



Module 1

Workshop 2: Machine Learning and NLP

Named Entity Recognition and Sentiment Analysis



NLP word jumble

Unscramble this NLP-related word:

TNEESMITN

Share your answer in the chat!





Module 1

Workshop 2: Machine Learning and NLP

Named Entity Recognition and Sentiment Analysis



Agenda

- **Review:** Recap key concepts.
- **Demo:** Using SpaCy for NER.
- **Practice:** Hands-on NER challenges.
- **Closing:** Key takeaways and next steps.



Learning objectives

- **Explore the fundamentals of NER** by using pre-trained models, identifying entities, and processing text for NLP tasks.
- **Develop skills in customizing NER** by creating domain-specific entity patterns for various industries.
- **Learn to evaluate and visualize NER results** using Matplotlib to analyze entity frequencies and distribution.
- **Gain experience in combining multiple NLP techniques** integrating sentiment analysis with NER to build advanced text analysis pipelines.



Async review: Units 3 and 4

Go to My Multiverse, Module 1
Workshop 2

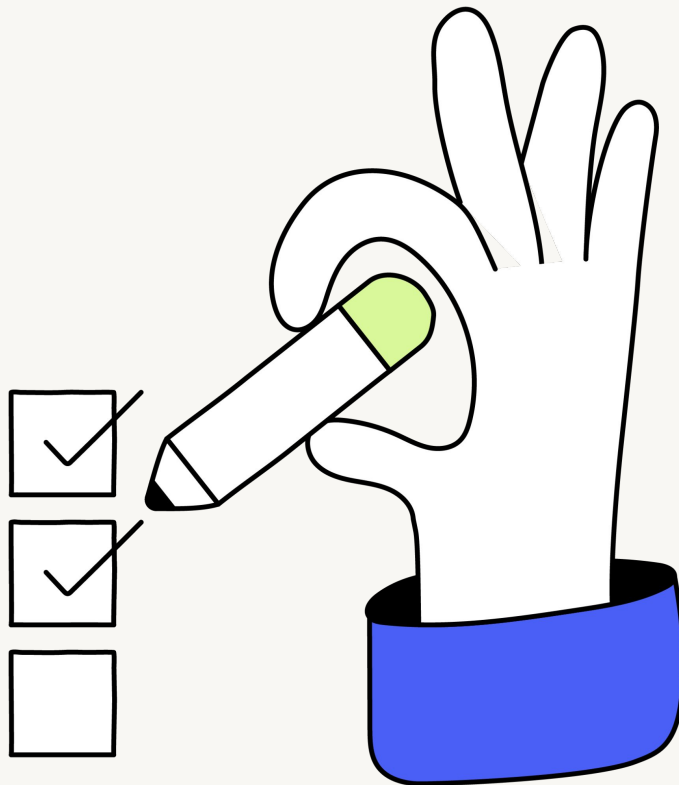


Navigate to the **"Async review"** page



Review the summaries of Units 3 and
4, then complete the following Poll:

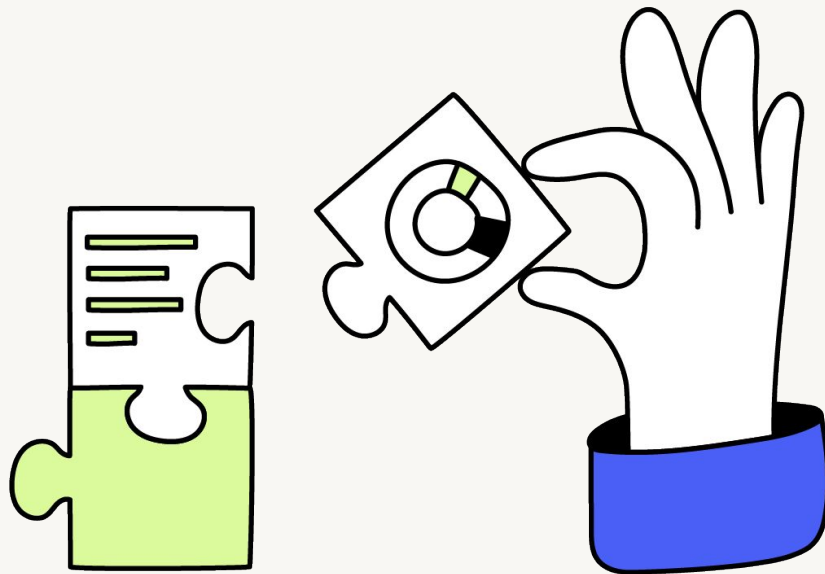
Machine Learning in business





NLP and ML: The connection

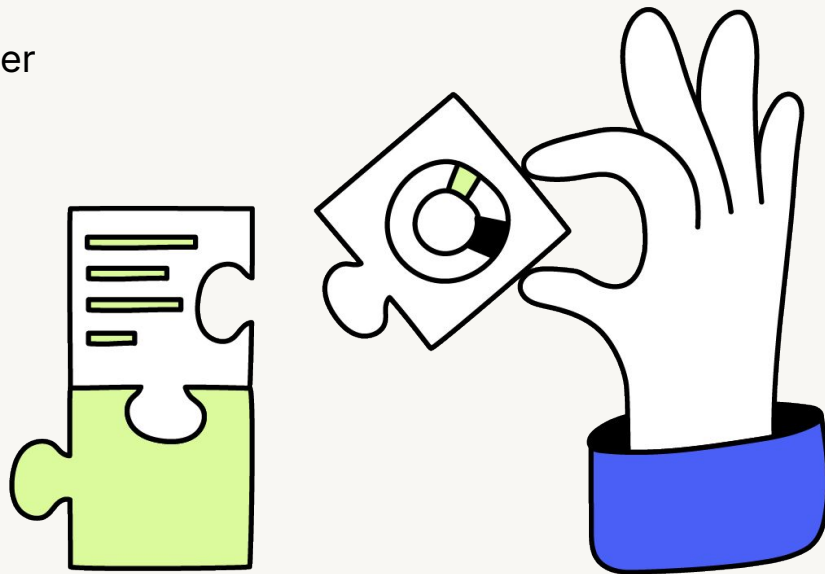
- NER uses probability and statistical models to classify words into categories.
- Sentiment Analysis relies on text vectorization and ML classifiers to determine polarity.





Real-world applications

- **NER example:** Finance sector uses NER to extract company names and key figures from reports.
- **Sentiment analysis example:** E-commerce platforms analyze reviews to improve customer experience.

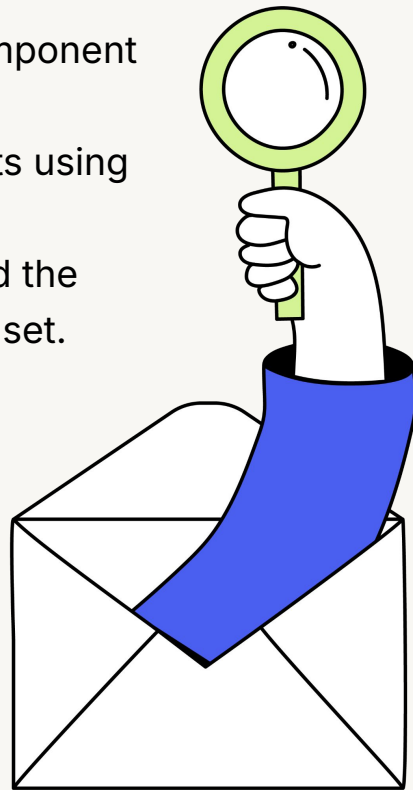




Skills demonstration Using SpaCy for NER

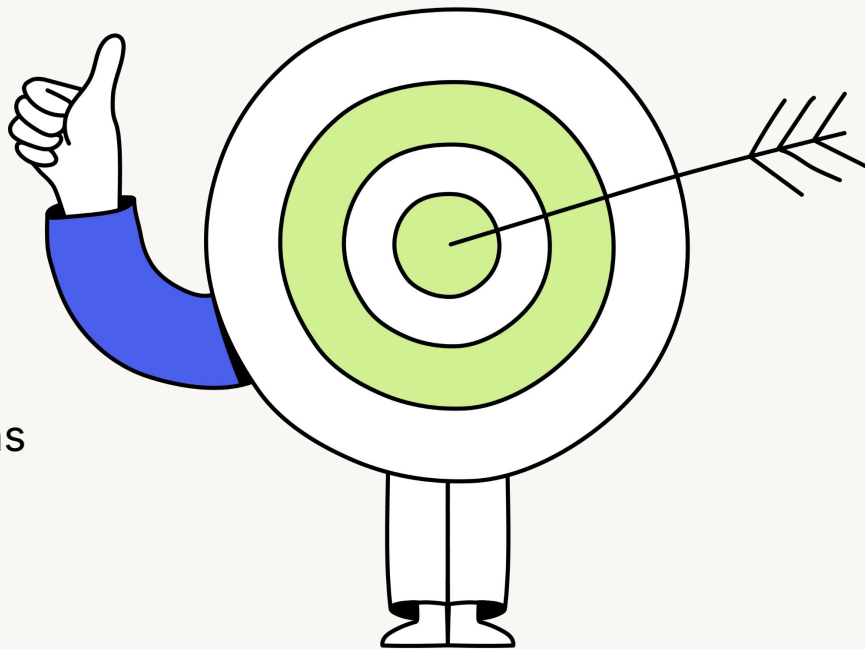
Demonstrating the NER workflow

1. **Custom entity configuration:** Set up the EntityRuler pipeline component and define patterns for domain-specific entities.
2. **Apply NER to tweets:** Extract custom entity mentions from tweets using the enhanced pipeline.
3. **Analyze entity distributions:** Create visualizations to understand the frequency and distribution of custom entity types within the dataset.



Skills demonstration key takeaways

- 1 EntityRuler extends SpaCy's NER.
- 2 It runs before statistical NER, adding domain-specific entities.
- 3 Frequency analysis, distribution insights, and visualization help track entity patterns across industries.



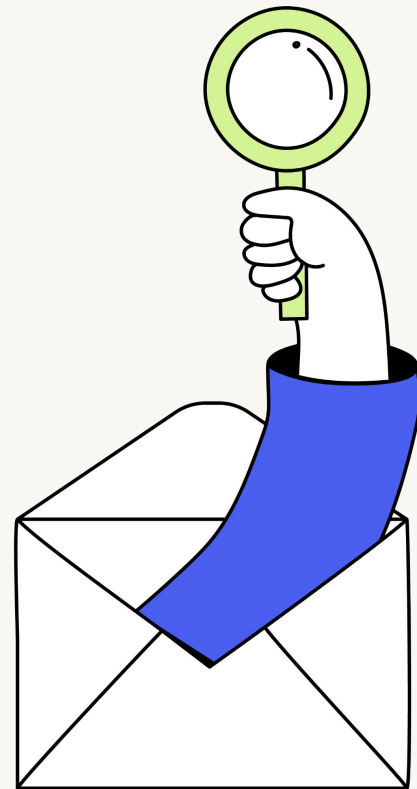


Skills application: Using SpaCy for NER



Skills application instructions

- Apply what you've learned in a hands-on challenge.
- Work in breakout rooms in small groups.
- Use the Jupyter Notebook to work on refining and extending the NER pipeline.
- The challenge is designed to be solved individually, but collaboration is encouraged.
- Find all instructions and resources on Ariel.





Access the skills application

Go to My Multiverse, Module 1
Workshop 2



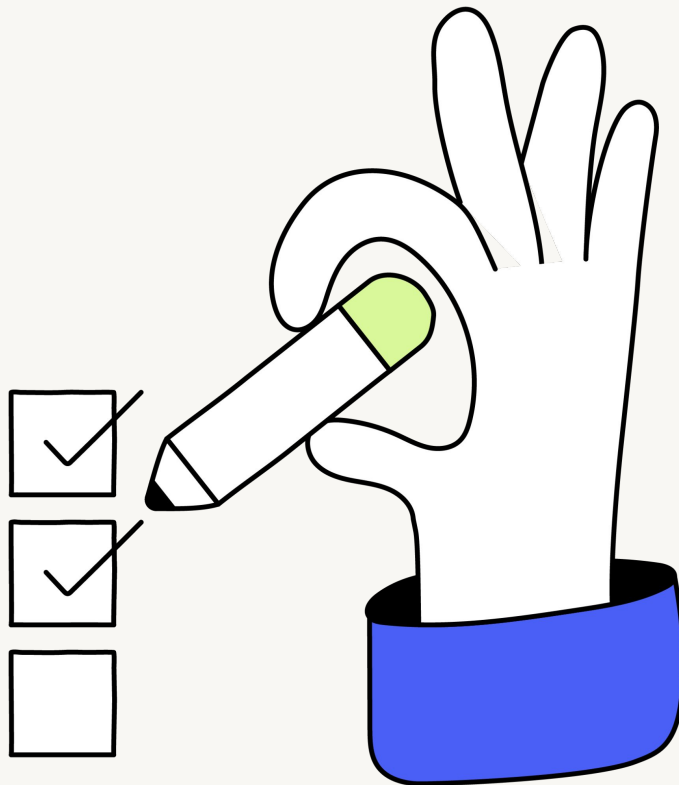
Navigate to the **"Skills application"**
page



Start working on the activity challenges



Be prepared to share in 20 minutes
when we come back together





Skills application debrief



Skills application debrief

What adjustments did you make to your NER model, and what impact did they have?





Applying key takeaways to your organization



Applying key takeaways

- 1 How could NER be used in your industry to improve efficiency or decision-making?
- 2 What ethical considerations or biases should your organization be aware of when implementing NER models?



Share your plan to apply new skills

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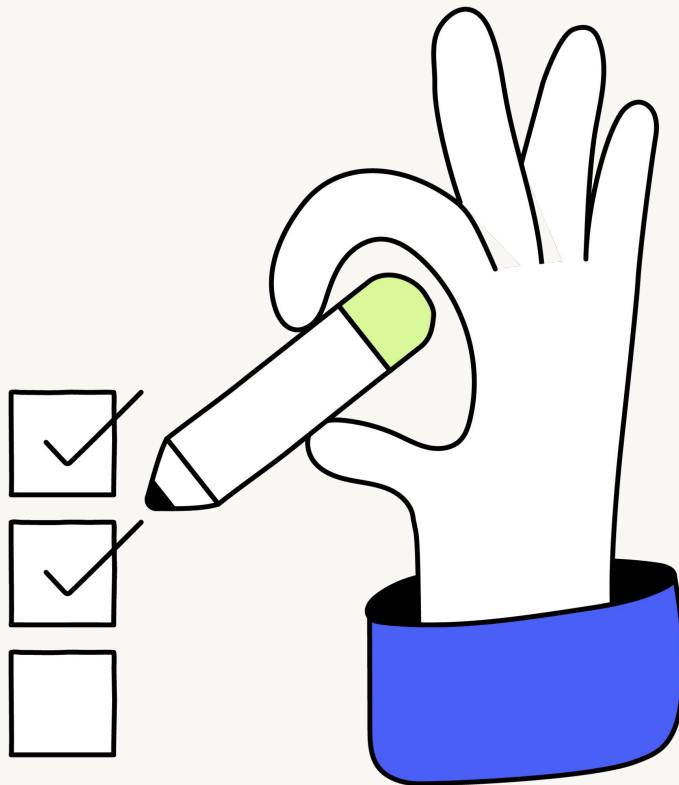
Navigate to the discussion activity
page **"Apply new skills to your role"**



Take 5 minutes to share how you will
apply this skill in your role



Take time this week to read what
others have written and get new ideas!





Closing out

- **Next up:** Module Wrap-Up Workshop
- **If you have questions, you can:**
 - Chat with Atlas
 - Reach out to your Cohort Coach
 - Sign up for Tutoring
- **Log your OTJ hours**
- **Take the Workshop Survey** on My Multiverse

multiverse