

## Briefing

**Do not take this study on a mobile phone**, the text and images won't display correctly.

**Do not take this study** if you have done a similar one recently.

You are free to leave at any time.

The study will take around 12mins.

You will be paid \$12 per hour for your efforts.

Thank you for your participation!

## Block 53

Please Enter Your Prolific ID Here

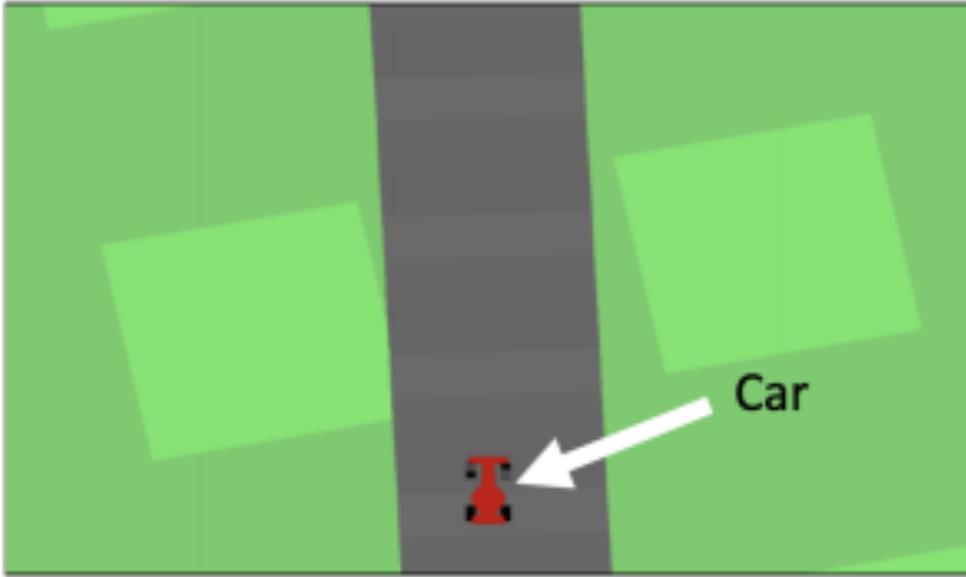
## Introduction 1

# Introduction

A computer program has learned to drive a car using **four human-defined concepts**.

The four concepts are:

1. Accelerate
2. Brake
3. Turn Left
4. Turn Right



*Important: In all images you see, the car is constantly moving forward.*

Introduction 2

# Introduction

The car has learned to drive **very well** by practicing for **millions upon millions of simulations**.

Here, you are shown **four random examples** from those simulations.

**Remember, there are millions of situations you are NOT seeing here which the car has encountered.**



Introduction acc

# Introduction

So, the car will take the action **ACCELERATE** in situations it thinks it should.

Introduction brake

# Introduction

The car will take the action **BRAKE** in situations it thinks it should.

Introduction left

# Introduction

The car will take the action **TURN LEFT** in situations it thinks it should.

Introduction Right

# Introduction

The car will take the action **TURN RIGHT** in situations it thinks it should.

Introduction combine

# Introduction

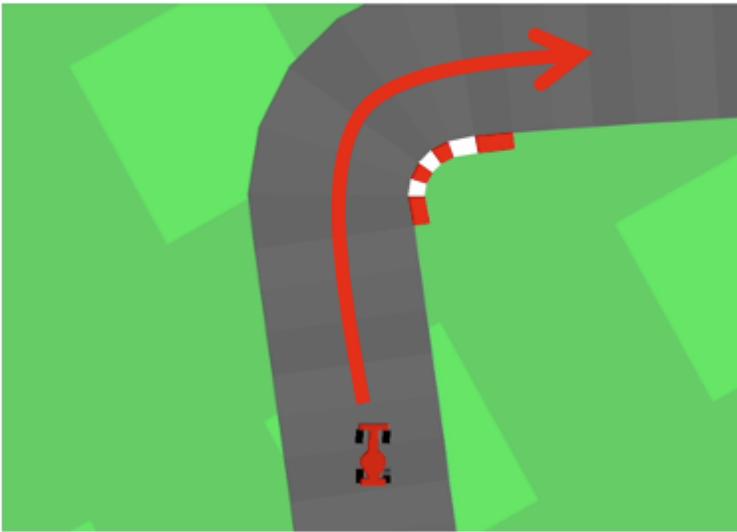
Lastly, the car can combine actions, and will **TURN RIGHT** and **BRAKE** *at the same time* in situations it thinks it should.

## Example 2

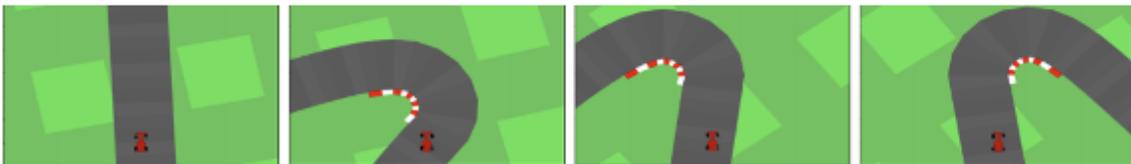
# Example

So, for example, here the car may decide to "Turn Right".

### Situation



### Random Examples

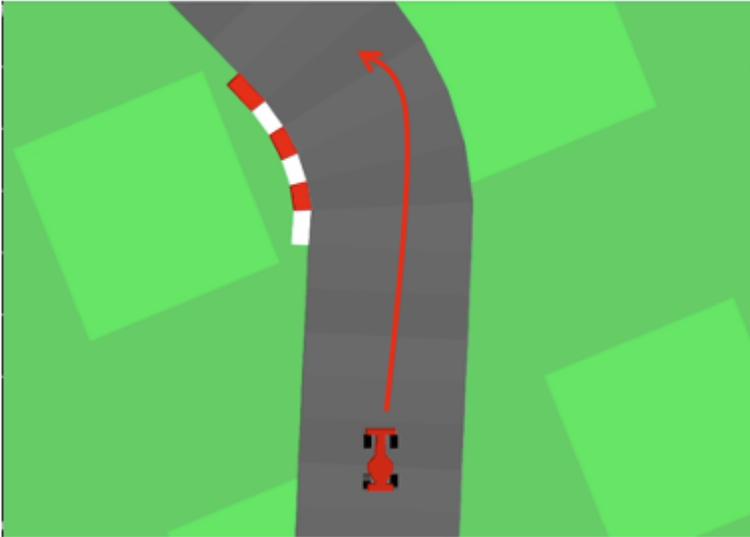


### Example 3

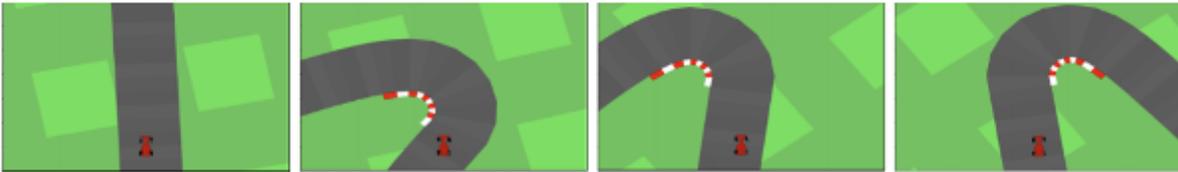
# Example

As another example, here the car may decide to slightly turn left and slightly brake.

### Situation



### Random Examples

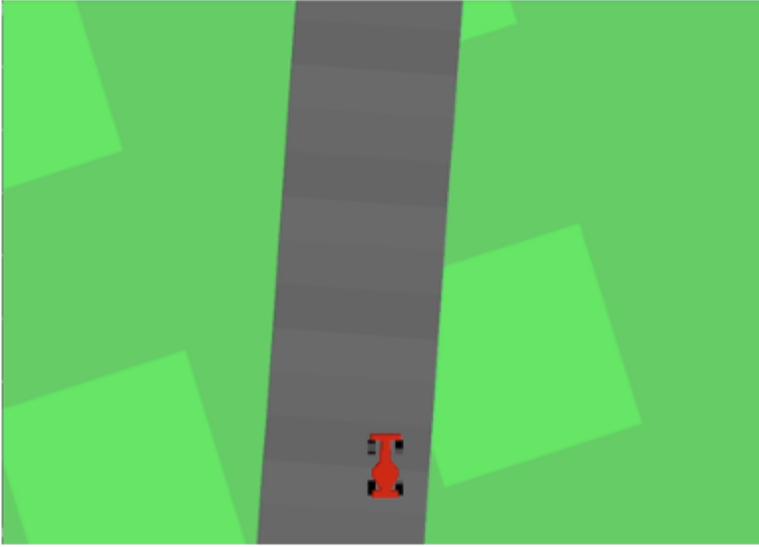


### Example 4

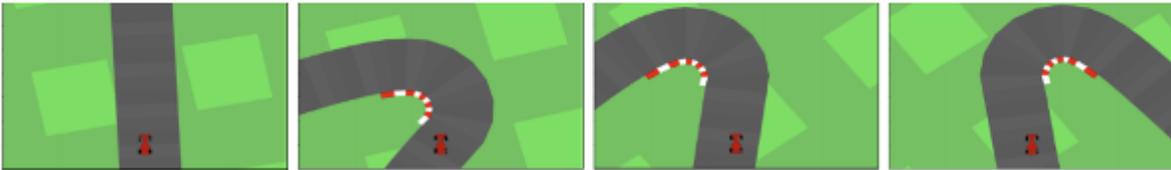
# Example

Lastly, here the car might decide to just brake or accelerate, and not turn.

## Situation



## Random Examples



Block 51

# Introduction

It is up to you to look at the current situation, and guess *what actions* the car is going to take.

Your Task

## Your Task!

However, *even if* the car has learned to drive well, *it cannot drive safely when it encounters situations which are EXTREMELY different to what it has*

experienced before.

*It is up to you to decide if this is happening.*

So, there are **two main** things you want to consider when predicting **if the car will crash**:

1. Is the actions the car is going to take safe in the situation?
2. Is the current situation too different to the car's previous experiences that the car has no idea what to do? **Remember you have ONLY seen 4 previous situations the car was in, there are millions you don't know about.**

Title

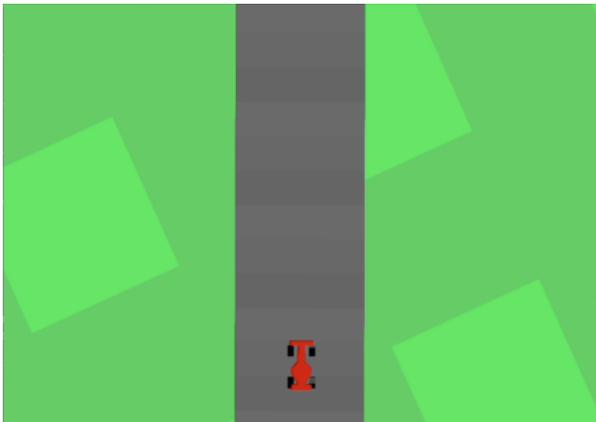
# Press Next For The Task Instructions

Instructions 1

## Instructions

Initially, note the car's situation and the road ahead it must try to navigate safely.

**Step 1:** Note the Situation



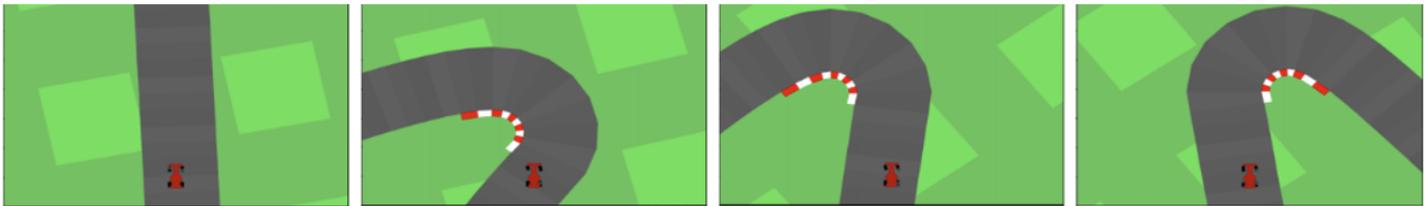
Instructions 2

# Instructions

Secondly, recall the random past examples of the car practicing (these will NEVER change).

**Remember there are MILLIONS of past examples you are NOT seeing. You have to consider this when predicting what the car will do. DO NOT judge based ONLY on these pictures.**

**Step 2:** Recall the random examples of the car practicing, but remember there are many situations you are NOT being shown.



## Instructions 3

# Instructions

Lastly, **predict if the car will drive safely** through the road ahead, **and your confidence** in this prediction.

There are **five options** ranging from "**Strongly Disagree**" to "**Strongly Agree**".

### Step 3:

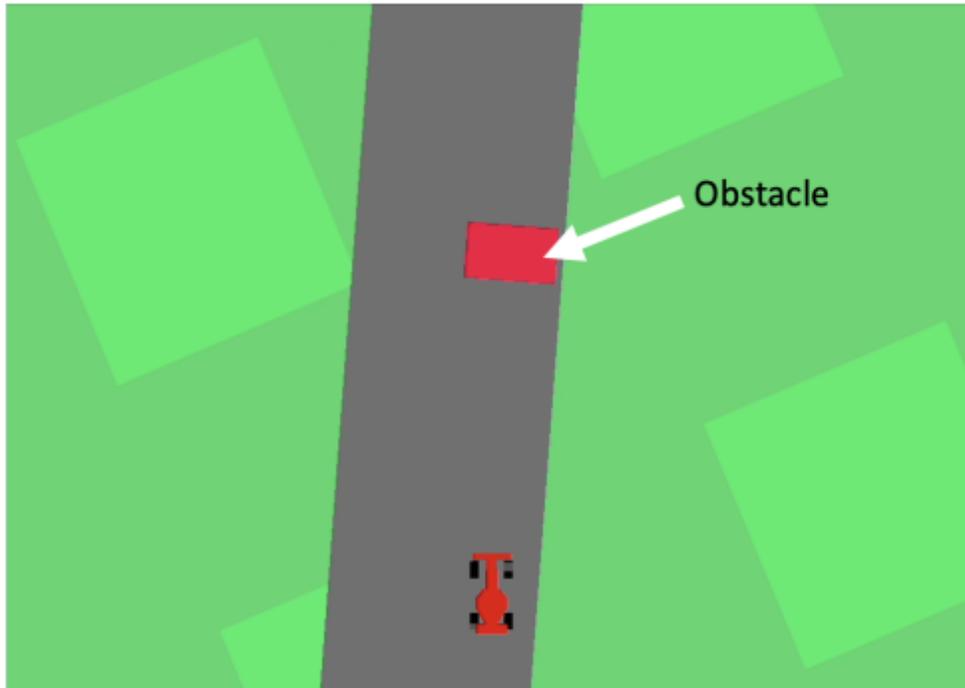
	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

## Red Obstacles

# Red Obstacles

Lastly, there are red obstacles scattered throughout the roads

If the car crashes into these it will **not drive safely**.



Reminder Instruction to predict car and not use instinct

Remember, you are trying to predict what the **computer program** is going to do here while driving the car.

You are **NOT** trying to convey how **you** would personally drive.

Sample question title

## Sample Question

Now, please practice on the next question.

Practice Question

## Practice Question

**Step 1: Note the Situation**



**Step 2:** Recall the random examples of the car practicing, **but remember there are MILLIONS of situations you are NOT being shown.**



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

Please... consider answers... carefully

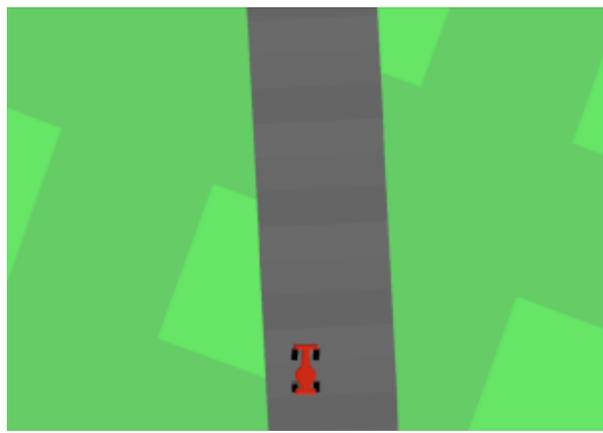
**Please only participate in this study if you understand the instructions and are willing to consider your answers carefully.**

Click to begin study

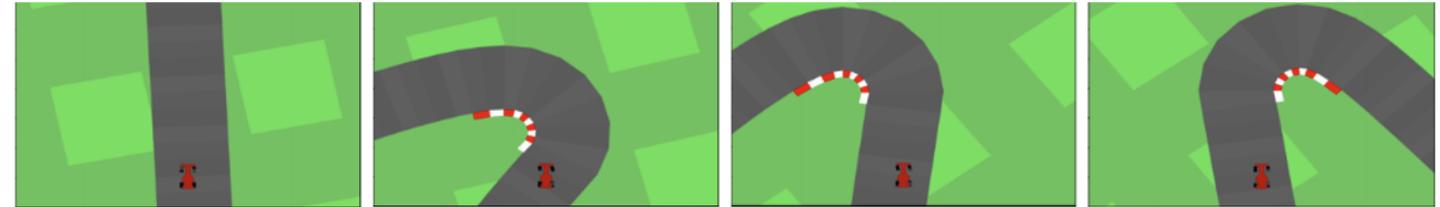
**Click Next To Begin The Study**

# Question

Step 1: Note the Situation



Step 2: Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



Step 3:

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

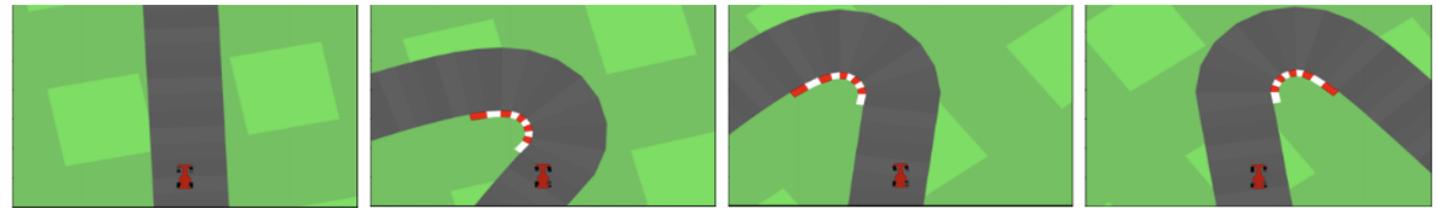
Question 3

# Question

Step 1: Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

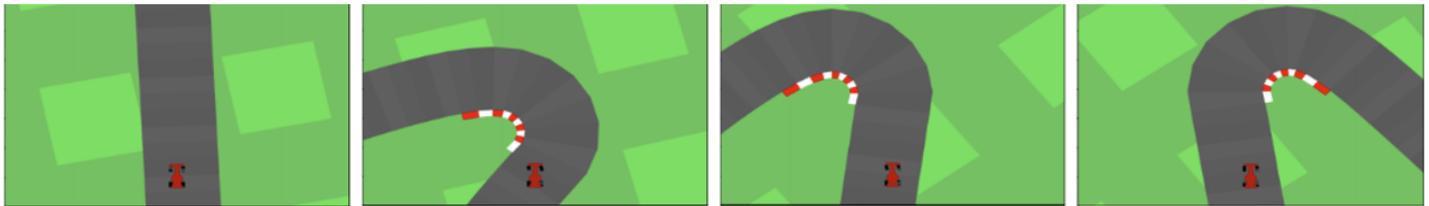
**Question 5**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, **but remember there are MILLIONS of situations you are NOT being shown.**



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

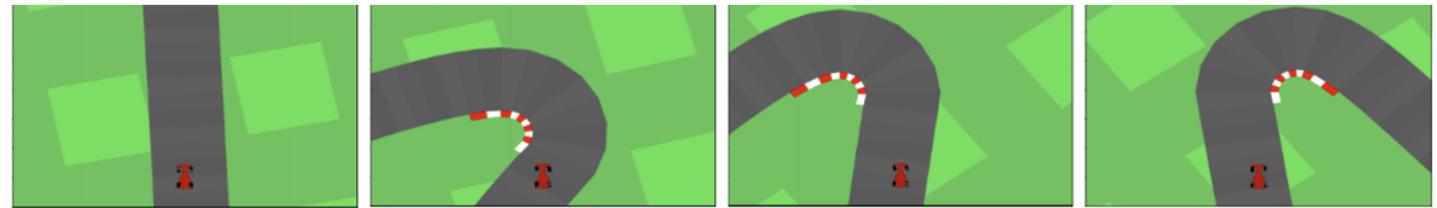
**Question 7**

## Question

**Step 2:** Recall the random examples of the car practicing, **but remember there are MILLIONS of situations you are NOT being shown.**



**Step 2:** Recall the random examples of the car practicing.



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

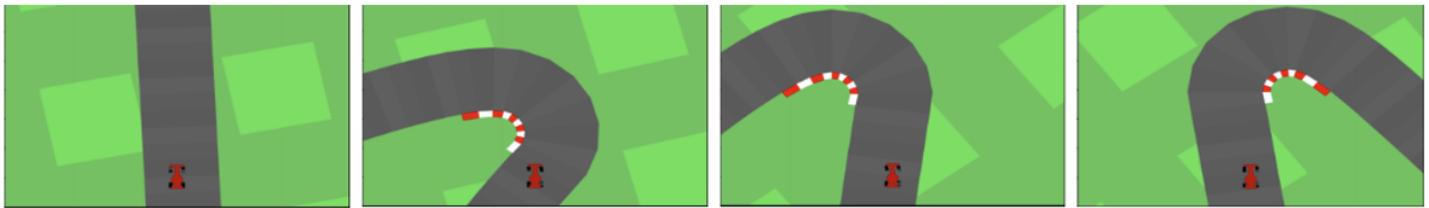
**Question 9**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

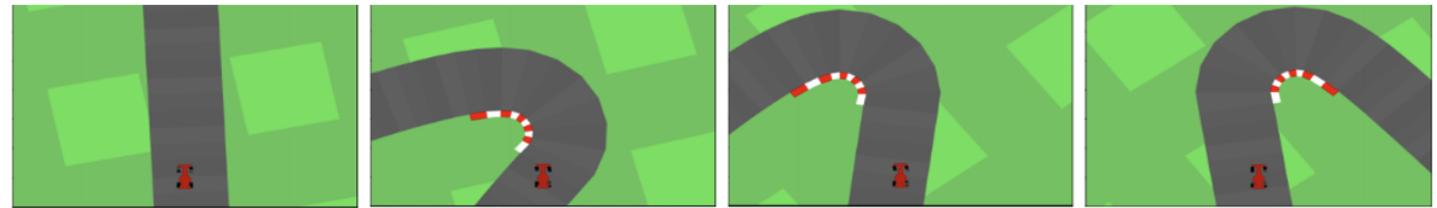
**Question 11**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

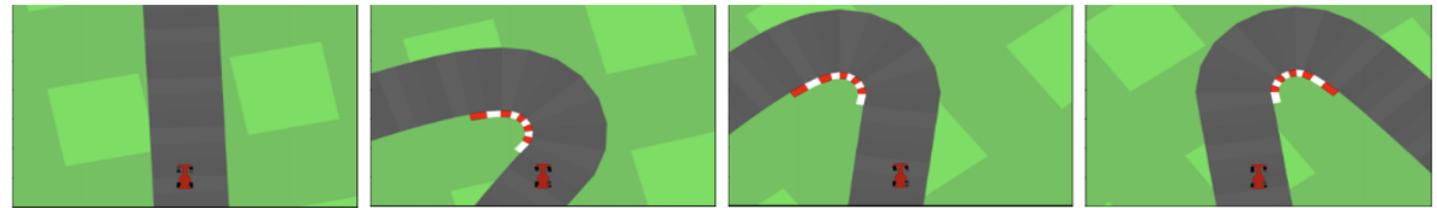
**Question 13**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

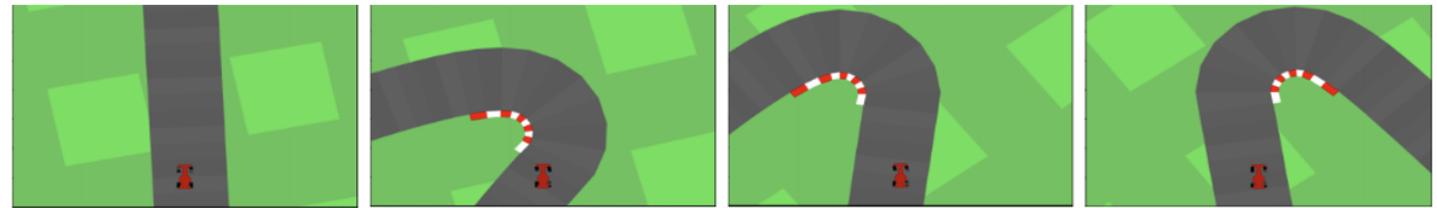
**Question 15**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

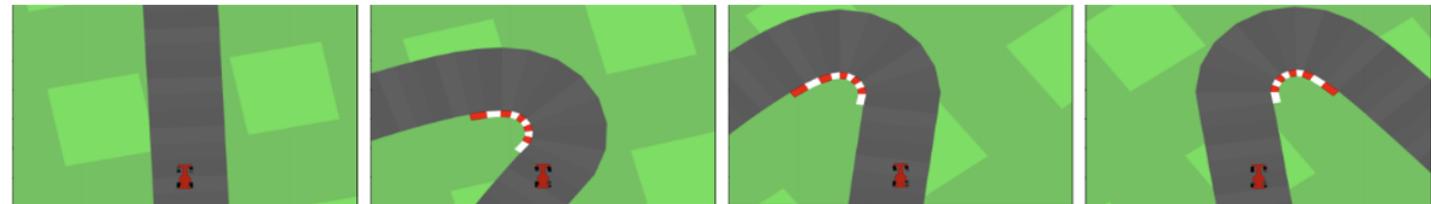
**Question 17**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

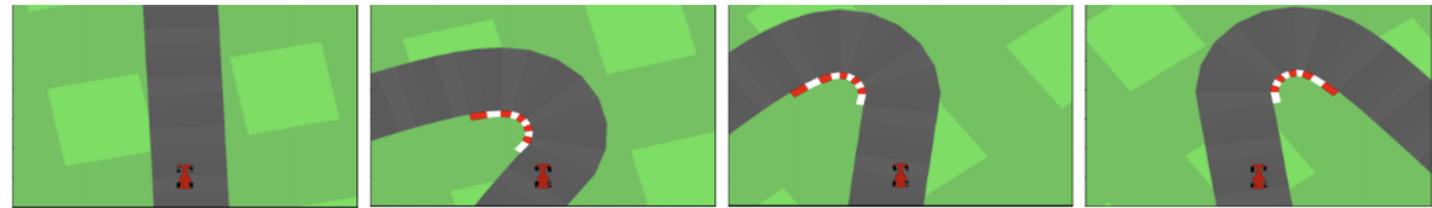
**Question 19**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



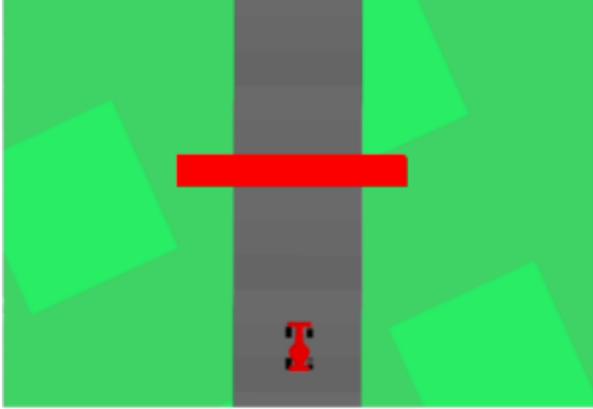
**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

**Attention Check**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

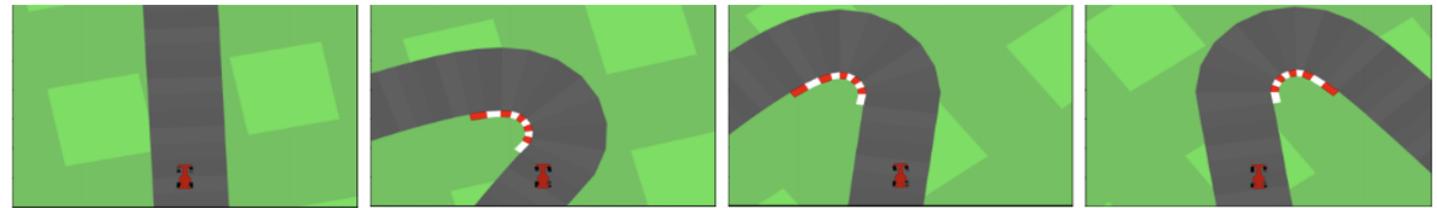
**Question 2**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

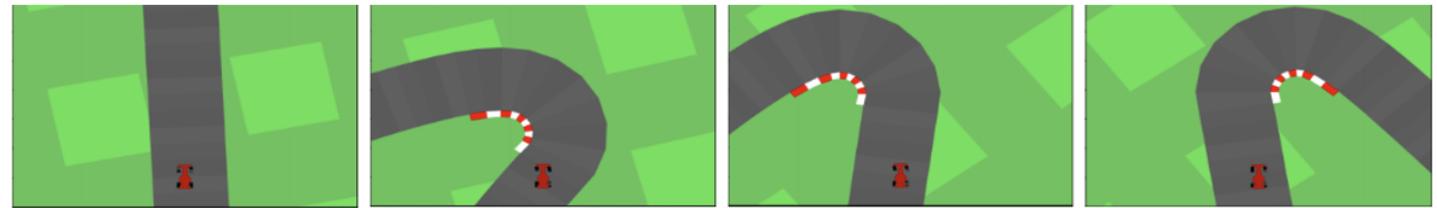
**Question 4**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

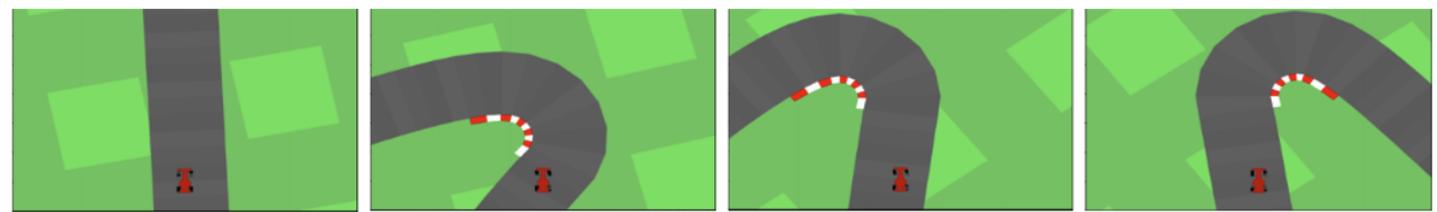
**Question 6**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



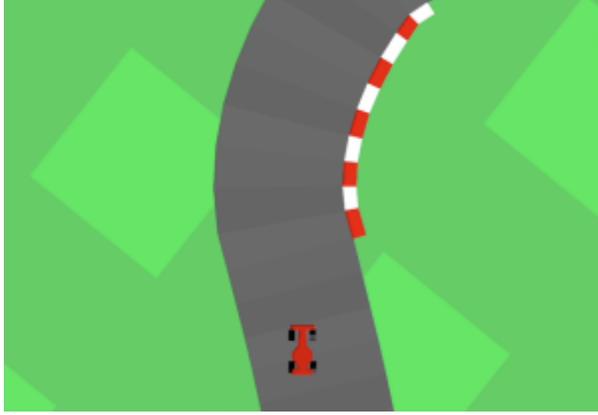
**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

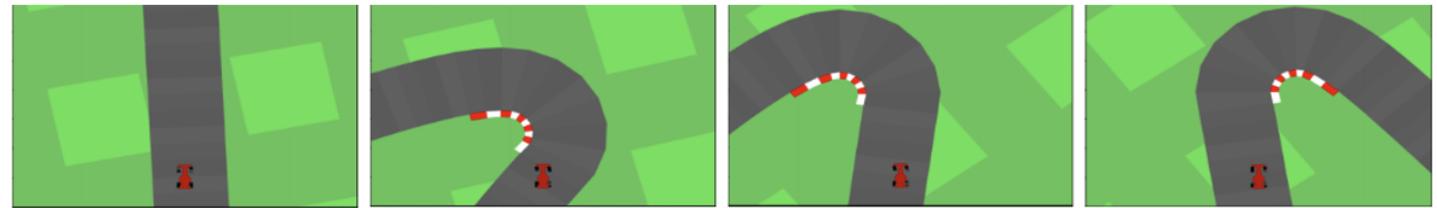
**Question 8**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

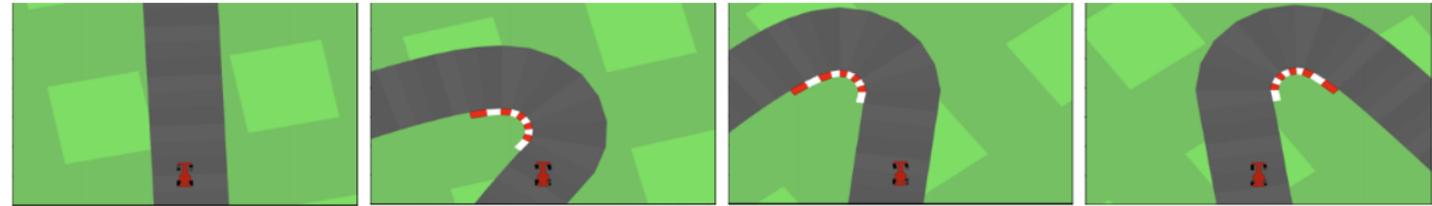
**Question 10**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

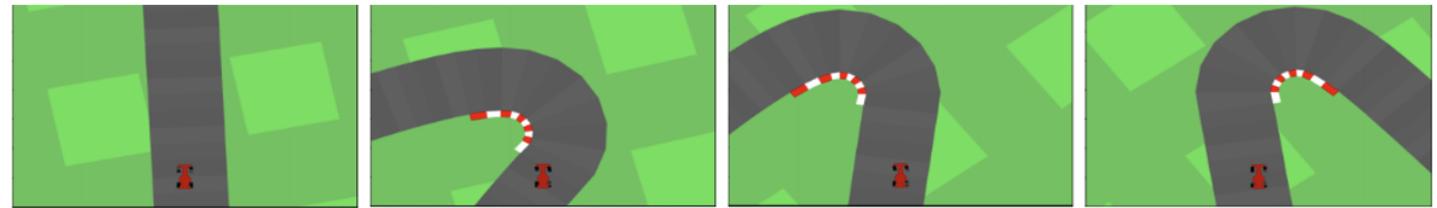
**Question 12**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



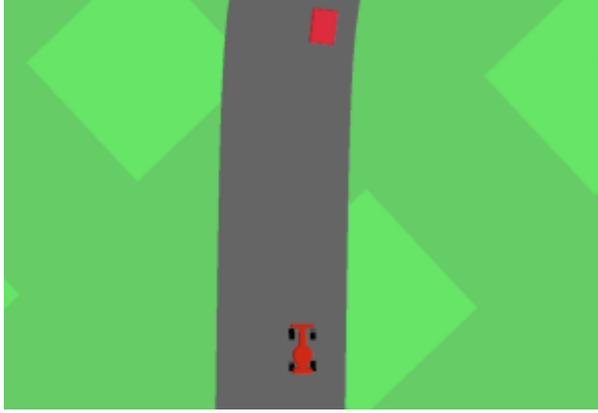
**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

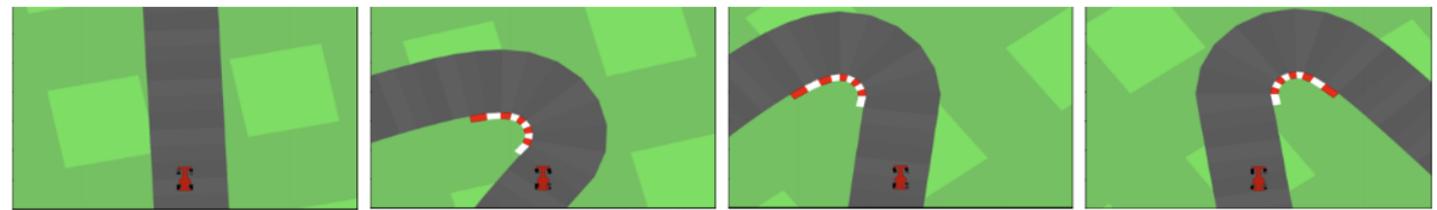
**Question 14**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

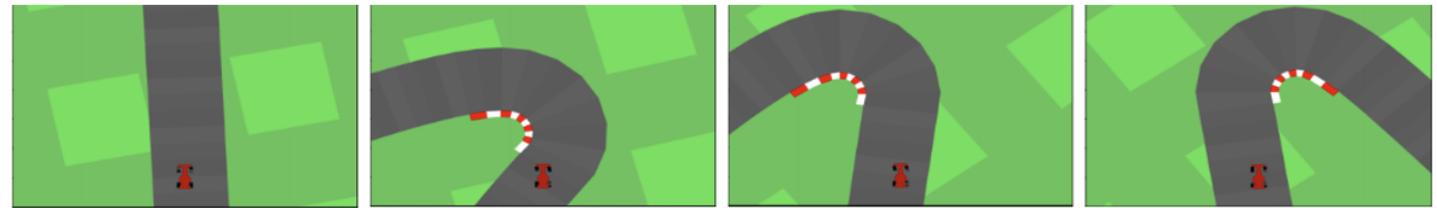
**Question 16**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



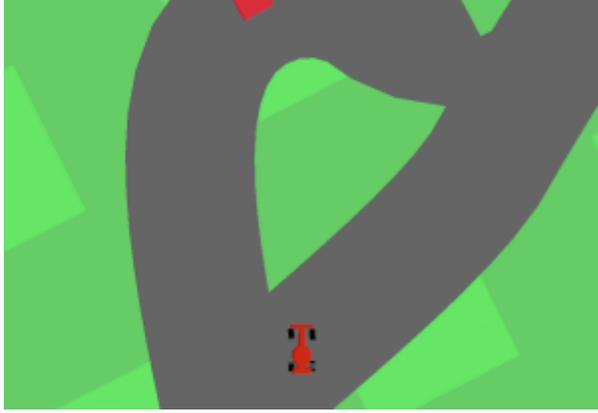
**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

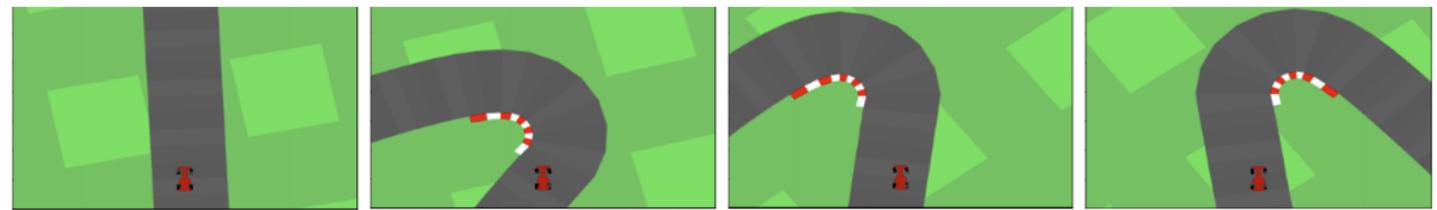
**Question 18**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

**Question 20**

# Question

**Step 1:** Note the Situation



**Step 2:** Recall the random examples of the car practicing, ***but remember there are MILLIONS of situations you are NOT being shown.***



**Step 3:**

	Strongly Disagree				Strongly agree
The car will drive safely in this situation	<input type="radio"/>				
I am confident in this prediction	<input type="radio"/>				

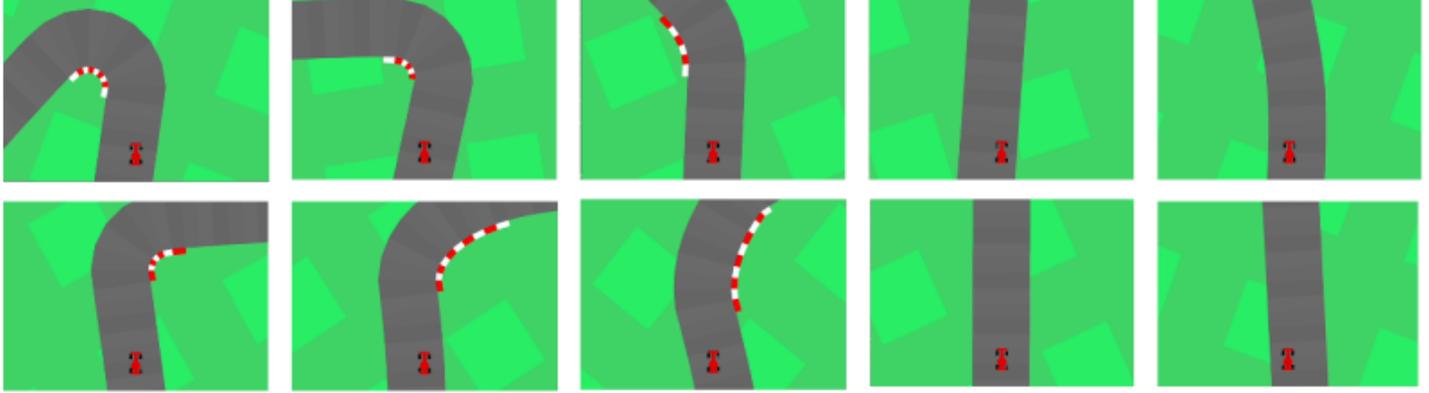
**Title safe situations**

# Thank You For Your Participation!

## You Will Now Be Shown Where the Car Drove Safely

**Safe situations**

# The Car Drove Safely In These Situations

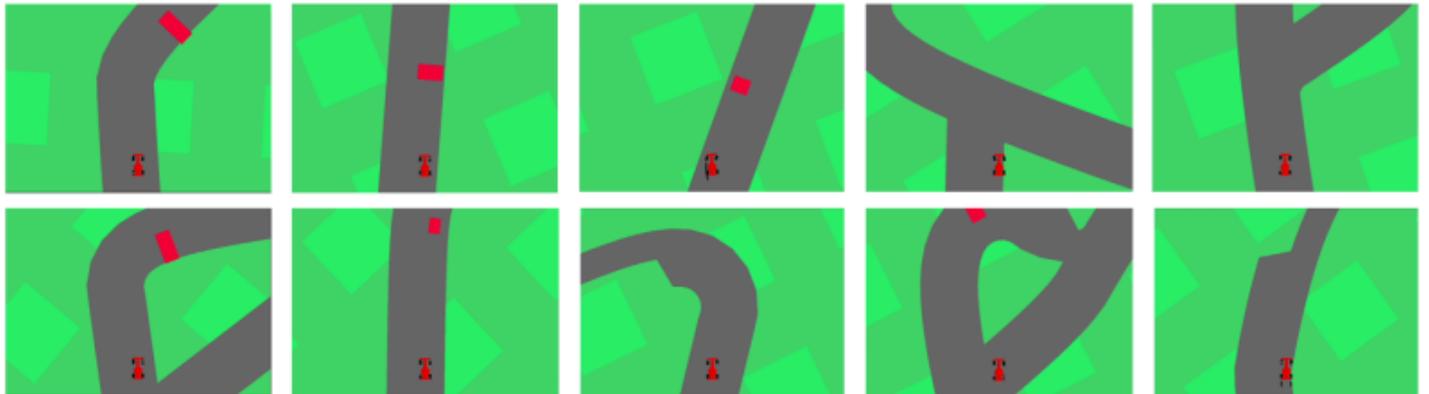


Title crash situations

**Click Next To See The Situations  
The Car Crashed**

Crash situations

**The Car Did Not Drive Safely In These  
Situations**



Please... fill out... 2 surveys... to finish

**Next, Please Fill Out Two Short  
Questionnaires**

SUS Questions

Questionnaire 1: The "System" in these questions is referring to the **car** and **concepts**

Strongly Disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

I think that I would like to use this system frequently.

I found the system unnecessarily complex.

I thought the system was easy to use.

I think that I would need the support of a technical person to be able to use this system.

I found the various functions in this system were well integrated.

I thought there was too much inconsistency in the system.

I would imagine that most people would learn to use this system very quickly

I found the system very cumbersome to use.

I felt very confident using the system.

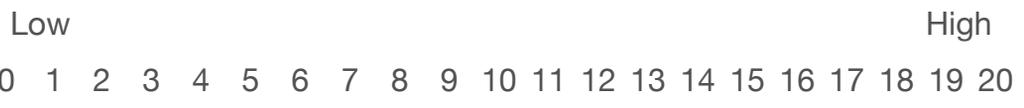
                      

I needed to learn a lot of things before I could get going with this system.

**NASA Questions**

Questionnaire 2



Low

High

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

How mentally  
demanding was the  
task?

How physically  
demanding was the  
task?

How hurried or  
rushed was the pace  
of the task?

How successful  
were you in  
accomplishing what  
you were asked to  
do?

How hard did ou  
have to work to  
accomplish your  
level of  
performance?

How insecure,  
discouraged,  
irritated, stressed,  
and annoyed were  
you?

## Block 52

To finish the survey, can you please explain, in your own words, with as much detail as possible, why you think the car crashed sometimes?

## Block 42

# Debrief Page

Thank you for your participation, this study was designed to evaluate people's ability to use an explainable artificial intelligence system to predict system failures.