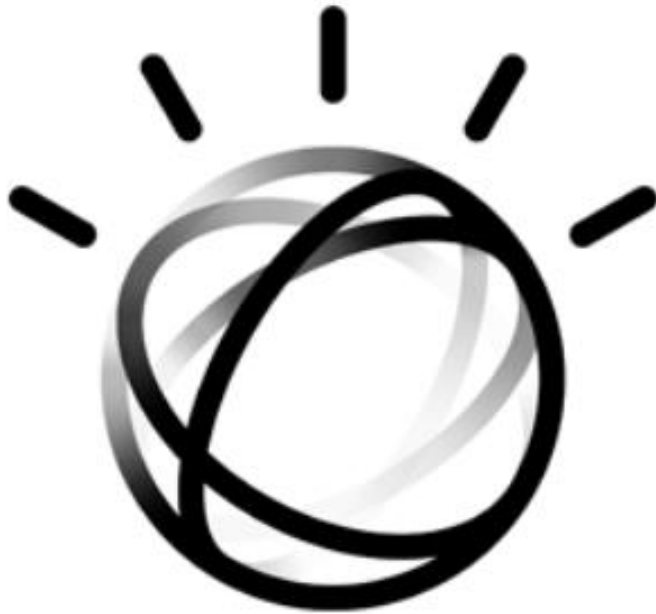


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# INTRODUCTION TO CHATBOTS

USING IBM WATSON



**MS. DEEPIKA DEVARAJAN**

20 DEC 2021  
DORSEYVILLE MIDDLE SCHOOL

## TODAY'S SESSION

Do you use Alexa, Siri, Cortana, or Google Assistant? Chatbots and virtual assistants are now a way of life. Do you want to build your own?

Join Deepika for a hands-on activity session to learn what is a chatbot, how artificial intelligence is changing how we interact with computers, and finally how to build your own chatbot using Scratch and IBM Watson.



LET'S GET TO  
KNOW EACH  
OTHER!

## Introductions

- Your Name
- Your Grade
- A word or phrase you associate with

*Artificial Intelligence*






# QUICK SURVEY

## Programming

- Who has coded before?
- What computer languages?

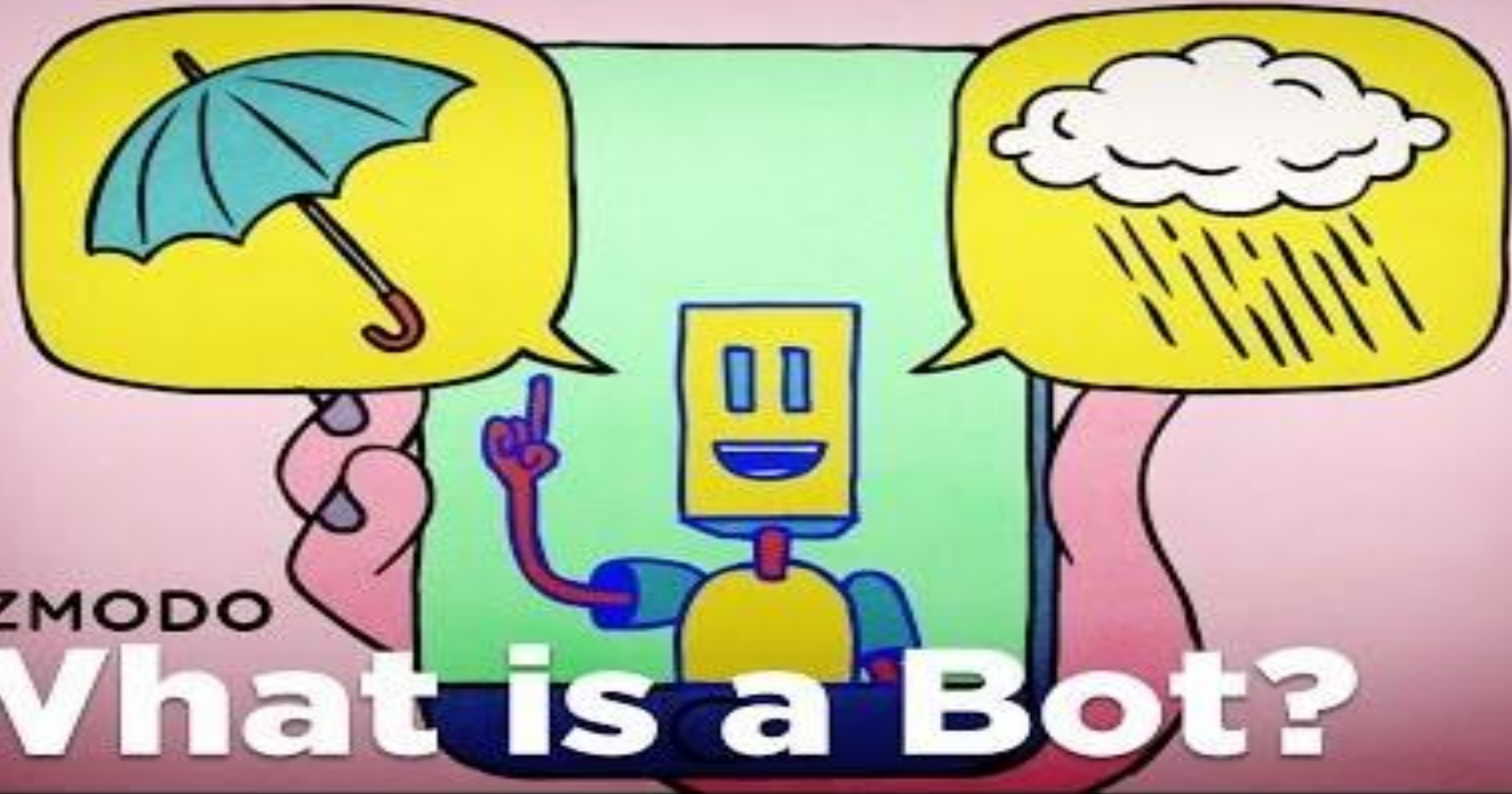
## Scratch

- Who has used scratch before?
  - What did you build?
- 

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# WHAT IS A CHATBOT?

- 
- Computer application or program that simulates human conversation
  - Examples of chatbots
    - Siri, Alexa, Google, Bixby, Cortana, ...
  - Who has done programming?
    - Aspects of Traditional Programming
  - What's different with how you interact with a chatbot?



GIZMODO

# What is a Bot?

# BUILDING BLOCKS OF A CONVERSATION



**Intent** Purpose behind a statement



**Entities** Nouns in a sentence



**Dialog** Conversation flow between the user and a bot



## YOUR GOAL

BUILD A CHATBOT TO  
ANSWER QUESTIONS  
ON A SPECIFIC TOPIC



## HANDS-ON ACTIVITY

- Decide a topic for your chatbot
  - Place (Fox Chapel), Animal (Dinosaurs), Organization (DMS), History (Romans), etc.
  - Example topic: Owls
- Decide on at least 5 categories of questions you want to cover
  - Example: Food, Countries, Lifespan, Species, Size
- Train the model with at least 5 examples of questions in each category
- Open Chatbot (Owls) Scratch Project Template
- Edit the project to reflect your topic and connect to your model
- Test the Scratch Project
- Inspect and Adapt!

# LET'S GET STARTED!

<https://machinelearningforkids.co.uk>

← → ↻ 🔒 machinelearningforkids.co.uk/#!/worksheets 🔍 📄 ☆ 👤 ⋮

About Projects Worksheets Pretrained Book News Help Log Out Language


## Machine learning projects

These projects are downloadable step-by-step guides, with explanations and colour screenshots for students to follow.  
Each project is a stand-alone activity, written to last for a single lesson, and will guide children to create a game or interactive project that demonstrates a real-world use of artificial intelligence and machine learning.  
*Suggestions for new worksheets, suggestions of improvements to any of the worksheets, or contributions of new project worksheets, are all very welcome.*

All project types ▾ All difficulties ▾ All make types ▾

### Describe the glass

Create a game in Scratch that learns when you describe a glass as half-full or half-empty.  
Teach a computer to predict your answers.




Difficulty: Beginner Recognising: numbers

📄 Top: decision tree learning [Download](#)

### Smart Classroom

Create a smart assistant in Scratch that lets you control virtual devices.  
Teach a computer to recognise the meaning of your commands.




Difficulty: Beginner Recognising: text

📄 Top: digital assistants, supervised learning [Download](#)

### Make me happy

Create a character in Scratch that smiles if you say nice things to it and cries if you say mean things to it.  
Teach a computer to recognise compliments and insults.




Difficulty: Beginner Recognising: text

📄 Top: sentiment analysis, supervised learning [Download](#)

### Snap!

Make a card game in Scratch that learns to recognise pictures of your card.  
Teach a computer to recognise what icons look like.




Difficulty: Beginner Recognising: images

📄 Top: image classification, supervised learning [Download](#)

### Quiz Show

Use a computer that has been trained to find answers to questions in documents.  
Make a game show player that can answer questions on a topic of your choice.




Difficulty: Beginner Recognising: text

📄 Top: question answering [Download](#)

### Chameleon

Make a chameleon in Scratch that changes colour to match its background.  
Teach a computer to recognise colours.




Difficulty: Beginner Recognising: images

📄 Top: image classification, supervised learning [Download](#)

### Titanic

Create a Python program that can predict who survived the sinking of the Titanic.  
Teach a computer to predict outcomes.




Difficulty: Beginner Recognising: numbers

📄 Top: predictive model, supervised learning [Download](#)

### Mailman Max

Make a postal sorting office in Scratch that can recognise handwritten postcodes on envelopes.  
Teach a computer to recognise handwriting.




Difficulty: Beginner Recognising: images

📄 Top: optical character recognition, handwriting recognition, image classification [Download](#)

### Shoot the bug

Create a Breakout-style arcade game in Scratch that learns the angle to shoot balls at.  
Teach a computer to play a game.




Difficulty: Beginner Recognising: numbers

📄 Top: decision tree learning [Download](#)

### Car or cup

Train the computer to be able to sort photos into groups.  
Teach a computer to recognise pictures of objects.

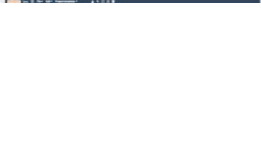


Difficulty: Beginner Recognising: images

📄 Top: image classification, supervised learning, crowd sourcing [Download](#)

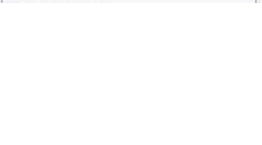
### Face Lock

Make a phone in Scratch that unlocks if it recognises your face.  
Teach a computer to recognise faces.



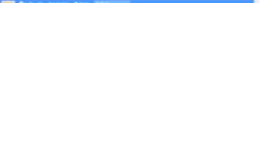
### Journey to school

Train the computer to be able to predict how you travel to school in the morning.  
Teach a computer to make predictions.



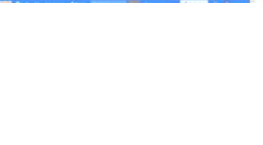
### Shy Panda

Make a dancing panda that gets shy and stops dancing if it sees you looking.  
Teach a computer to recognise webcam pictures.




### Alien Language

Make an alien in Scratch that learns to recognize an alien language.  
Teach a computer to recognize sounds.



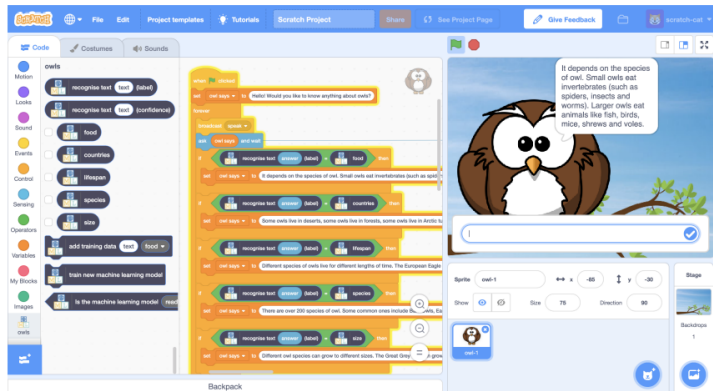
### Pac-Man

Create a Pac-Man game in Scratch that learns how to avoid the ghost.  
Teach a computer to play a game.



# Chatbots

In this project you will make a chatbot that can answer questions about a topic of your choice.



This project worksheet is licensed under a Creative Commons Attribution Non-Commercial Share-Alike License <http://creativecommons.org/licenses/by-nc-sa/4.0/>

1. Decide on a **topic** for your chatbot  
Choose something that you know well enough to be able to answer questions about.  
*It could be a place (e.g. The town where you live?)*  
*It could be an animal (e.g. Tigers? Dinosaurs?)*  
*It could be an organisation (e.g. Your school)*  
*It could be something from history (e.g. Vikings? Romans?)*  
*For the rest of this worksheet, I'll be using owls*

2. Think of **five things** someone might ask about your topic  
*e.g. for owls, this could be:*
  - \* *What do owls eat?*
  - \* *Where in the world do owls live?*
  - \* *How long do owls live?*
  - \* *What types of owls are there?*
  - \* *How big do owls grow?*

3. Go to <https://machinelearningforkids.co.uk/> in a web browser

4. Click on “Get started”

5. Click on “Try it now”

6. Click on “Projects” on the top menu bar

7. Click the “+ Add a new project” button.

# FOLLOW ALONG ON THE WORKSHEET

# EXTRA CREDIT

Check out Ideas and Extensions

Pick another project @  
<https://machinelearningforkids.co.uk>

## Ideas and Extensions

Now that you've finished, why not give one of these ideas a try?

Or come up with one of your own?

### Try other chatbots

<http://talktohetrex.com> is a good example of the sort of thing you've made. Give it a try to get ideas of how to improve your bot.

### Add more topics

Can you add more topics to your chatbot, so that there are more types of question that it can answer?

### Provide alternate answers

If someone asks the same question more than once, they'll get the exact same answer every time. Can you update your Scratch code so that it varies the answers each time a little? Or starts the answer with "You've asked me this before, but"

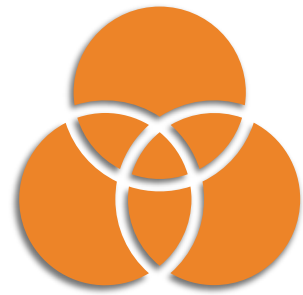
### Ask follow-up questions

Can you update your Scratch script so that it replies with a question? It can then recognise the answer to that question, in a similar way to how you made it recognise questions.

### Learn about how it works

Click on the "Describe your model" button on the "Learn & Test" page to learn more about how the model you've trained was created.

# CONCEPTS



**Sentiment Analysis**



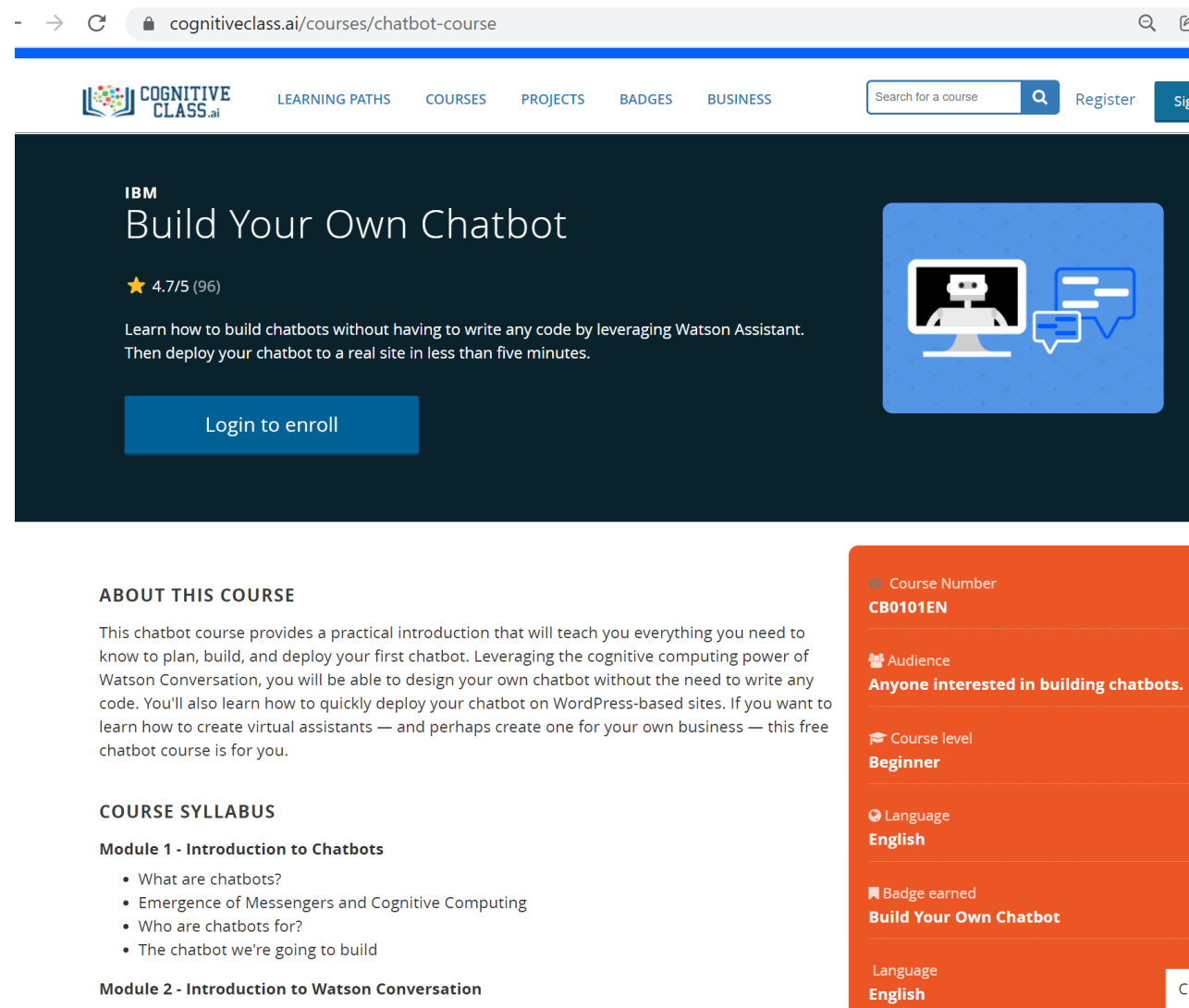
**Supervised Learning**

# EARN A BADGE

cognitiveclass.ai

Build your own Chatbot course

4 hours



The screenshot shows the Cognitive Class website interface. At the top, there is a navigation bar with the logo and menu items: LEARNING PATHS, COURSES, PROJECTS, BADGES, BUSINESS. A search bar and 'Register' button are also present. The main content area features a course card for 'Build Your Own Chatbot' by IBM. The card includes a star rating of 4.7/5 (96) and a description: 'Learn how to build chatbots without having to write any code by leveraging Watson Assistant. Then deploy your chatbot to a real site in less than five minutes.' A blue 'Login to enroll' button is located below the description. To the right of the text is an illustration of a chatbot interface. Below the course card, there is a section titled 'ABOUT THIS COURSE' with a detailed description of the course content. Below that is the 'COURSE SYLLABUS' section, which lists two modules: 'Module 1 - Introduction to Chatbots' and 'Module 2 - Introduction to Watson Conversation'. On the right side of the page, there is an orange sidebar containing course details: Course Number (CB0101EN), Audience (Anyone interested in building chatbots.), Course level (Beginner), Language (English), and Badge earned (Build Your Own Chatbot). The language is also listed as English at the bottom of the sidebar.

cognitiveclass.ai/courses/chatbot-course

COGNITIVE CLASS.ai

LEARNING PATHS COURSES PROJECTS BADGES BUSINESS

Search for a course Register Sign

**IBM**  
**Build Your Own Chatbot**

★ 4.7/5 (96)

Learn how to build chatbots without having to write any code by leveraging Watson Assistant. Then deploy your chatbot to a real site in less than five minutes.

Login to enroll

**ABOUT THIS COURSE**

This chatbot course provides a practical introduction that will teach you everything you need to know to plan, build, and deploy your first chatbot. Leveraging the cognitive computing power of Watson Conversation, you will be able to design your own chatbot without the need to write any code. You'll also learn how to quickly deploy your chatbot on WordPress-based sites. If you want to learn how to create virtual assistants — and perhaps create one for your own business — this free chatbot course is for you.

**COURSE SYLLABUS**

**Module 1 - Introduction to Chatbots**

- What are chatbots?
- Emergence of Messengers and Cognitive Computing
- Who are chatbots for?
- The chatbot we're going to build

**Module 2 - Introduction to Watson Conversation**

Course Number  
**CB0101EN**

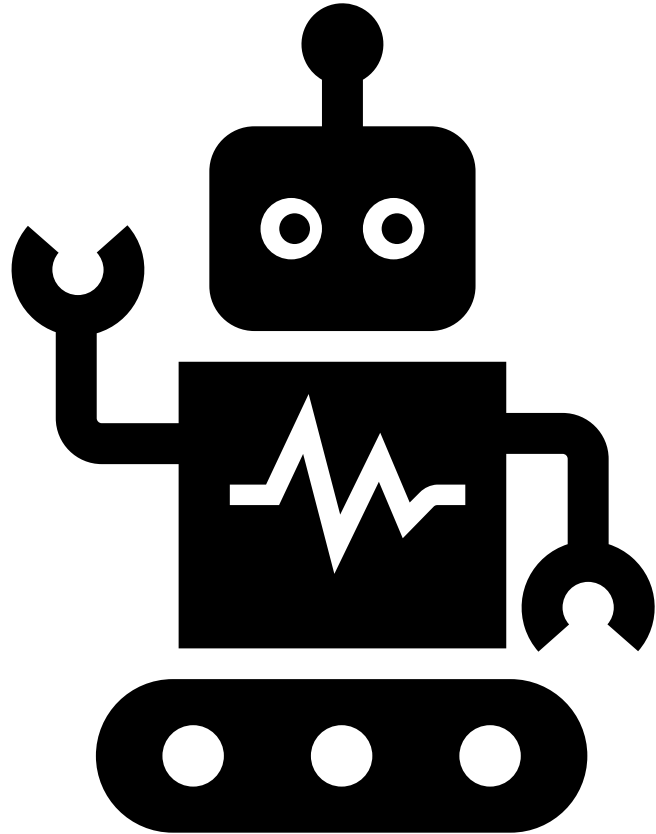
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Course level  
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Language  
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Badge earned  
**Build Your Own Chatbot**

Language  
**English**



THANK YOU