

## Consent

**Project ID: 24208**

**Project title: Explanation of outcomes of machine learning models**

**Prof Ingrid Zukerman**

Department of Data Science & AI

Faculty of Information Technology

**Phone:** +61 3 9905 5202

**Email:** [Ingrid.Zukerman@monash.edu](mailto:Ingrid.Zukerman@monash.edu)

**Assoc Prof Gholamreza Haffari**

Department of Data Science & AI

Faculty of Information Technology

**Phone:** +61 3 9905 8106

**Email:** [Gholamreza.Haffari@monash.edu](mailto:Gholamreza.Haffari@monash.edu)

**Dr Sameen Maruf**

Department of Data Science & AI

Faculty of Information Technology

**Email:** [Sameen.Maruf@monash.edu](mailto:Sameen.Maruf@monash.edu)

**Miss Xuelin Situ**

Department of Data Science & AI

Faculty of Information Technology

**Email:** [Xuelin.Situ@monash.edu](mailto:Xuelin.Situ@monash.edu)

**Prof Ehud Reiter**

Department of Computing Science

University of Aberdeen

**Email:** [e.reiter@abdn.ac.uk](mailto:e.reiter@abdn.ac.uk)

### 1 Your consent

You are invited to take part in this online study. You must be at least 18 years old to participate. Please read this Explanatory Statement in full before deciding whether you wish to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

Once you understand what the project is about and agree to take part in this study, you will be asked to click a button to register your consent to participate in the experiment, and your consent to use the data for future projects.

### 2 Purpose and background

We are developing a system to generate explanations for the outcomes produced by an Artificial Intelligence (AI) system. We would appreciate your help in determining the effectiveness and acceptability of these explanations. Your views will guide our development effort.

The project is funded by the Australian Research Council (ARC), who may access our records regarding how data was collected to ensure subject protection.

### 3 Description of the experiment

In this study, which takes approximately 45 minutes, you will be asked to perform seven pairs of tasks, as follows:

1. You will be shown a prediction produced by an AI system for a particular scenario, and two brief explanations (one or two short paragraphs) for this prediction. You will then be asked to provide feedback about this explanation based on several criteria, such as clarity, relevance and completeness.
2. You will be shown a reference picture and several similar-looking additional pictures, and you will be asked to identify the additional picture that matches the reference picture exactly.

Participation in this study is voluntary, and you will be paid upon completion of the experiment. In addition, after you agree to participate in this study, you may decide whether the data you provide for this project may be used for future research projects.

### IMPORTANT

**This survey can be done only in Google CHROME and Mozilla Firefox, and cannot be done on a mobile phone.**

### 4 Payment

An honorarium of \$20 in the form of a gift card (<https://www.giftpay.com.au> - valid only in Australia) will be paid **upon completion of the experiment**.

### 5 Possible benefits

Practical benefits to the community are obtained from people's improved ability to understand the output of AI programs, e.g., reduced risk from accepting recommendations made by such programs, increased productivity and revenue, and improved outcomes for end users by enabling them to understand decisions made by an AI system.

Benefits to participants can be found in hopefully enjoying the experiment, and in the satisfaction of contributing to knowledge that will assist experts in AI, practitioners and end users in the future.

### 6 Possible Risks

We cannot envisage any risks associated with this study.

### 7 Privacy, Confidentiality and Disclosure of Information

If you agree to participate in this study by clicking the "Agree to participate" button, we plan to aggregate the obtained information with that of other participants, and analyse these data. Only group statistical information and ideas arising from group behaviour will be given in any report or publication arising from the experiment. The results will be published in a scientific journal or conference.

All data collected will be stored in accordance with Monash University regulations in the data repository of Prof Zukerman's research group (UMLT), which is password-protected. The anonymised data will be used only for research purposes, and only members of Prof Zukerman's research group who are involved in the project will have access to the data. The data will be stored in the form of an excel spreadsheet containing each anonymous response to each question. All data will be stored for seven years after any publications and will then be destroyed.

### 8 Results of the project

The results from this project will be used in the development of new explanation generation systems. Participants can access the results by contacting Prof Ingrid Zukerman, the project leader.

### 9 Further information or any problems

If you require further information about this project, have questions about research and subjects' rights, or in the event of a research-related injury, you can contact the principal researcher, Prof Ingrid Zukerman. The researchers responsible for this project are:

Prof Ingrid Zukerman  
Telephone: +61 3 9905 5202  
Email: [Ingrid.Zukerman@monash.edu](mailto:Ingrid.Zukerman@monash.edu)

Dr Sameen Maruf  
Telephone: +61 3 9905 4527  
Email: [Sameen.Maruf@monash.edu](mailto:Sameen.Maruf@monash.edu)

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics (MUHREC):

Executive Officer  
Monash University Human Research Ethics Committee (MUHREC)

Room 111, Chancellery Building D,

26 Sports Walk, Clayton Campus

Research Office

Monash University, VICTORIA 3800

Tel: +61 3 9905 2052 Email: [muhrec@monash.edu](mailto:muhrec@monash.edu)

Fax: +61 3 9905 3831

Thank you,

**Ingrid Zukerman**

Do you agree to participate in this study?

Yes, I am at least 18 years old. I have read the explanatory statement and agree to participate in this study.

Can the data you provide for this research be used in future research projects?

- Yes
- No

Please enter the ID assigned to you (if any).

### Participant Information

#### About you

Before we proceed to the main survey, we would like to know a few details about you. This information will help us determine if we have been able to attract a wide range of participants. It will in no way be linked to any personal identifier.

Please answer each question as accurately as possible by selecting the appropriate box or filling in the space provided, if needed.

What is your gender?

- Male
- Female
- Non-binary / gender diverse
- My gender identity isn't listed [optionally specify]
- Prefer not to say

Which category below includes your age?

- 18-24
- 25-34
- 35-44
- 45-54
- 55 or older

What is your current place of residence?

- Africa
- Asia
- Australia
- Europe
- Latin America
- North America (USA and Canada)
- Pacific Islands
- Other
- Prefer not to say

Please specify your ethnicity.

- African
- Australian Aboriginal or Pacific Islander
- Caucasian
- East Asian
- Hispanic or Latino
- Middle Eastern
- South Asian
- Other / Unknown
- Prefer not to say

How would you rate your proficiency in English?

- Low
- Medium
- High

What is the highest level of qualification you have completed?

- Less than High School
- High School or equivalent
- Some College but no degree
- Bachelor's Degree (e.g., BA, BS)
- Master's Degree (e.g., MA, MS, MEd)

- Doctorate (e.g., PhD, EdD)  
 Other (please specify) \_\_\_\_\_

How would you rate your expertise in Machine Learning?

- Low  
 Medium  
 High

How familiar are you with the operation of a telecommunications provider (Phone or Internet)?

- Not familiar at all  
 Slightly familiar  
 Moderately familiar  
 Very familiar  
 Extremely familiar

Which of the following words/phrases are you familiar with? Select all that apply.

- Churn  
 DSL  
 Fibre optic  
 Online security  
 Streaming TV

Let's proceed to the main survey.

## Introduction

### Background

We are developing a computer system that automatically generates explanations for predictions made by an Artificial Intelligence (AI) system. For example, say we have an AI system that predicts whether a customer of a telecommunications company will stay with the company or churn (leave the company). Our explanation system generates several alternative explanations for this prediction.

The objective of this study is to find out which types of explanations people find useful in order to understand and accept the predictions of the AI system. We would appreciate your help in making this determination.

### About the survey

In this survey, you will see seven situations together with some background information. We will present the outcome predicted by the AI system for each situation, and show you two alternative explanations for each outcome. You will then rate each explanation based on several criteria, such as clarity and completeness.

This experiment focuses on the telecommunications domain. We will first introduce you to this domain, and then we will give you an example of the questions you will get in the survey.

### The telecommunications domain

You have recently been hired as a sales representative of iConnX, a telecommunications company, and part of your job is to predict whether customers are at risk of **churning** (leaving the company). This will enable you to offer retention incentives, such as gift vouchers or discounts on their plan. Making these predictions involves weighing several factors in the customers' profile, such as the services the customers have signed up for and the charges they pay (see the table below).

To assist you in making these predictions and develop your understanding of the domain, iConnX has purchased a state-of-the-art AI system that learns from historical customer data and actual customer actions. The accuracy of your AI system in predicting whether a customer will stay or churn is 80%.

**AI systems** make predictions based on trends and patterns they identify in the data. Therefore, they may determine that factors that are relevant to some situations are not relevant to other situations. For example, if a customer has been with the company for more than 14 months, their internet service may influence the AI system's prediction about their action. In contrast, the AI system may not need to consider the internet service of a customer who has been with the company for less than 14 months.

Each **customer of iConnX** has a profile, which is transcribed into **ten** factors that make sense to the AI system. Two of these factors are numeric (*tenure* – the number of months a customer has been with the company, and *monthly charges* – the amount of money that is charged to the customer on a monthly basis). The factors and their possible values are listed below in shades of **red** and **blue**. These colours will be used in the situations you will see in the survey.

Factor	Possible values		
Senior citizen	Yes		No
Phone service	Yes		No
Multiple phone lines	Yes	NA (no phone service)	No
Internet service	Fibre optic	DSL	No
Online security	Yes	NA (no internet service)	No
Tech support	Yes	NA (no internet service)	No
Movie streaming	Yes	NA (no internet service)	No

Paper billing	Yes	No
Tenure (months with the company)	1 month	72 months
Monthly charges	\$19	\$117

In the following pages, you will see seven profiles of customers of iConnX. For each customer, we will

- present the above factors and their values, together with a few general facts regarding these factors – the factors and their values are used by the AI system to make its predictions;
- ask you to make an educated guess about the customer's action (churn or stay with the company);
- show you the prediction made by the AI system, together with two alternative explanations for this prediction; and
- ask you to rate these explanations along several criteria, such as clarity and completeness. Your ratings should be informed by your role **as a sales representative of iConnX**.

Before we proceed, let's look at a sample customer and the questions you will be asked.

#### EXAMPLE Customer:

CustomerID 68 has been with iConnX for 53 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 68 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	Yes	52%	48%
Internet service	Fibre optic	43%	57%
Online security	Yes	79%	21%
Tech support	No	50%	50%
Movie streaming	No	59%	41%
Paper billing	Yes	76%	24%
Tenure (months with the company)	53 months (between 14 and 54 months)	73%	27%
Monthly charges	\$91 (greater than \$69)	46%	54%

To clarify the meaning of the statistics in the table above, 65% of customers who are *not senior citizens* Stay with the company (first row in the table), and only 24% of customers with *paper billing* Churn (third last row in the table). For numeric factors (last two rows in the table), we indicate the value for the customer and the range the value falls in (in brackets). For instance, CustomerID 68 has *monthly charges* of \$91, which is represented in the AI system by the range *greater than \$69* (this range is automatically learned from the data for different situations, and hence may vary over different explanations). That is, according to the last row in the table, 54% of customers who have *monthly charges greater than \$69* Churn.

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 68 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 68, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role **as a sales representative of iConnX**.

	Explanation A					Explanation B					
	<p>The AI system has learned from the data that customers who have</p> <ul style="list-style-type: none"> <li>• <i>no tech support</i>,</li> <li>• <i>multiple phone lines</i>,</li> <li>• <i>fibre optic internet service</i>,</li> <li>• <i>paper billing</i>,</li> <li>• <i>tenure with the company between 14 and 54 months</i>, and</li> <li>• <i>monthly charges greater than \$69</i></li> </ul> <p>are almost certain to <i>Stay with the company</i> (close to 100%).</p> <p>Recall that based on what it has learned from the data, the AI system may deem some factors to be irrelevant when predicting the outcome for a particular situation.</p>					<p>From the data, one might expect that customers with <i>no tech support</i> will be less likely than customers overall to <i>Stay with the company</i> (50% vs 60%).</p> <p>However, the AI system has learned from the data that among customers who have</p> <ul style="list-style-type: none"> <li>• <i>multiple phone lines</i>,</li> <li>• <i>fibre optic internet service</i>,</li> <li>• <i>paper billing</i>,</li> <li>• <i>tenure with the company between 14 and 54 months</i>, and</li> <li>• <i>monthly charges greater than \$69</i></li> </ul> <p>those having <i>no tech support</i> are almost certain to <i>Stay with the company</i> (close to 100%).</p> <p>Recall that based on what it has learned from the data, the AI system may deem some factors to be irrelevant when predicting the outcome for a particular situation.</p>					
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

According to the background information of CustomerID 68, indicate whether the following statement is True or False:

21% of the customers who have online security Churn.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

Which factors did you consider important when determining your expectation about the action of CustomerID 68? Select all that apply.

Senior citizen	Phone service	Multiple phone lines	Internet service	Online security	Tech support	Movie streaming	Paper billing	Tenure	Monthly charges	None apply
<input type="checkbox"/>										

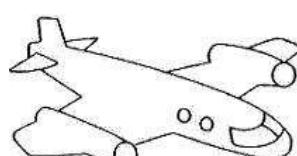
We would appreciate your suggestions about improving the explanations.

### END OF EXAMPLE

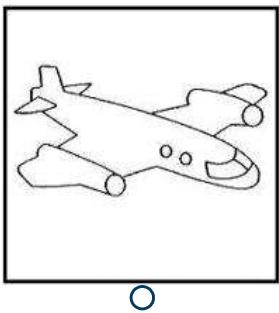
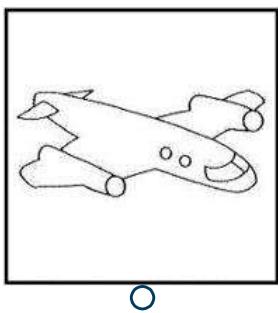
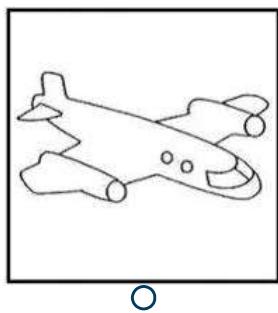
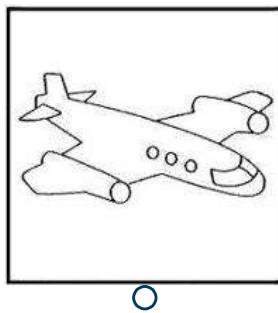
To help you absorb the provided information and refresh before moving on to the main survey, please answer the question on the next page. You will be asked similar questions between the situations to help you maintain focus.

#### Scenario ID27 Basic-PlausibleC'noimpact1

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



## **CustomerID 27:**

CustomerID 27 has been with iConnX for 28 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 27 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	Yes	42%	58%
Phone service	Yes	59%	41%
Multiple phone lines	Yes	52%	48%
Internet service	Fiber optic	43%	57%
Online security	No	49%	51%
Tech support	Yes	77%	23%
Movie streaming	Yes	50%	50%
Paper billing	No	52%	48%
Tenure (months with the company)	28 months (between 14 and 54 months)	73%	27%
Monthly charges	\$111 (greater than \$69)	46%	54%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 27 based on their profile and the above mentioned facts?

- Stay with the company
  - Churn
  - Can't decide (no particular expectation)

Based on the profile of CustomerID 27, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

This explanation helps me understand the reasoning of the AI system.

Based on the explanation, I would act to address the customer's action predicted by the AI system.

According to the background information of CustomerID 27, indicate whether the following statement is True or False:

CustomerID 27 has no online security.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

Which factors did you consider important when determining your expectation about the action of CustomerID 27? Select all that apply.

Senior citizen	Phone service	Multiple phone lines	Internet service	Online security	Tech support	Movie streaming	Paper billing	Tenure	Monthly charges	None apply
<input type="checkbox"/>										

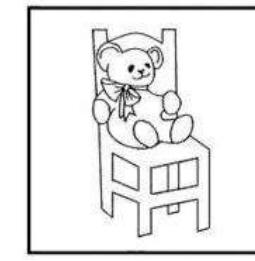
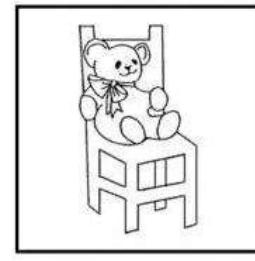
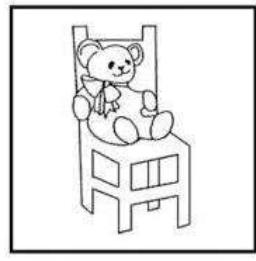
We would appreciate your suggestions about improving the explanations.

#### Scenario ID19 Basic-PlausibleCnoimpact2

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



#### CustomerID 19:

CustomerID 19 has been with iConnX for 14 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 19 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	Yes	52%	48%
Internet service	No	89%	11%
Online security	NA (no internet service)	-	-
Tech support	NA (no internet service)	-	-
Movie streaming	NA (no internet service)	-	-
Paper billing	Yes	76%	24%
Tenure (months with the company)	14 months (greater than 5 months)	70%	30%
Monthly charges	\$26 (less than \$69)	78%	22%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 19 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 19, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 19, indicate whether the following statement is True or False:

CustomerID 19 has multiple phone lines.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

Which factors did you consider important when determining your expectation about the action of CustomerID 19? Select all that apply.

Senior citizen	<input type="checkbox"/>	Phone service	<input type="checkbox"/>	Multiple phone lines	<input type="checkbox"/>	Internet service	<input type="checkbox"/>	Online security	<input type="checkbox"/>	Tech support	<input type="checkbox"/>	Movie streaming	<input type="checkbox"/>	Paper billing	<input type="checkbox"/>	Tenure	<input type="checkbox"/>	Monthly charges	<input type="checkbox"/>	None apply
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We would appreciate your suggestions about improving the explanations.

### Scenario ID30 Basic-PlausiblenotC-HE3

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.

The image consists of four separate square frames arranged horizontally. Each frame contains a simple line drawing of a lamp. The lamp has a wide, flared base and a bell-shaped shade. The drawings are identical in style and position within their respective frames.

## **CustomerID 30:**

CustomerID 30 has been with iConnX for 10 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 30 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	No	65%	35%
Internet service	Fiber optic	43%	57%
Online security	Yes	79%	21%
Tech support	No	50%	50%
Movie streaming	No	59%	41%
Paper billing	No	52%	48%
Tenure (months with the company)	10 months (less than 15 months)	48%	52%
Monthly charges	\$80 (between \$69 and \$81)	42%	58%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 30 based on their profile and the above mentioned facts?

- Stay with the company
  - Churn
  - Can't decide (no particular expectation)

Based on the profile of CustomerID 30, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 30, indicate whether the following statement is True or False:

35% of the customers who are not senior citizens Stay with the company.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

Which factors did you consider important when determining your expectation about the action of CustomerID 30? Select all that apply.

- Senior citizen
- Phone service
- Multiple phone lines
- Internet service
- Online security
- Tech support
- Movie streaming
- Paper billing
- Tenure
- Monthly charges
- None apply

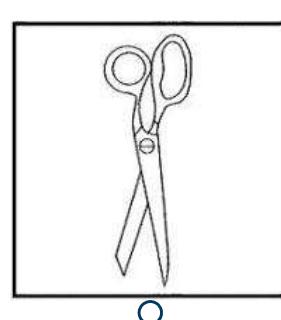
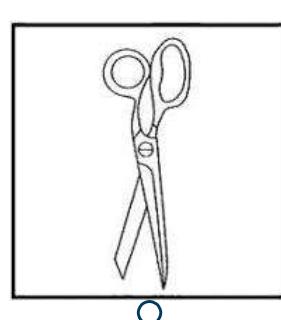
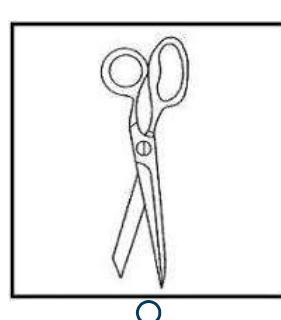
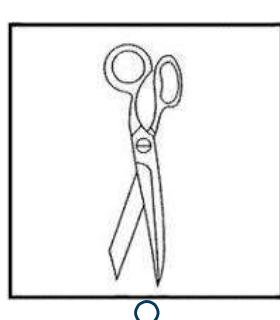
We would appreciate your suggestions about improving the explanations.

#### Scenario ID52 Basic-PlausibleC'5

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



**CustomerID 52:**

CustomerID 52 has been with iConnX for 55 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 52 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	Yes	52%	48%
Internet service	Fiber optic	43%	57%
Online security	Yes	79%	21%
Tech support	No	50%	50%
Movie streaming	No	59%	41%
Paper billing	No	52%	48%
Tenure (months with the company)	55 months (greater than 53 months)	85%	11%
Monthly charges	\$97 (greater than \$69)	46%	54%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 52 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 52, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 52, indicate whether the following statement is True or False:

41% of the customers who have no movie streaming Churn.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.



- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

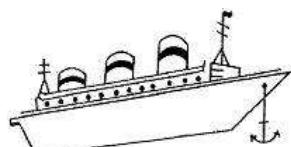
Which factors did you consider important when determining your expectation about the action of CustomerID 52? Select all that apply.

Senior citizen <input type="checkbox"/>	Phone service <input type="checkbox"/>	Multiple phone lines <input type="checkbox"/>	Internet service <input type="checkbox"/>	Online security <input type="checkbox"/>	Tech support <input type="checkbox"/>	Movie streaming <input type="checkbox"/>	Paper billing <input type="checkbox"/>	Tenure <input type="checkbox"/>	Monthly charges <input type="checkbox"/>	None apply <input type="checkbox"/>
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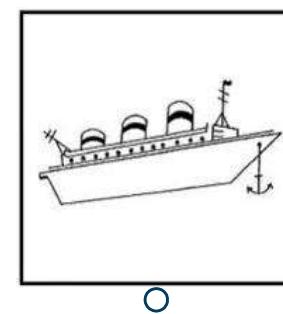
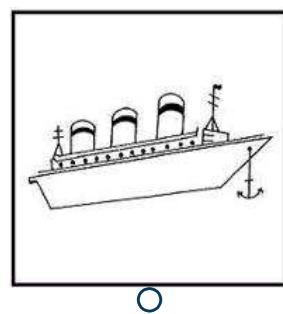
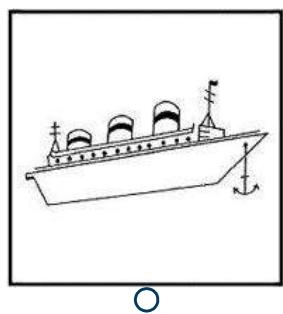
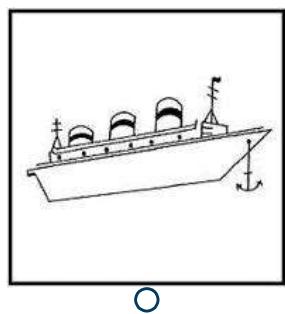
We would appreciate your suggestions about improving the explanations.

#### Scenario ID79 PlausiblenotC-HE-PlausibleC'6

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



#### CustomerID 79:

CustomerID 79 has been with iConnX for 65 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 79 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	Yes	42%	58%
Phone service	Yes	59%	41%
Multiple phone lines	No	65%	35%
Internet service	Fiber optic	43%	57%
Online security	Yes	79%	21%
Tech support	No	50%	50%
Movie streaming	Yes	50%	50%
Paper billing	Yes	76%	24%
Tenure (months with the company)	65 months (greater than 53 months)	85%	11%
Monthly charges	\$94 (greater than \$69)	46%	54%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 79 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 79, our AI system predicts that they will **Stay with the company**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 79, indicate whether the following statement is True or False:

59% of customers who do not have tech support Churn.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

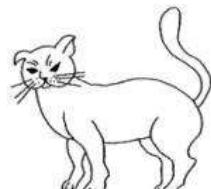
Which factors did you consider important when determining your expectation about the action of CustomerID 79? Select all that apply.

- Senior citizen
- Phone service
- Multiple phone lines
- Internet service
- Online security
- Tech support
- Movie streaming
- Paper billing
- Tenure
- Monthly charges
- None apply

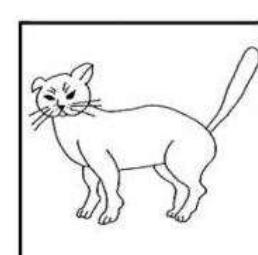
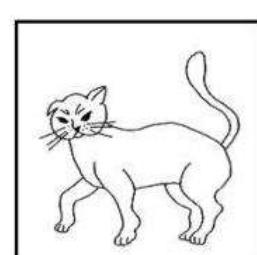
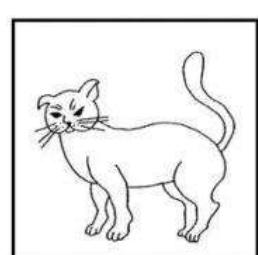
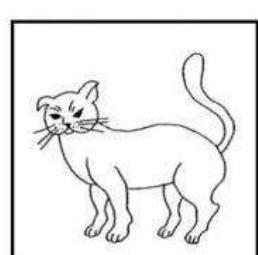
We would appreciate your suggestions about improving these explanations.

#### Scenario ID16 Basic-PlausibleC'noimpact7

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



**CustomerID 16:**

CustomerID 16 has been with iConnX for 4 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 16 appear in the third and fourth columns.

Factor	Value	Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	No	65%	35%
Internet service	Fiber optic	43%	57%
Online security	No	49%	51%
Tech support	Yes	77%	23%
Movie streaming	No	59%	41%
Paper billing	No	52%	48%
Tenure (months with the company)	4 months (less than 15 months)	48%	52%
Monthly charges	\$81 (greater than \$69)	46%	54%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 16 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 16, our AI system predicts that they will **Churn**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 16, indicate whether the following statement is True or False:

CustomerID 16 has DSL internet service.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

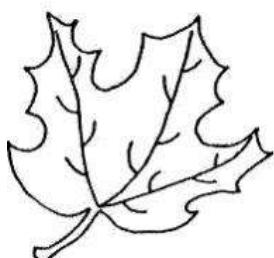
Which factors did you consider important when determining your expectation about the action of CustomerID 16? Select all that apply.

- Senior citizen
- Phone service
- Multiple phone lines
- Internet service
- Online security
- Tech support
- Movie streaming
- Paper billing
- Tenure
- Monthly charges
- None apply

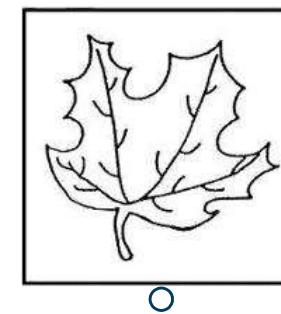
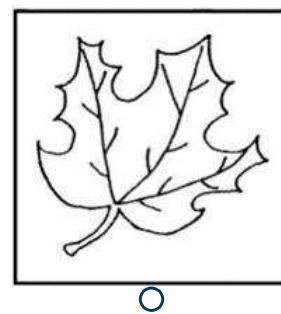
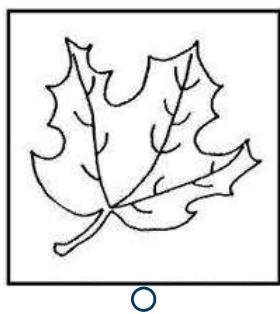
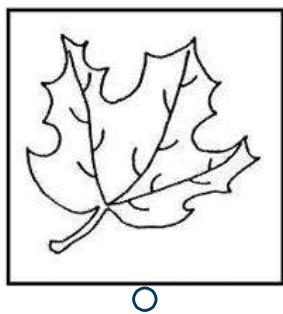
We would appreciate your suggestions about improving the explanations.

### Scenario ID59 Basic-Plausible-notC-LE10

Consider the following picture:



From the following options, select the one that is exactly the same as the picture above.



#### CustomerID 59:

CustomerID 59 has been with iConnX for 34 months. Based on their profile, the factors and values in the first two columns in the table below have been entered into the AI system. The outcome statistics that pertain to the profile of CustomerID 59 appear in the third and fourth columns.

Factor	Value	Outcome	
		Stay	Churn
Senior citizen	No	65%	35%
Phone service	Yes	59%	41%
Multiple phone lines	Yes	52%	48%
Internet service	Fiber optic	43%	57%
Online security	No	49%	51%
Tech support	No	50%	50%
Movie streaming	Yes	59%	41%
Paper billing	No	52%	48%
Tenure (months with the company)	34 months (between 14 and 54 months)	73%	27%
Monthly charges	\$98 (greater than \$69)	46%	54%

In general, 60% of the customers Stay with the company and 40% Churn.

As a sales representative of iConnX, what is your expectation regarding the action of CustomerID 59 based on their profile and the above mentioned facts?

- Stay with the company
- Churn
- Can't decide (no particular expectation)

Based on the profile of CustomerID 59, our AI system predicts that they will **Churn**.

Our explanation system has produced two alternative explanations for this outcome.

With reference to Explanation A and Explanation B, indicate the extent to which you agree with the statements below in your role as a sales representative of iConnX.

	Explanation A					Explanation B				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
This explanation has misleading, contradictory or irrelevant information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation helps me understand the reasoning of the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This explanation is complete (it is not missing information).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on the explanation, I would act to address the customer's action predicted by the AI system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

According to the background information of CustomerID 59, indicate whether the following statement is True or False:

41% of the customers who have phone service Churn.

- True
- False

As a sales representative of iConnX, please indicate your opinion about the explanations.

- I prefer Explanation A
- I prefer Explanation B
- I like both explanations equally
- I don't like any of the explanations

Which factors did you consider important when determining your expectation about the action of CustomerID 59? Select all that apply.

- Senior citizen
- Phone service
- Multiple phone lines
- Internet service
- Online security
- Tech support
- Movie streaming
- Paper billing
- Tenure
- Monthly charges
- None apply

We would appreciate your suggestions about improving the explanations.

#### Post-Experiment

Please indicate how much you agree with the following statements regarding the telecommunications domain:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The explanations made sense to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the Telecom domain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can relate to the Telecom domain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Telecom domain is fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

We would appreciate any further insights about your preferences regarding the explanations.