitation = rain <math>30.00 &lt; \text{Temperature} \leq 46.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></p><p>Precipitation = None Temperature <math>\leq 30.00</math> <math>17.00 &lt; \text{Wind} \leq 35.00</math></p><p>Precipitation = drizzle Temperature <math>\leq 30.00</math> Wind <math>&gt; 35.00</math></p></div>		<div style="border: 1px solid #ccc; padding: 5px;"><p>▼ Examples where the A.I. agent DOES NOT predict YES</p><p>Precipitation = None <math>30.00 &lt; \text{Temperature} \leq 46.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></p><p>Precipitation = None Temperature <math>\leq 30.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></p><p>Precipitation = None <math>30.00 &lt; \text{Temperature} \leq 46.00</math> Wind <math>\leq 8.00</math></p><p>Precipitation = None Temperature <math>\leq 30.00</math> Wind <math>\leq 8.00</math></p><p>Precipitation = None Temperature <math>\leq 30.00</math> <math>8.00 &lt; \text{Wind} \leq 17.00</math></p></div>

Correct – In this case, we see from the examples list on the left (examples where the model returns YES) that higher wind speed values tend to result in the model returning YES. On the right, we see that lower wind speed tend to result in the model returning NO. This means our current (lower) wind speed value of 10.00 is pushing the model toward returning NO.

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Not quite – In this case, we see from the examples list on the left (examples where the model returns YES) that higher wind speed values tend to result in the model returning YES. On the right, we see that lower wind speed tend to result in the model returning NO. This means our current (lower) wind speed value of 10.00 is pushing the model toward returning NO.

Example	A.I. prediction	Explanation of A.I. prediction															
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time															
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## Which factor has the greatest predictive power?

- Temperature
- Wind
- Precipitation

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	A.I. prediction YES	If ALL of these are true:  Temperature <= 46.00 The A.I. will predict YES <b>81.0%</b> of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            Temperature &lt;= 30.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = sleet            30.00 &lt; Temperature &lt;= 46.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            30.00 &lt; Temperature &lt;= 46.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            17.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = drizzle            Temperature &lt;= 30.00            Wind &gt; 35.00         </div> </div> <div style="width: 45%;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            30.00 &lt; Temperature &lt;= 46.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            8.00 &lt; Wind &lt;= 17.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            30.00 &lt; Temperature &lt;= 46.00            Wind &lt;= 8.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            Wind &lt;= 8.00         </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &lt;= 30.00            8.00 &lt; Wind &lt;= 17.00         </div> </div> </div>		<p>▼ Examples where the A.I. agent DOES NOT predict YES</p>

Correct – In this case, Temperature is the first (and only) factor

in the Explanation box list. So it has the highest predictive power.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = hail Temperature = 23.00 Wind = 10.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Temperature $\leq 46.00$ The A.I. will predict YES 81.0% of the time
<b>▼ Examples where the A.I. agent predicts YES</b>		
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Precipitation = rain Temperature $\leq 30.00$ Wind $> 35.00$		Precipitation = None 30.00 $<$ Temperature $\leq 46.00$ 8.00 $<$ Wind $\leq 17.00$
Precipitation = sleet 30.00 $<$ Temperature $\leq 46.00$ Wind $> 35.00$		Precipitation = None Temperature $\leq 30.00$ 8.00 $<$ Wind $\leq 17.00$
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Precipitation = drizzle Temperature $\leq 30.00$ Wind $> 35.00$		Precipitation = None Temperature $\leq 30.00$ 8.00 $<$ Wind $\leq 17.00$

Not quite – In this case, Temperature is the first (and only) factor in the Explanation box list. So it has the highest predictive power.

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## Intro Test 4

As a final review, what does the following model recommend you do?

- YES, you should wear a coat
- NO, do not wear a coat

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time
<b>▼ Examples where the A.I. agent predicts YES</b>		
<p>Precipitation = drizzle 29.50 &lt; Temperature &lt;= 53.00 16.00 &lt; Wind &lt;= 35.00</p>		
<p>Precipitation = sleet 29.50 &lt; Temperature &lt;= 53.00 Wind &gt; 35.00</p>		
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<p>Precipitation = rain 46.00 &lt; Temperature &lt;= 63.00 17.00 &lt; Wind &lt;= 35.00</p>		
<b>▼ Examples where the A.I. agent DOES NOT predict YES</b>		
<p>Precipitation = drizzle Temperature &gt; 68.00 16.00 &lt; Wind &lt;= 35.00</p>		
<p>Precipitation = None Temperature &gt; 68.00 16.00 &lt; Wind &lt;= 35.00</p>		
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Correct. In this case, the model A.I. prediction box shows that the model returns YES.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true: ✓ Wind > 16.00 The A.I. will predict YES 89.1% of the time
▼ Examples where the A.I. agent predicts YES		▼ Examples where the A.I. agent DOES NOT predict YES
<div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>		<div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>

Incorrect. In this case, the model A.I. prediction box shows that the model returns YES.

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Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time																														
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By looking at the explanation image, please select the value for **temperature** input into the model:

- 84
- 70
- 61
- 56
- 37

Example	A.I. prediction	Explanation of A.I. prediction					
Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict <b>YES</b> 89.1% of the time					
<b>▼ Examples where the A.I. agent predicts YES</b>		<b>▼ Examples where the A.I. agent DOES NOT predict YES</b>					
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Correct – the value is printed in the Example box in the upper right next to the word **Temperature**. This value is **70**.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true: ✓ Wind > 16.00 The A.I. will predict YES 89.1% of the time
▼ Examples where the A.I. agent predicts YES		▼ Examples where the A.I. agent DOES NOT predict YES
<div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>		<div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>

Incorrect – the value is printed in the Example box in the upper right next to the word Temperature. This value is 70.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES <b>89.1%</b> of the time
<b>▼ Examples where the A.I. agent predicts YES</b>		<b>▼ Examples where the A.I. agent DOES NOT predict YES</b>
<div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00  <b>17.00 &lt; Wind &lt;= 35.00</b> </div>		<div style="border: 1px solid black; padding: 5px;">           Precipitation = drizzle            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid black; padding: 5px;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00  <b>17.00 &lt; Wind &lt;= 35.00</b> </div>

By looking at the explanation image, which factor(s) are pushing the model toward predicting 'NO?

- Temperature
- Wind
- Precipitation

Example	A.I. prediction	Explanation of A.I. prediction															
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time															
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Correct – In this case, we see from the examples list on the left (examples where the model returns YES) that precipitation values of 'drizzle', 'rain' or 'hail' tend to result in the model returning 'YES'. Likewise, lower temperature values tend to result in the model returning 'YES'. However, precipitation values of 'none' and higher temperature values tend to result in the model returning 'NO'. Therefore, these two factors push the model toward returning 'NO'. Wind is in the explanation list as a value which results in the model returning 'YES'. So this factor pushes the

model toward returning 'YES'.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <ul style="list-style-type: none"> <li>Precipitation = drizzle 29.50 &lt; Temperature &lt;= 53.00 16.00 &lt; Wind &lt;= 35.00</li> <li>Precipitation = sleet 29.50 &lt; Temperature &lt;= 53.00 Wind &gt; 35.00</li> <li>Precipitation = rain 29.50 &lt; Temperature &lt;= 53.00 Wind &gt; 35.00</li> <li>Precipitation = drizzle 29.50 &lt; Temperature &lt;= 53.00 Wind &gt; 35.00</li> <li>Precipitation = rain 46.00 &lt; Temperature &lt;= 63.00 17.00 &lt; Wind &lt;= 35.00</li> </ul>		
<p>▼ Examples where the A.I. agent DOES NOT predict YES</p> <ul style="list-style-type: none"> <li>Precipitation = drizzle Temperature &gt; 68.00 16.00 &lt; Wind &lt;= 35.00</li> <li>Precipitation = None Temperature &gt; 68.00 16.00 &lt; Wind &lt;= 35.00</li> <li>Precipitation = None 53.00 &lt; Temperature &lt;= 68.00 16.00 &lt; Wind &lt;= 35.00</li> <li>Precipitation = None Temperature &gt; 68.00 16.00 &lt; Wind &lt;= 35.00</li> <li>Precipitation = None 46.00 &lt; Temperature &lt;= 63.00 17.00 &lt; Wind &lt;= 35.00</li> </ul>		

Not quite – In this case, we see from the examples list on the left (examples where the model returns YES) that precipitation values of 'drizzle', 'rain' or 'hail' tend to result in the model returning 'YES'. Likewise, lower temperature values tend to result in the model returning 'YES'. However, precipitation values of 'none' and

higher temperature values tend to result in the model returning 'NO'. Therefore, these two factors push the model toward returning 'NO'. Wind is in the explanation list as a value which results in the model returning 'YES'. So this factor pushes the model toward returning 'YES'.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time
<b>▼ Examples where the A.I. agent predicts YES</b>		
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Precipitation = drizzle 29.50 < Temperature <= 53.00 16.00 < Wind <= 35.00	Precipitation = drizzle Temperature > 68.00 16.00 < Wind <= 35.00	Precipitation = None Temperature > 68.00 16.00 < Wind <= 35.00
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Precipitation = rain 29.50 < Temperature <= 53.00 Wind > 35.00	Precipitation = None Temperature > 68.00 16.00 < Wind <= 35.00	Precipitation = None Temperature > 68.00 16.00 < Wind <= 35.00
Precipitation = drizzle 29.50 < Temperature <= 53.00 Wind > 35.00	Precipitation = None Temperature > 68.00 16.00 < Wind <= 35.00	Precipitation = None 46.00 < Temperature <= 63.00 17.00 < Wind <= 35.00
Precipitation = rain 46.00 < Temperature <= 63.00 17.00 < Wind <= 35.00		

Which factor has the greatest predictive power?

- Temperature
- Wind
- Precipitation

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true:  Wind > 16.00 The A.I. will predict <b>89.1%</b> of the time
<b>▼ Examples where the A.I. agent predicts YES</b> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00             16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00             Wind &gt; 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00             Wind &gt; 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00             Wind &gt; 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00             17.00 &lt; Wind &lt;= 35.00         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = drizzle            Temperature &gt; 68.00             16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = None            Temperature &gt; 68.00             16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00             16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = None            Temperature &gt; 68.00             16.00 &lt; Wind &lt;= 35.00         </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00             17.00 &lt; Wind &lt;= 35.00         </div> </div> </div> </div>		

Correct – In this case, Wind is the first (and only) factor in the Explanation box, so this is the factor with the greatest predictive power.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	<input checked="" type="radio"/> YES	If ALL of these are true: <input checked="" type="checkbox"/> Wind > 16.00 The A.I. will predict YES 89.1% of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00  <b>Wind &gt; 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00  <b>17.00 &lt; Wind &lt;= 35.00</b> </div> </div> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = drizzle            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = None            Temperature &gt; 68.00  <b>16.00 &lt; Wind &lt;= 35.00</b> </div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00  <b>17.00 &lt; Wind &lt;= 35.00</b> </div> </div> </div>	<p>▼ Examples where the A.I. agent DOES NOT predict YES</p>	

Not quite – In this case, Wind is the first (and only) factor in the Explanation box, so this is the factor with the greatest predictive power.

Example	A.I. prediction	Explanation of A.I. prediction
Precipitation = None Temperature = 70.00 Wind = 30.00	YES	If ALL of these are true: ✓ Wind > 16.00 The A.I. will predict YES 89.1% of the time
▼ Examples where the A.I. agent predicts YES		▼ Examples where the A.I. agent DOES NOT predict YES
<div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = sleet            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = rain            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            29.50 &lt; Temperature &lt;= 53.00            Wind &gt; 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = rain            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>		<div style="background-color: #f0e68c; padding: 5px;">           Precipitation = drizzle            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            53.00 &lt; Temperature &lt;= 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            Temperature &gt; 68.00            16.00 &lt; Wind &lt;= 35.00         </div> <div style="background-color: #f0e68c; padding: 5px;">           Precipitation = None            46.00 &lt; Temperature &lt;= 63.00            17.00 &lt; Wind &lt;= 35.00         </div>

## Intro Main

We have another machine learning model that makes predictions to approve or deny a loan based on a set of factors related to the loan applicant.

The model is trained to predict a person's likely income using real data from 26,000 people, and uses this prediction to decide whether a person is likely to be able to pay back a loan. If the person is likely, the model outputs 'YES', they should be given a

loan. If the person is not likely, the model outputs 'NO', they should not be given a loan.

The model generates a prediction based on each set of input values. If the predicted value is greater than or equal to 0.5, then the model will approve the loan. If the predicted value is less than 0.5, the model will deny the loan.

Six people applied to the loan. We input their corresponding values for each factor into the model.

We will show you six predictions the models generated for each of the six loan applicants.

Keep in mind that all six predictions were made by the **same** model.

## Woman 1

Below you will find the information of Applicant X.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five

factors. The explanation is below.

Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction										
<p>Age = 37.0            Education = Vocational            Occupation = Craft Repair            Sex = Female            Hours worked per week = 40.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Sex = Female</p> <p>The A.I. will predict <b>NO</b> 95.6% of the time</p>										
<p>▼ Examples where the A.I. agent predicts NO</p> <table border="1"> <tr> <td>           Age &lt;= 28.00            Education = 9th            Occupation = Machine Op. Inspector  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Doctorate            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Some College            Occupation = Craft Repair  <b>Sex = Female</b>            40.00 &lt; Hours worked per week &lt;= 45.00         </td> <td>           Age &gt; 48.00            Education = Prof. School            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> <tr> <td>           Age &lt;= 28.00            Education = Some College            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           28.00 &lt; Age &lt;= 37.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Protective Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Masters            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Craft Repair  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           28.00 &lt; Age &lt;= 37.00            Education = Doctorate            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> </table>			Age <= 28.00 Education = 9th Occupation = Machine Op. Inspector <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week <= 40.00	28.00 < Age <= 37.00 Education = Some College Occupation = Craft Repair <b>Sex = Female</b> 40.00 < Hours worked per week <= 45.00	Age > 48.00 Education = Prof. School Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week <= 40.00	Age <= 28.00 Education = Some College Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	28.00 < Age <= 37.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	28.00 < Age <= 37.00 Education = Vocational Occupation = Protective Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Masters Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00	28.00 < Age <= 37.00 Education = Vocational Occupation = Craft Repair <b>Sex = Female</b> Hours worked per week <= 40.00	28.00 < Age <= 37.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00
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Will this model approve the loan for this person?

YES

NO

What feature was had the most predictive power for this decision?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation

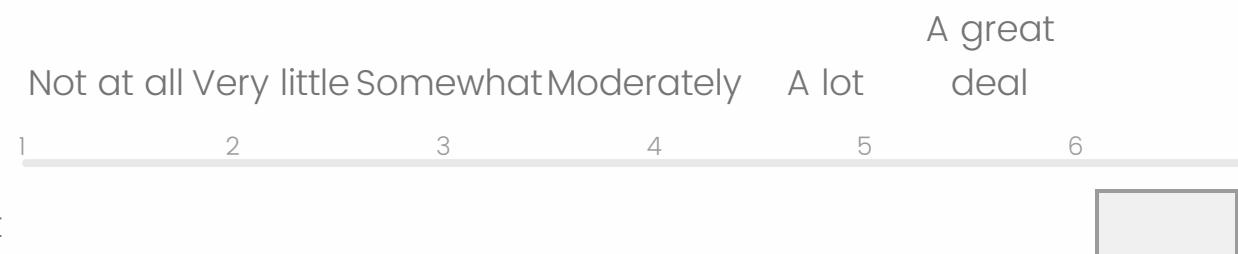
Which factor(s) are pushing the model toward predicting 'NO'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

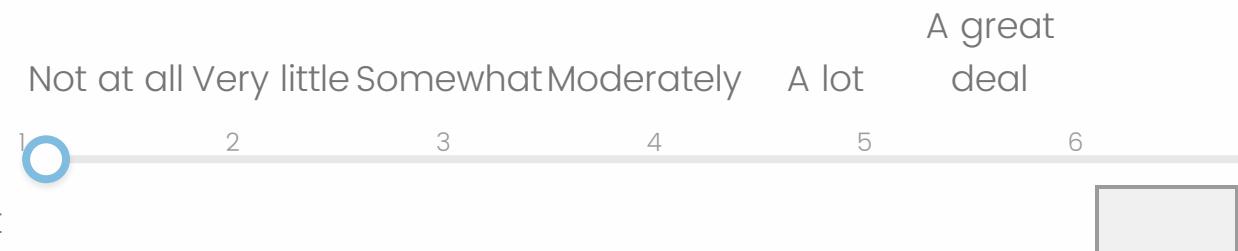
Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to the person described in this question.

This model would probably give me a loan because I am different from the person described in this question.

This model would probably give me a loan because of previous decisions it has made.

This model probably would not give me a loan, and this would be the correct decision.

Example	A.I. prediction	Explanation of A.I. prediction
Age = 37.0 Education = Vocational Occupation = Craft Repair Sex = Female Hours worked per week = 40.00	 NO	If ALL of these are true: ✓ Sex = Female The A.I. will predict  NO 95.6% of the time
<p>▼ Examples where the A.I. agent predicts NO</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           Age &lt;= 28.00            Education = 9th            Occupation = Machine Op. Inspector  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           28.00 &lt; Age &lt;= 37.00            Education = Some College            Occupation = Craft Repair  <b>Sex = Female</b>            40.00 &lt; Hours worked per week &lt;= 45.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           Age &lt;= 28.00            Education = Some College            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Protective Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Craft Repair  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           37.00 &lt; Age &lt;= 48.00            Education = Doctorate            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           Age &gt; 48.00            Education = Prof. School            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           28.00 &lt; Age &lt;= 37.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           37.00 &lt; Age &lt;= 48.00            Education = Masters            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">           28.00 &lt; Age &lt;= 37.00            Education = Doctorate            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </div> </div> </div> </div>		

When answering the previous questions about the given explanation, which design aspects of the visualization did you find **most** useful?

When answering the previous questions about the given explanation, which design aspects of the visualizations did you find **least** useful?

## Woman 2

Below you will find the information of Applicant R.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five factors. The explanation is below.

Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will

# return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction																					
<p>Age = 27.00            Education = Some College            Occupation = Tech Support            Sex = Female            Hours worked per week = 38.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Age &lt;= 28.00</p> <p>The A.I. will predict <b>NO</b> 97.5% of the time</p>																					
<p>▼ Examples where the A.I. agent predicts NO</p>		<p>▼ Examples where the A.I. agent DOES NOT predict NO</p>																					
<table border="1"> <tr><td>Age &lt;= 28.00</td></tr> <tr><td>Education = Vocational</td></tr> <tr><td>Occupation = Sales</td></tr> <tr><td>Sex = Female</td></tr> <tr><td>Hours worked per week &lt;= 40.00</td></tr> </table>	Age <= 28.00	Education = Vocational	Occupation = Sales	Sex = Female	Hours worked per week <= 40.00	<table border="1"> <tr><td>Age &lt;= 28.00</td></tr> <tr><td>Education = Bachelors</td></tr> <tr><td>Occupation = Exec. Managerial</td></tr> <tr><td>Sex = Male</td></tr> <tr><td>Hours worked per week &gt; 45.00</td></tr> </table>	Age <= 28.00	Education = Bachelors	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00	<table border="1"> <tr><td>Age &lt;= 28.00</td></tr> <tr><td>Education = Bachelor</td></tr> <tr><td>Occupation = Exec. Managerial</td></tr> <tr><td>Sex = Male</td></tr> <tr><td>Hours worked per week &gt; 45.00</td></tr> </table>	Age <= 28.00	Education = Bachelor	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00						
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Will this model approve the loan for this person?

- YES
- NO

Which feature was had the most predictive power for this decision?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation

Which factor(s) are pushing the model toward predicting 'NO'?

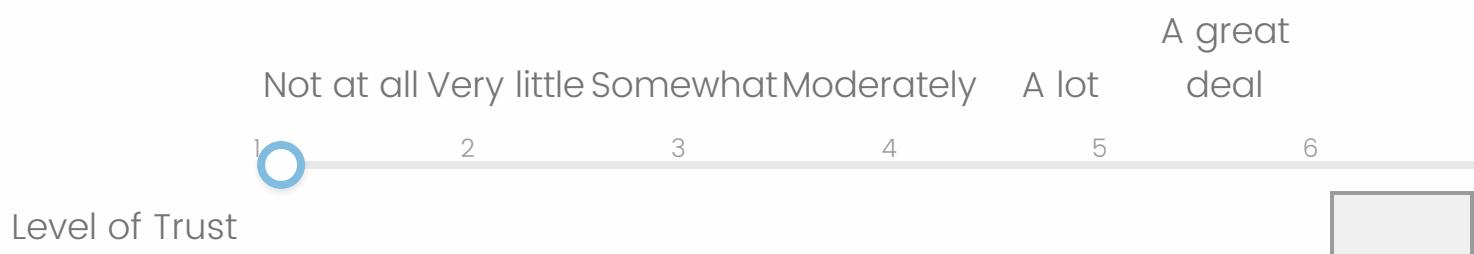
- Education
- Hours Worked Per Week
- Age
- Sex

- Occupation
- None of these

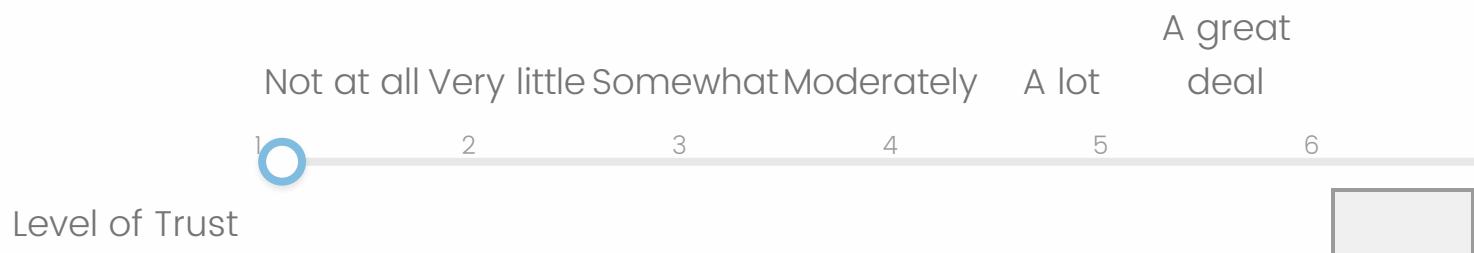
Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general?**



Please indicate whether you agree with the below statements.

- Agree
- This model uses all of the features that it should use when making this decision.
- This model does not use any unnecessary features when making this decision.
- I trust the data this model was trained on.
- Computer models can be trusted to make human decisions.
- This model is accurate.
- This model is fair.
- This model would probably give me a loan because I am similar to the person described in this question.
- This model would probably give me a loan because I am different from the person described in this question.
- This model would probably give me a loan because of previous decisions it has made.
- This model probably would not give me a loan, and this would be the correct decision.

## Woman 3

Below you will find the information of Applicant S.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five factors. The explanation is below.

Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction
<p>Age = 51.00 Education = Doctorate Occupation = Exec. Managerial Sex = Female Hours worked per week = 45.00</p>	<input checked="" type="radio"/> YES	<p>If ALL of these are true:</p> <div style="background-color: #e0f2e0; padding: 5px; display: inline-block;"> <input checked="" type="checkbox"/> Education = Doctorate    <input checked="" type="checkbox"/> Age &gt; 48.00    <input checked="" type="checkbox"/> Hours worked per week &gt; 40.00         </div> <p>The A.I. will predict <b>YES</b> 97.8% of the time</p>
<p>▼ Examples where the A.I. agent predicts YES</p>		<p>▼ Examples where the A.I. agent DOES NOT predict YES</p>
<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Exec. Managerial            Sex = Male            Hours worked per week &gt; 45.00         </div>		<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Sales            Sex = Female            Hours worked per week &gt; 45.00         </div>
<hr/>		
<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Sales            Sex = Male            Hours worked per week &gt; 45.00         </div>		<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Farming/Fishing            Sex = Female            Hours worked per week &gt; 45.00         </div>
<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Sales            Sex = Male            40.00 &lt; Hours worked per week &lt;= 45.00         </div>		<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Other Service            Sex = Female            Hours worked per week &gt; 45.00         </div>
<hr/>		
<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Prof. Specialty            Sex = Male            Hours worked per week &gt; 45.00         </div>		<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Prof. Specialty            Sex = Female            40.00 &lt; Hours worked per week &lt;= 45.00         </div>
<hr/>		
<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Exec. Managerial            Sex = Female            40.00 &lt; Hours worked per week &lt;= 45.00         </div>		<div style="background-color: #ffccbc; padding: 5px; display: inline-block;">           Age &gt; 48.00            Education = Doctorate            Occupation = Other Service            Sex = Female            40.00 &lt; Hours worked per week &lt;= 45.00         </div>

Will this model approve the loan for this person?

YES

NO

Which feature had the most predictive power for this decision?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation

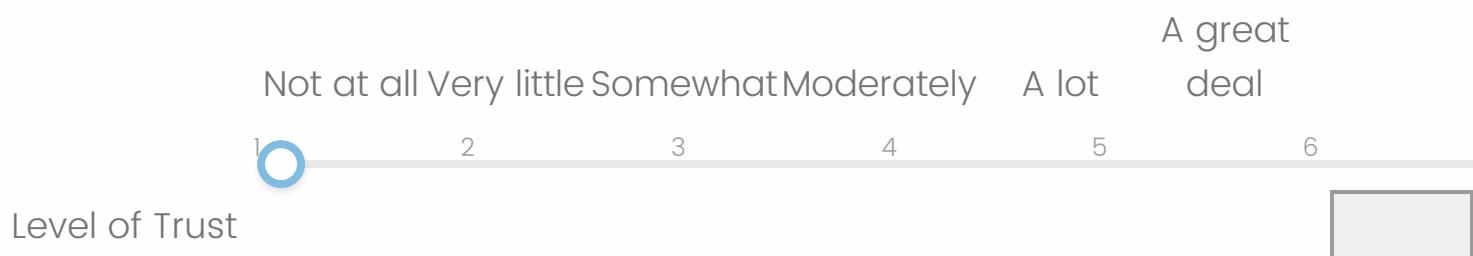
Which factor(s) are pushing the model toward predicting 'NO'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

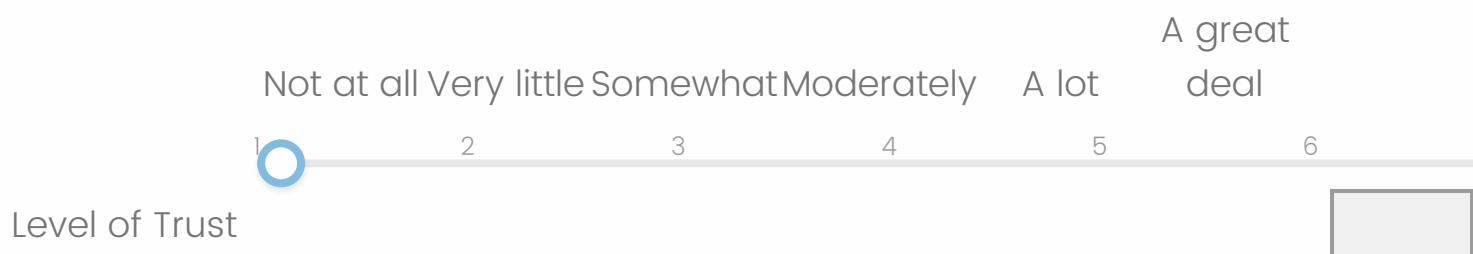
Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to the person described in this question.

This model would probably give me a loan because I am different from the person described in this question.

This model would probably give me a loan because of previous decisions it has made.

This model probably would not give me a loan, and this would be the correct decision.

## Man 1

Below you will find the information of Applicant N.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five factors. The explanation is below.

Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction																																																					
<p>Age = 25.00            Education = HS grad            Occupation = Protective Service            Sex = Male            Hours worked per week = 35.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Age &lt;= 28.00</p> <p>The A.I. will predict <b>NO</b> 97.7% of the time</p>																																																					
<p>▼ Examples where the A.I. agent predicts NO</p> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = 12th</td> </tr> <tr> <td>Occupation = Exec. Managerial</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = 9th</td> </tr> <tr> <td>Occupation = Other Service</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &lt;= 40.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = 7th-8th</td> </tr> <tr> <td>Occupation = Machine Op. Inspector</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = 5th-6th</td> </tr> <tr> <td>Occupation = Other Service</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &lt;= 40.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = 11th</td> </tr> <tr> <td>Occupation = None</td> </tr> <tr> <td>Sex = Female</td> </tr> <tr> <td>Hours worked per week &lt;= 40.00</td> </tr> </table> <p>▼ Examples where the A.I. agent DOES NOT predict NO</p> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = Bachelors</td> </tr> <tr> <td>Occupation = Exec. Managerial</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = Prof. School</td> </tr> <tr> <td>Occupation = Prof. Specialty</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = Bachelors</td> </tr> <tr> <td>Occupation = Exec. Managerial</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table> <table border="1"> <tr> <td><b>Age &lt;= 28.00</b></td> </tr> <tr> <td>Education = Bachelors</td> </tr> <tr> <td>Occupation = Exec. Managerial</td> </tr> <tr> <td>Sex = Male</td> </tr> <tr> <td>Hours worked per week &gt; 45.00</td> </tr> <tr> <td>^</td> </tr> </table>			<b>Age &lt;= 28.00</b>	Education = 12th	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00	^	<b>Age &lt;= 28.00</b>	Education = 9th	Occupation = Other Service	Sex = Male	Hours worked per week <= 40.00	^	<b>Age &lt;= 28.00</b>	Education = 7th-8th	Occupation = Machine Op. Inspector	Sex = Male	Hours worked per week > 45.00	^	<b>Age &lt;= 28.00</b>	Education = 5th-6th	Occupation = Other Service	Sex = Male	Hours worked per week <= 40.00	^	<b>Age &lt;= 28.00</b>	Education = 11th	Occupation = None	Sex = Female	Hours worked per week <= 40.00	<b>Age &lt;= 28.00</b>	Education = Bachelors	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00	^	<b>Age &lt;= 28.00</b>	Education = Prof. School	Occupation = Prof. Specialty	Sex = Male	Hours worked per week > 45.00	^	<b>Age &lt;= 28.00</b>	Education = Bachelors	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00	^	<b>Age &lt;= 28.00</b>	Education = Bachelors	Occupation = Exec. Managerial	Sex = Male	Hours worked per week > 45.00	^
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Example	A.I. prediction	Explanation of A.I. prediction																																																										
<p>Age = 25.00            Education = HS grad            Occupation = Protective Service            Sex = Male            Hours worked per week = 35.00</p>	<p>NO</p>	<p>If ALL of these are true: ✓ Age &lt;= 28.00            The A.I. will predict NO 97.7% of the time</p>																																																										
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Will this model approve the loan for this person?

YES NO

Which feature had the most predictive power for this decision?

 Education Hours Worked Per Week Age Sex Occupation

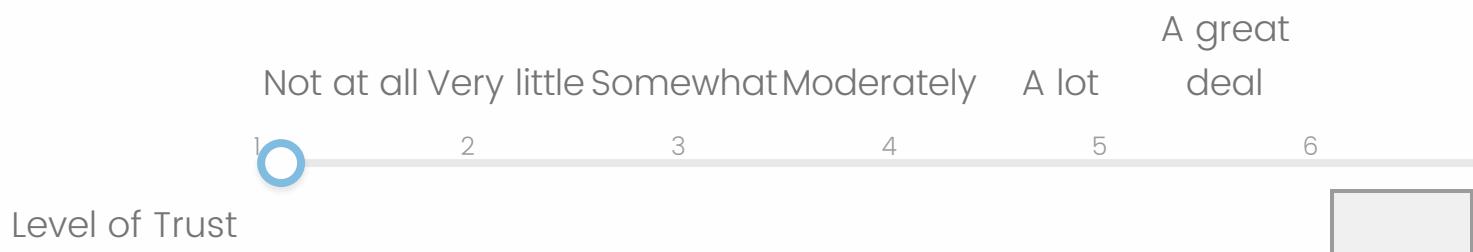
Which factor(s) are pushing the model toward predicting 'NO'?

 Education Hours Worked Per Week Age Sex Occupation None of these

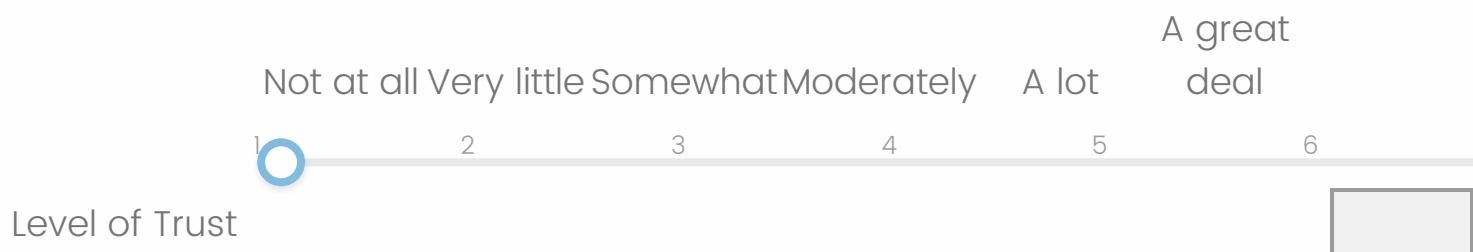
Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to the person described in this question.

This model would probably give me a loan because I am different from the person described in this question.

This model would probably give me a loan because of previous decisions it has made.

This model probably would not give me a loan, and this would be the correct decision.

## Man 2

Below you will find the information of Applicant P.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five factors.

The explanation is below. Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction
<p>Age = 38.00            Education = Bachelors            Occupation = Sales            Sex = Male            Hours worked per week = 50.00</p>	YES	<p>If ALL of these are true:</p> <ul style="list-style-type: none"> <li>✓ Education = Bachelors</li> <li>✓ Hours worked per week &gt; 40.00</li> <li>✓ Sex = Male</li> <li>✓ Age &gt; 37.00</li> </ul> <p>The A.I. will predict YES 93.6% of the time</p>
<p>▼ Examples where the A.I. agent predicts YES</p>		<p>▼ Examples where the A.I. agent DOES NOT predict YES</p>
<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Farming/Fishing            Sex = Male            Hours worked per week &gt; 45.00</p>		<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Farming/Fishing            Sex = Male            40.00 &lt; Hours worked per week &lt;= 45.00</p>
<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Sales            Sex = Male            Hours worked per week &gt; 45.00</p>		<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Other Service            Sex = Male            Hours worked per week &gt; 45.00</p>
<p>Age &gt; 48.00            Education = Bachelors            Occupation = Sales            Sex = Male            Hours worked per week &gt; 45.00</p>		<p>Age &gt; 48.00            Education = Bachelors            Occupation = Other Service            Sex = Male            40.00 &lt; Hours worked per week &lt;= 45.00</p>
<p>Age &gt; 48.00            Education = Bachelors            Occupation = Craft Repair            Sex = Male            Hours worked per week &gt; 45.00</p>		<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Handler/Cleaner            Sex = Male            40.00 &lt; Hours worked per week &lt;= 45.00</p>
<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Farming/Fishing            Sex = Male            Hours worked per week &gt; 45.00</p>		<p>37.00 &lt; Age &lt;= 48.00            Education = Bachelors            Occupation = Farming/Fishing            Sex = Male            40.00 &lt; Hours worked per week &lt;= 45.00</p>

Will this model approve the loan for this person?

YES

NO

Which feature had the most predictive power for this decision?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation

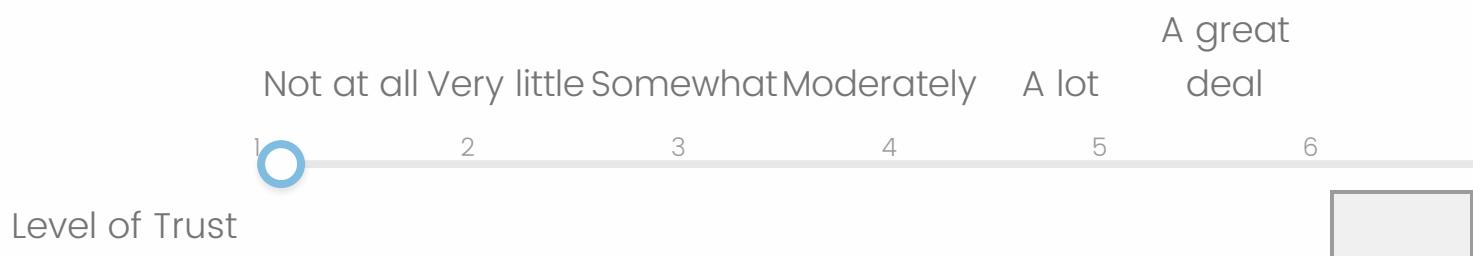
Which factor(s) are pushing the model toward predicting 'NO'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

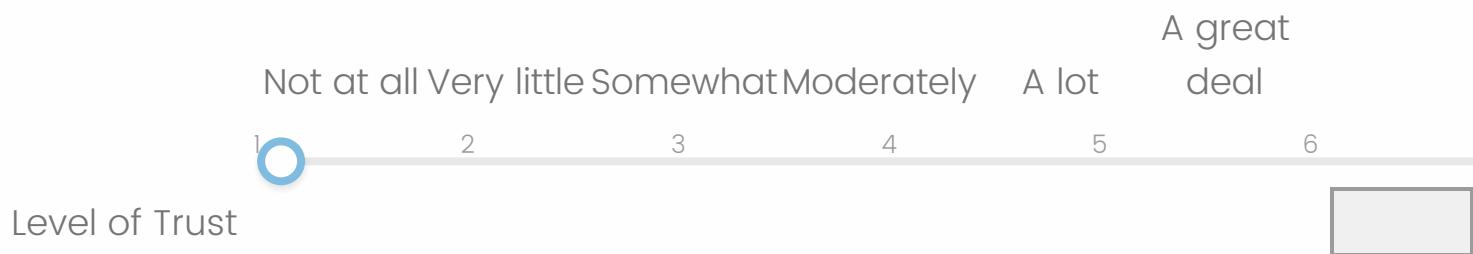
Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to the person described in this question.

This model would probably give me a loan because I am different from the person described in this question.

This model would probably give me a loan because of previous decisions it has made.

This model probably would not give me a loan, and this would be the correct decision.

## Man 3

Below you will find the information of Applicant K.

You can see that the model made a prediction of whether to approve or deny a loan from this applicant based on five factors. The explanation is below.

Look at the explanation, and answer the questions that follow.

Remember that if the model's prediction probability (predicted value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Example	A.I. prediction	Explanation of A.I. prediction
<p>Age = 36.0 Education = 10th Occupation = Transport/Moving Sex = Male Hours worked per week = 48.00</p>	NO	<p>If ALL of these are true: ✓ Education = 10th</p> <p>The A.I. will predict NO 100.0% of the time</p>
<p>Examples where the A.I. agent predicts NO</p>		
<p>28.00 &lt; Age &lt;= 37.00 Education = 10th Occupation = None Sex = Female Hours worked per week &gt; 45.00</p>		
<p>28.00 &lt; Age &lt;= 37.00 Education = 10th Occupation = Exec. Managerial Sex = Female Hours worked per week &lt;= 40.00</p>		
<p>Age &lt;= 28.00 Education = 10th Occupation = None Sex = Male Hours worked per week &lt;= 40.00</p>		
<p>Age &lt;= 28.00 Education = 10th Occupation = Handler/Cleaner Sex = Male Hours worked per week &lt;= 40.00</p>		
<p>Age &gt; 48.00 Education = 10th Occupation = Admin. Clerical Sex = Female Hours worked per week &lt;= 40.00</p>		
<p>Could not find any Examples</p>		
<p>Examples where the A.I. agent DOES NOT predict NO</p>		

Will this model approve the loan for this person?

YES

NO

What feature had the most predictive power for this decision?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation

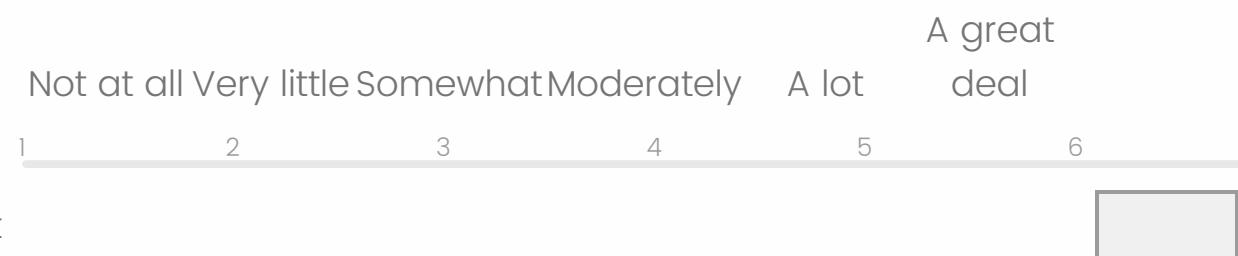
Which factor(s) are pushing the model toward predicting 'NO'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

Which factor(s) are pushing the model toward predicting 'YES'?

- Education
- Hours Worked Per Week
- Age
- Sex
- Occupation
- None of these

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to the person described in this question.

This model would probably give me a loan because I am different from the person described in this question.

This model would probably give me a loan because of previous decisions it has made.

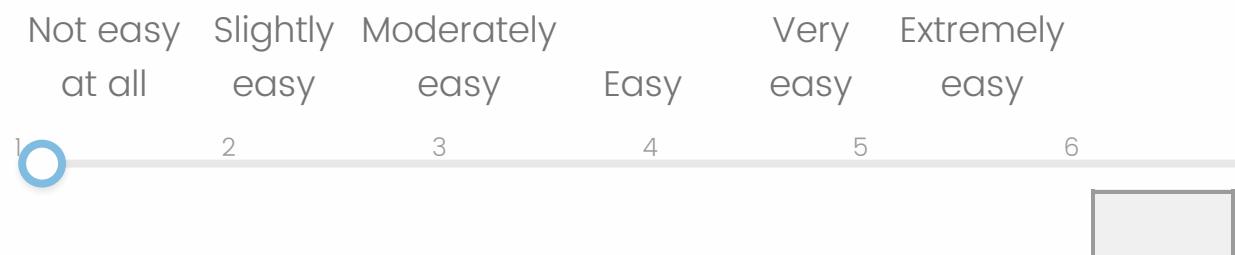
This model probably would not give me a loan, and this would be the correct decision.

## Perception of understanding

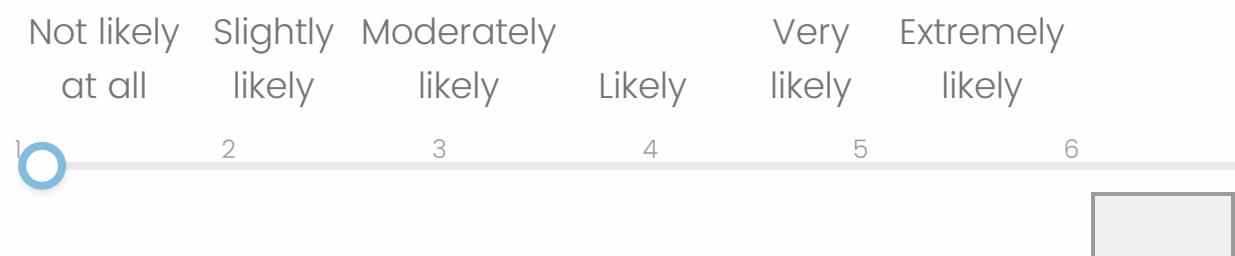
How well did you understand the way this model makes decisions?



How easy was it for you to understand the model output?



How likely would you use this visualization to explain models to other people?



## Fairness

Below are two explanations for predictions made by the same loan approval machine learning model you have been seeing, for two people with almost identical features.

Remember that if the model's prediction probability (Predicted Value) for 'YES' is greater than or equal to 0.5, the model will return 'YES' (approve the loan). If it is less than 0.5, the model will return 'NO' (deny the loan).

Person A

Example	A.I. prediction	Explanation of A.I. prediction										
<p>Age = 52.00            Education = Masters            Occupation = Prof. Specialty            Sex = Female            Hours worked per week = 60.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Sex = Female</p> <p>The A.I. will predict <b>NO</b> 97.3% of the time</p>										
<p>▼ Examples where the A.I. agent predicts NO</p> <table border="1"> <tr> <td>           Age &gt; 48.00            Education = HS grad            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Doctorate            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           Age &lt;= 28.00            Education = Vocational            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           Age &gt; 48.00            Education = Doctorate            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = 10th            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> <td>           Age &gt; 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = Vocational            Occupation = Tech Support  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> </table>			Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00	Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00
Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00											
Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
<p>▼ Examples where the A.I. agent DOES NOT predict NO</p>												

Example	A.I. prediction	Explanation of A.I. prediction
<p>Age = 52.00 Education = Masters Occupation = Prof. Specialty Sex = Male Hours worked per week = 60.00</p>	<input checked="" type="radio"/> YES	<p>If ALL of these are true:</p> <ul style="list-style-type: none"> <li>✓ Education = Masters</li> <li>✓ Hours worked per week &gt; 45.00</li> <li>✓ Age &gt; 28.00</li> <li>✓ Sex = Male</li> </ul> <p>The A.I. will predict YES 98.2% of the time</p>
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Prof. Specialty Sex = Male Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Other Service Sex = Male Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Sales Sex = Male Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Handler/Cleaner Sex = Male Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>37.00 &lt; Age &lt;= 48.00 Education = Masters Occupation = Exec. Managerial Sex = Male Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Other Service Sex = Male Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>37.00 &lt; Age &lt;= 48.00 Education = Masters Occupation = Craft Repair Sex = Male Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Farming/Fishing Sex = Male Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>Age &gt; 48.00 Education = Masters Occupation = Transport/Moving Sex = Male Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00 Education = Masters Occupation = Other Service Sex = Male Hours worked per week &gt; 45.00</p> </div> </div>		

Will this model approve the loan for **Person A**?

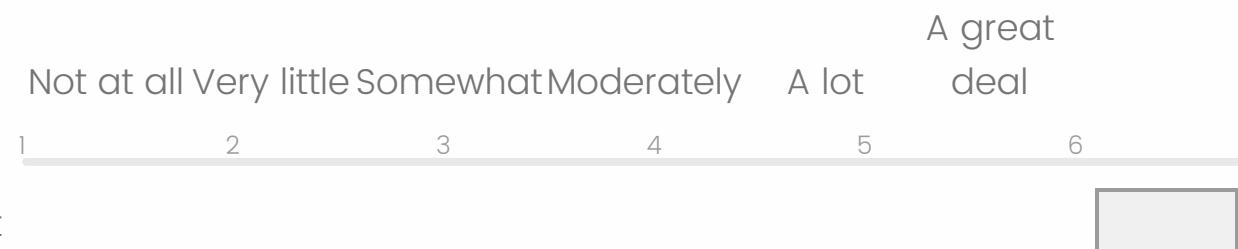
YES

NO

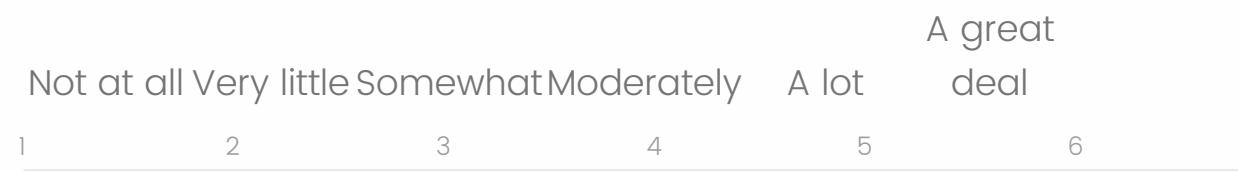
Will this model approve the loan for **Person B**?

 YES NO

On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **you**?



On a scale from 1 to 6, how much do you trust the model to approve or deny a loan for **other people in general**?



## Level of Trust



Please indicate whether you agree with the below statements.

Agree

This model uses all of the features that it should use when making this decision.

This model does not use any unnecessary features when making this decision.

I trust the data this model was trained on.

Computer models can be trusted to make human decisions.

This model is accurate.

This model is fair.

This model would probably give me a loan because I am similar to a person described in this question.

This model would probably give me a loan because I am different from a person described in this question.

This model would probably give me a loan because of previous decisions it has made.

This model probably would not give me a loan, and this would be the correct decision.

## Fairness General

Person A

Example	A.I. prediction	Explanation of A.I. prediction										
<p>Age = 52.00            Education = Masters            Occupation = Prof. Specialty            Sex = Female            Hours worked per week = 60.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Sex = Female</p> <p>The A.I. will predict <b>NO</b> 97.3% of the time</p>										
<p>▼ Examples where the A.I. agent predicts NO</p> <table border="1"> <tr> <td>           Age &gt; 48.00            Education = HS grad            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Doctorate            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           Age &lt;= 28.00            Education = Vocational            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           Age &gt; 48.00            Education = Doctorate            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = 10th            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> <td>           Age &gt; 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = Vocational            Occupation = Tech Support  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> </table>			Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00	Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00
Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00											
Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
<p>▼ Examples where the A.I. agent DOES NOT predict NO</p>												

## Person B

Example	A.I. prediction	Explanation of A.I. prediction
<p>Age = 52.00        Education = Masters        Occupation = Prof. Specialty        Sex = Male        Hours worked per week = 60.00</p>	YES	<p>If ALL of these are true:</p> <ul style="list-style-type: none"> <li>✓ Education = Masters</li> <li>✓ Hours worked per week &gt; 45.00</li> <li>✓ Age &gt; 28.00</li> <li>✓ Sex = Male</li> </ul> <p>The A.I. will predict YES 98.2% of the time</p>
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Prof. Specialty        Sex = Male        Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Other Service        Sex = Male        Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Sales        Sex = Male        Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Handler/Cleaner        Sex = Male        Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>37.00 &lt; Age &lt;= 48.00        Education = Masters        Occupation = Exec. Managerial        Sex = Male        Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Other Service        Sex = Male        Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>37.00 &lt; Age &lt;= 48.00        Education = Masters        Occupation = Craft Repair        Sex = Male        Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Farming/Fishing        Sex = Male        Hours worked per week &gt; 45.00</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="width: 45%;"> <p>Age &gt; 48.00        Education = Masters        Occupation = Transport/Moving        Sex = Male        Hours worked per week &gt; 45.00</p> </div> <div style="width: 45%;"> <p>28.00 &lt; Age &lt;= 37.00        Education = Masters        Occupation = Other Service        Sex = Male        Hours worked per week &gt; 45.00</p> </div> </div>		

Do you think this model includes potentially discriminating factors?

YES NO

If yes, which ones?

- Age
- Hours Per Week
- Education
- Occupation
- Sex

Person A

Example	A.I. prediction	Explanation of A.I. prediction										
<p>Age = 52.00            Education = Masters            Occupation = Prof. Specialty            Sex = Female            Hours worked per week = 60.00</p>	<p><input checked="" type="radio"/> NO</p>	<p>If ALL of these are true: <input checked="" type="checkbox"/> Sex = Female</p> <p>The A.I. will predict <b>NO</b> 97.3% of the time</p>										
<p>▼ Examples where the A.I. agent predicts NO</p> <table border="1"> <tr> <td>           Age &gt; 48.00            Education = HS grad            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Doctorate            Occupation = Exec. Managerial  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           Age &lt;= 28.00            Education = Vocational            Occupation = Other Service  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           Age &gt; 48.00            Education = Doctorate            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = 10th            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> </tr> <tr> <td>           28.00 &lt; Age &lt;= 37.00            Education = Vocational            Occupation = Sales  <b>Sex = Female</b>            Hours worked per week &gt; 45.00         </td> <td>           Age &gt; 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> <tr> <td>           37.00 &lt; Age &lt;= 48.00            Education = Vocational            Occupation = Tech Support  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> <td>           37.00 &lt; Age &lt;= 48.00            Education = Prof. School            Occupation = Prof. Specialty  <b>Sex = Female</b>            Hours worked per week &lt;= 40.00         </td> </tr> </table>			Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00	Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00	28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00
Age > 48.00 Education = HS grad Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Doctorate Occupation = Exec. Managerial <b>Sex = Female</b> Hours worked per week > 45.00											
Age <= 28.00 Education = Vocational Occupation = Other Service <b>Sex = Female</b> Hours worked per week <= 40.00	Age > 48.00 Education = Doctorate Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
37.00 < Age <= 48.00 Education = 10th Occupation = Sales <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week > 45.00											
28.00 < Age <= 37.00 Education = Vocational Occupation = Sales <b>Sex = Female</b> Hours worked per week > 45.00	Age > 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
37.00 < Age <= 48.00 Education = Vocational Occupation = Tech Support <b>Sex = Female</b> Hours worked per week <= 40.00	37.00 < Age <= 48.00 Education = Prof. School Occupation = Prof. Specialty <b>Sex = Female</b> Hours worked per week <= 40.00											
<p>▼ Examples where the A.I. agent DOES NOT predict NO</p>												

## Person B

Example	A.I. prediction	Explanation of A.I. prediction
Age = 52.00 Education = Masters Occupation = Prof. Specialty Sex = Male Hours worked per week = 60.00	YES	If ALL of these are true: ✓ Education = Masters    ✓ Hours worked per week > 45.00    ✓ Age > 28.00 ✓ Sex = Male  The A.I. will predict YES 98.2% of the time
<p>▼ Examples where the A.I. agent predicts YES</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Prof. Specialty            Sex = Male            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Other Service            Sex = Male            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Sales            Sex = Male            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Handler/Cleaner            Sex = Male            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>37.00 &lt; Age &lt;= 48.00</b>            Education = Masters            Occupation = Exec. Managerial            Sex = Male            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Other Service            Sex = Male            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>37.00 &lt; Age &lt;= 48.00</b>            Education = Masters            Occupation = Craft Repair            Sex = Male            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Farming/Fishing            Sex = Male            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>Age &gt; 48.00</b>            Education = Masters            Occupation = Transport/Moving            Sex = Male            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Other Service            Sex = Male            Hours worked per week &gt; 45.00         </div> </div>		
<p>▼ Examples where the A.I. agent DOES NOT predict YES</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Sales            Sex = Female            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Handler/Cleaner            Sex = Female            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>37.00 &lt; Age &lt;= 48.00</b>            Education = Masters            Occupation = Exec. Managerial            Sex = Female            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Other Service            Sex = Female            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>37.00 &lt; Age &lt;= 48.00</b>            Education = Masters            Occupation = Craft Repair            Sex = Female            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Farming/Fishing            Sex = Female            Hours worked per week &gt; 45.00         </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <b>Age &gt; 48.00</b>            Education = Masters            Occupation = Transport/Moving            Sex = Female            Hours worked per week &gt; 45.00         </div> <div style="text-align: center;"> <b>28.00 &lt; Age &lt;= 37.00</b>            Education = Masters            Occupation = Other Service            Sex = Female            Hours worked per week &gt; 45.00         </div> </div>		

When answering the previous questions about fairness, which design aspects of the given visualizations did you find **most**

useful?

When answering the previous questions about fairness, which design aspects of the given visualizations did you find **least** useful?

## Demographics

What is your age? Please enter a number.

What is your gender?

- Man/Male (Cis or Trans)
- Woman/Female (Cis or Trans)

- Non-binary
- My Gender is Not Listed Above: (Open Text Box)
- Unsure/Questioning
- Prefer Not to Answer

## What is your race/ethnicity?

- White
- Black/African American
- Hispanic/Latinx
- Asian
- Native American
- Hawaiin/Pacific Islander
- Other

## How much is your yearly income?

- \$0 - \$49,999
- \$50,000 - \$99,999
- \$100,000+
- Other

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or equivalent including GED)
- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Professional degree (JD, MD, PhD)
- Prefer not to answer

What is your familiarity with machine learning models?

- No familiarity
- Beginner
- Intermediate
- Expert

## Feedback

Please give any feedback or suggestions you may have about this survey

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