

Nascent Machine Learning



Guessing Game

Machine Learning Guessing Game

Let's Play: Guessing Game Demo



```
Margarets-MacBook-Pro:1200 Code margie$ java Driver
Enter 1 to start with your last saved game.
Enter 2 to create your own game from scratch.
Enter 3 for the pre-seeded animal game.
1
Think of a noun. I will try to guess it.
Is it an animal?
y
Are you thinking of cow?
n
Is it a farm animal?
y
Are you thinking of chicken?
n
Does it have 4 legs?
y
Are you thinking of sheep?
n
I give up!
What noun were you thinking of?
pig
Please enter a yes or no question that can be answered with yes for pig and no for sheep.
Does it have a curly tail?
Thanks for teaching me.
Do you want to play again? Q to quit. Enter to continue.

Think of a noun. I will try to guess it.
Is it an animal?
y
Are you thinking of cow?
n
Is it a farm animal?
█
```



Machine Learning Guessing Game

Design your Game

Task 1: Brainstorm

1. "Procure KtS" & "Summon duckies" -tofr
2. Design your own guessing game flowchart.
 - Goal: Put your binary decision tree on paper.
 - You can pick the theme (or choose no theme).
 - Plan out the questions, guesses, and decisions between.
3. Play "unplugged" Guessing Game with at least two other people.
 - Update guessing game decision tree to add any new items as you play.



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Stay Classy

Task 2: Design & Code Data Structures

1.

"Procure KtS" & "Summon duckies" -tofr



2.

Design the data structures for this project. Think about how the data structures will handle the nouns, questions, and routes. Consider the attributes and methods you will need for your data.

3. **Coooooode** <said in an Andrés Cantor voice> those data structures.

need some help or inspiration? Click here --->



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Code

Task 3: Basic Game Play

Write a main method that asks the player questions and traverses a seeded binary decision tree.

Don't worry about training the machine yet.
Start by just determining a win or loss.

Test and **debug** before moving on!

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Task 4: Training the Algorithm

The player wins when they beat the algorithm. This means the program reached the end of the decision tree. **Consider** how you updated your paper Guessing Game (KtS) when a player was thinking of an item NOT located off the branch in your tree. What did you do?

Code method(s) to Add the NEW item AND/OR a question that leads to the item that distinguishes this NEW item from others in the tree.

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Machine Learning Guessing Game

Serializing

Congratulations!

If you're here, your **Guessing Game** **works** **AND** you've built a **functional machine learning algorithm** to teach your game some new items. The only problem is that all of the work you players put into training the algorithm will be lost the moment the game ends. You **CAN** **save the data** using **Serialization** in Java.

*let's get
~~this bread~~*
DATA



Machine Learning Guessing Game

Serializing

Task 4: Saving the state of the Game

1.

Learn about Serialization:

---> [Serialization tutorials & videos](#)



2.

Serialize you code.

3.

- Save the game state at the end of the game.
- Load the game state at the beginning of the game.

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Machine Learning: Guessing Game

Next Steps

Extensions of this Activity:

- Develop your Guessing Game into a web app.



Thank You