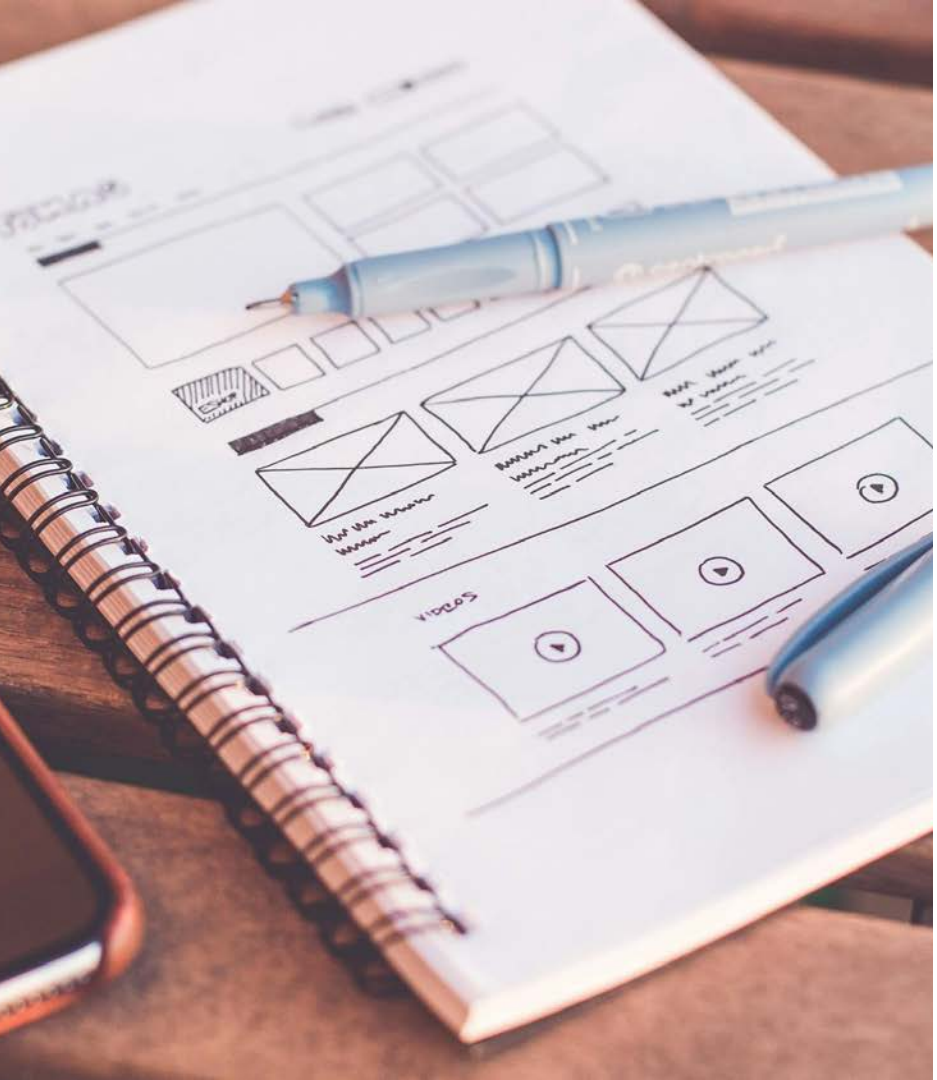
Python + UX Teams

Smart Ways to Support Research and Innovation

Liv McFarlin, Principal UX Architect @ Wheels


VIDEOS


python

Design

Python support for prototyping tools speeds up prototyping and design exploration within the UX team and with our internal partners.

HAWAII DRIVER LICENSE

NUMBER 01-47-87441

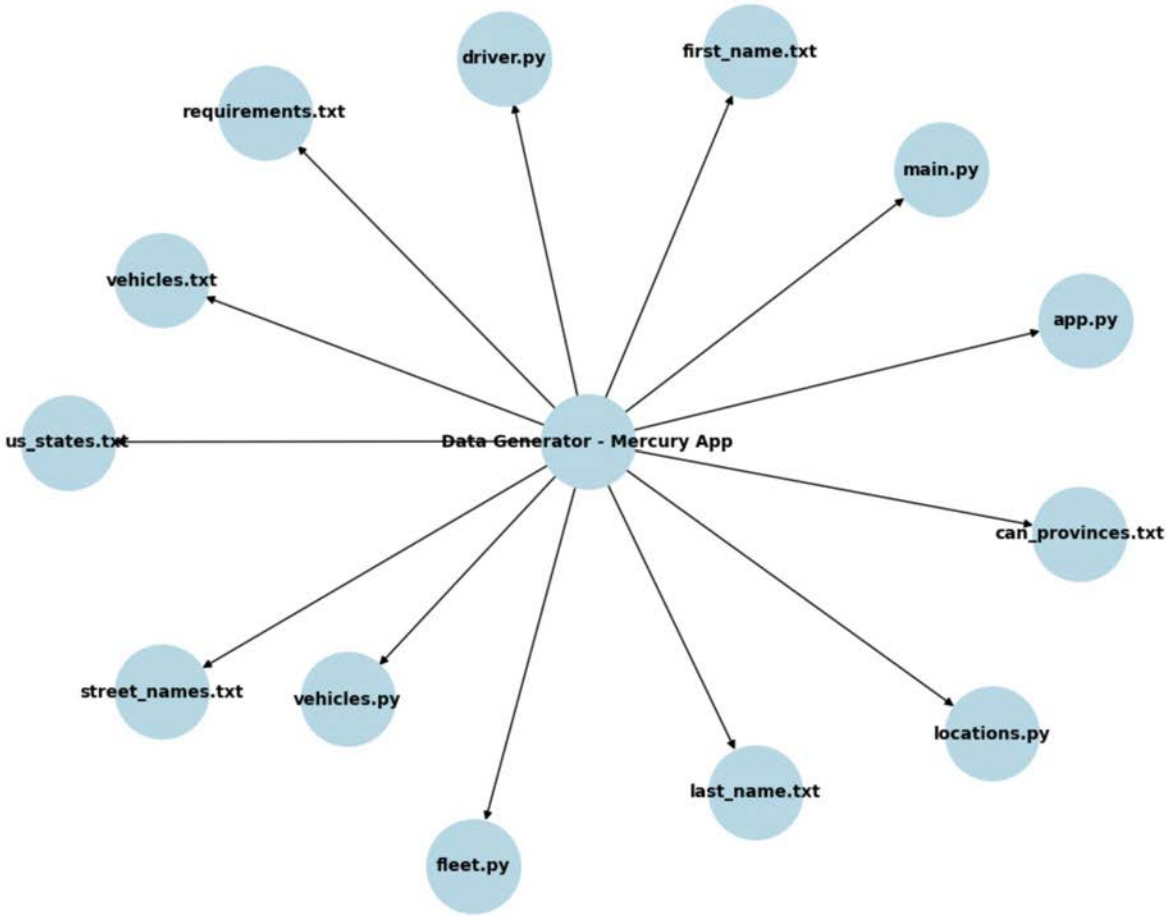
DOB 06/03/1990 EXP 06/03/2008

HT	WT	HAIR	EYES	SEX	CTY
5-10	180	BRO	BRO	M	0

ISSUE DATE	CLASS	RESTR	ENDORSE
05/08/1998	3		

McLOVIN
892 MOMONA ST.
HONOLULU, HI 96820

Data Generator

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Design Basics
Colors
Icons
Inputs
Input Fields
Buttons and Links
Buttons
Selectors
Selectors
Notifications
Notifications
Modals
Modals
Visualizations
Charts

Colors

Engine Design System specifies color palettes for light and dark modes. Within each color palette also appear primary colors, neutral colors, and status colors.

Light Mode | Dark Mode

Light mode is the default color palette applied to all Wheels digital properties.

Main Colors

Color Chip	CSS Variable	Hex Color Code
	--primary-dark	#193967
	--primary	#1E58A7
	--primary-light	#82B4FB
	--primary-light-2	#E8F0FC
	--primary-light-3	#F7FBFF
	--neutral-dark-2	#1C2B3B
	--neutral-dark	#3B434D
	--neutral	#727578
	--neutral-light	#A2A5A8
	--neutral-light-2	#E8EBED
	--background-alt	#F8F8F9
	--background	#FFFFFF

Status Colors

Color Chip	CSS Variable	Hex Color Code
	--success	#1F8554
	--success-2	#E2F6ED
	--caution	#D87810
	--caution-2	#F9EEE6
	--error	#CA0909
	--error-2	#F7E7E7
	--info	#727578
	--info-2	#E8EBED

Design Basics
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Icon Library

View Code Template

```
icon_path = "imgs/engine-icons/Alert.svg"
# Open and read icon file contents
with open(icon_path, "r") as svg_file:
    svg_content = svg_file.read()
```

Note: In this case you can change icon styling as needed.

View Streamlit Code Template

```
icon_path = "imgs/engine-icons/Alert.svg"
# st.image
st.image(icon_path)
```

Add profile	imgs/engine-icons/Add profile.svg
Agreement	imgs/engine-icons/Agreement.svg
Alert	imgs/engine-icons/Alert.svg
Arrow down	imgs/engine-icons/Arrow down.svg

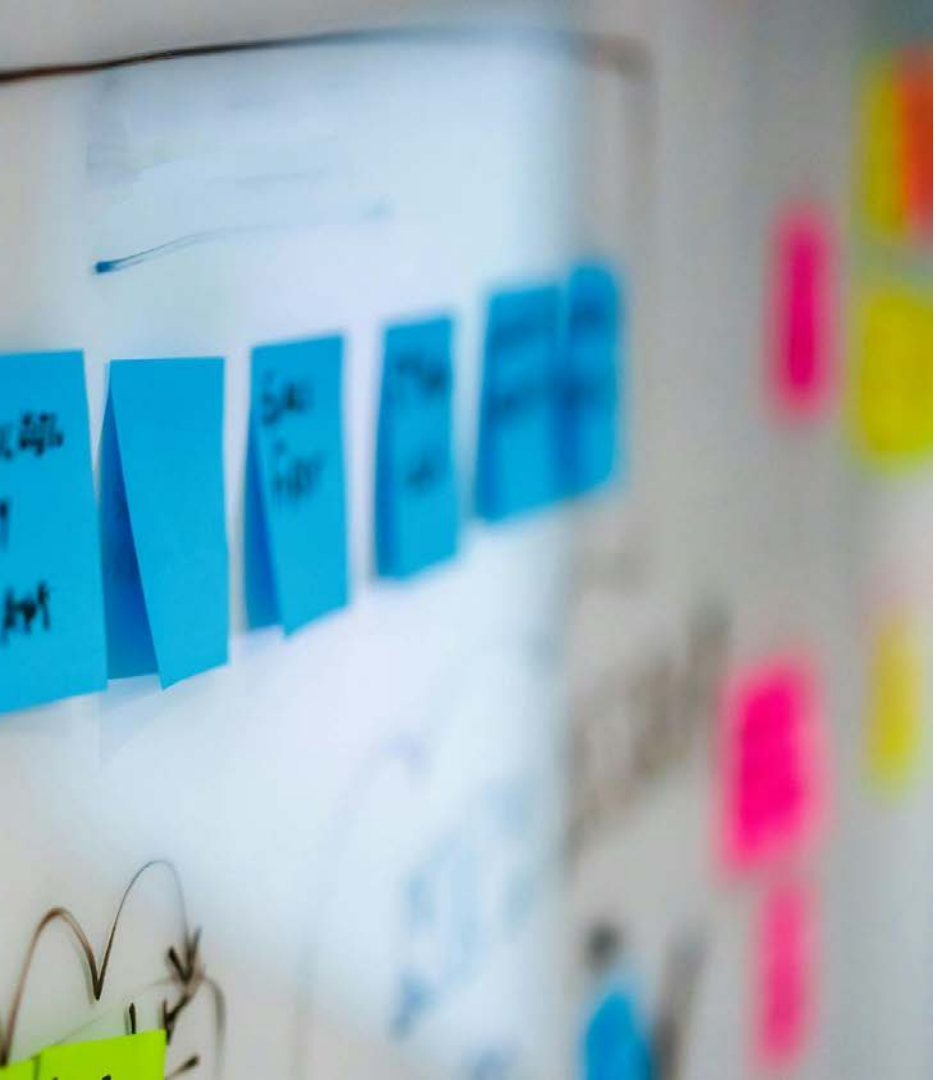
```python
# Imports
import streamlit as st
import streamlit.components.v1 as components
from utils import load_css, generateIconTable, generateFooter

# Styling
st.markdown('<link rel="preconnect" href="https://rsms.me/">', unsafe_allow_html=True) # Font
st.markdown('<link rel="stylesheet" href="https://rsms.me/inter/inter.css">', unsafe_allow_html=True) # Font
st.markdown(f"<style>{load_css()}</style>", unsafe_allow_html=True) # Master stylesheet

# Page title
st.html("<h1 class='page-title'>Icon Library</h1>")

# Main container
icon_main_container = st.container(height=None, border=None)

# Icon code
icon_code = """icon_path = "imgs/engine-icons/Alert.svg"
# Open and read icon file contents
with open(icon_path, "r") as svg_file:
    svg_content = svg_file.read()
"""

# Streamlit icon code
streamlit_icon_code = """icon_path = "imgs/engine-icons/Alert.svg"
# st.image
st.image(icon_path)
"""

# Draw the main container
with icon_main_container:
    # Show code snippet for inserting icons
    with st.expander("View Code Template"):
        # Code snippet
        st.code(icon_code, language="python")
        # Example
        example_icon = "imgs/engine-icons/Alert.svg"
        # Open code
        with open(example_icon, "r") as svg_file:
            svg_content = svg_file.read()
        # Markdown
        st.markdown(f"""
                    {svg_content}

                """, unsafe_allow_html=True)
        st.html("<p>Note: In this case you can change icon styling as needed.</p>")
    # Show code snippet for Streamlit code
    with st.expander("View Streamlit Code Template"):
        # Code snipped
        st.code(streamlit_icon_code, language="python")
        # Example
        st.image(example_icon)
    # Dynamically generate table based on items in imgs/engine-icons
    components.html(generateIconTable(), height=4650)
# Footer
components.html(generateFooter(), height=60)
```

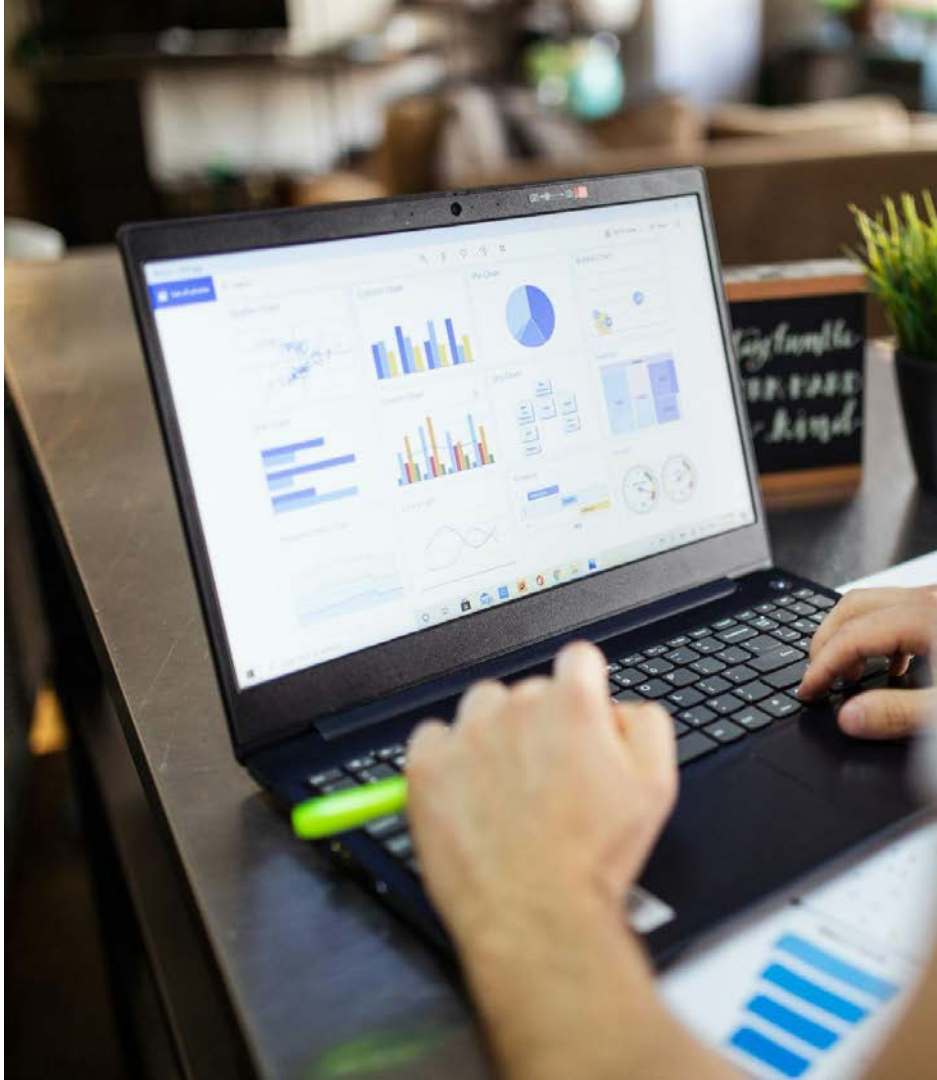
```python
# Icon page builder
def generateIconTable(icon_dir_path=icon_dir_path):
    # Get the list of items in the directory
    icon_list = sorted(os.listdir(icon_dir_path))
    # HTML table header
    html_table = "<table style='width: 100%;'>"
    # Iterate items and append to html_table
    for icon in icon_list:
        # Get the path
        icon_path = os.path.join(icon_dir_path, icon)
        icon_name = os.path.splitext(icon)[0]
        # Read the SVG file content
        with open(icon_path, "r") as file:
            icon_content = file.read()
        # Build onto the table
        html_table += f"""
                        <tr>
                            <td style="width:48px;">{icon_content}</td>
                            <td style="color: #193967;">{icon_name}</td>
                            <td style="color: #193967;">{icon_path}</td>
                        </tr>
                    """
    # Close out html_table
    html_table += "</table>"
    # Return
    return html_table
```


SONY
5x
OPTICAL ZOOM
Sony Lens
5x Optical Zoom
20.1
MEGA PIXELS
MOVIE
MENU
SONY

Research

Python expands our research toolkit so we can provide deeper insights and more widely apply our findings.





PHASE I

NLTK

Natural Language Toolkit

Sentiment Analysis

Valence Aware Dictionary and sEntiment Reasoner (VADER)

Text Metrics

Word and sentence counts, ngrams

PHASE II

Gensim

Scikit Learn

pyLDAvis

wordcloud

Topic Modeling

Latent Dirichlet Allocation (LDA)
Latent Semantic Analysis (LSA)
Non-Negative Matrix Factorization (NMF)

Visualizations

Interactive topic exploration
Word clouds

PHASE III

Huggingface

Sentiment Analysis

Emotion Analysis

spaCy

Named Entity Recognition (NER)

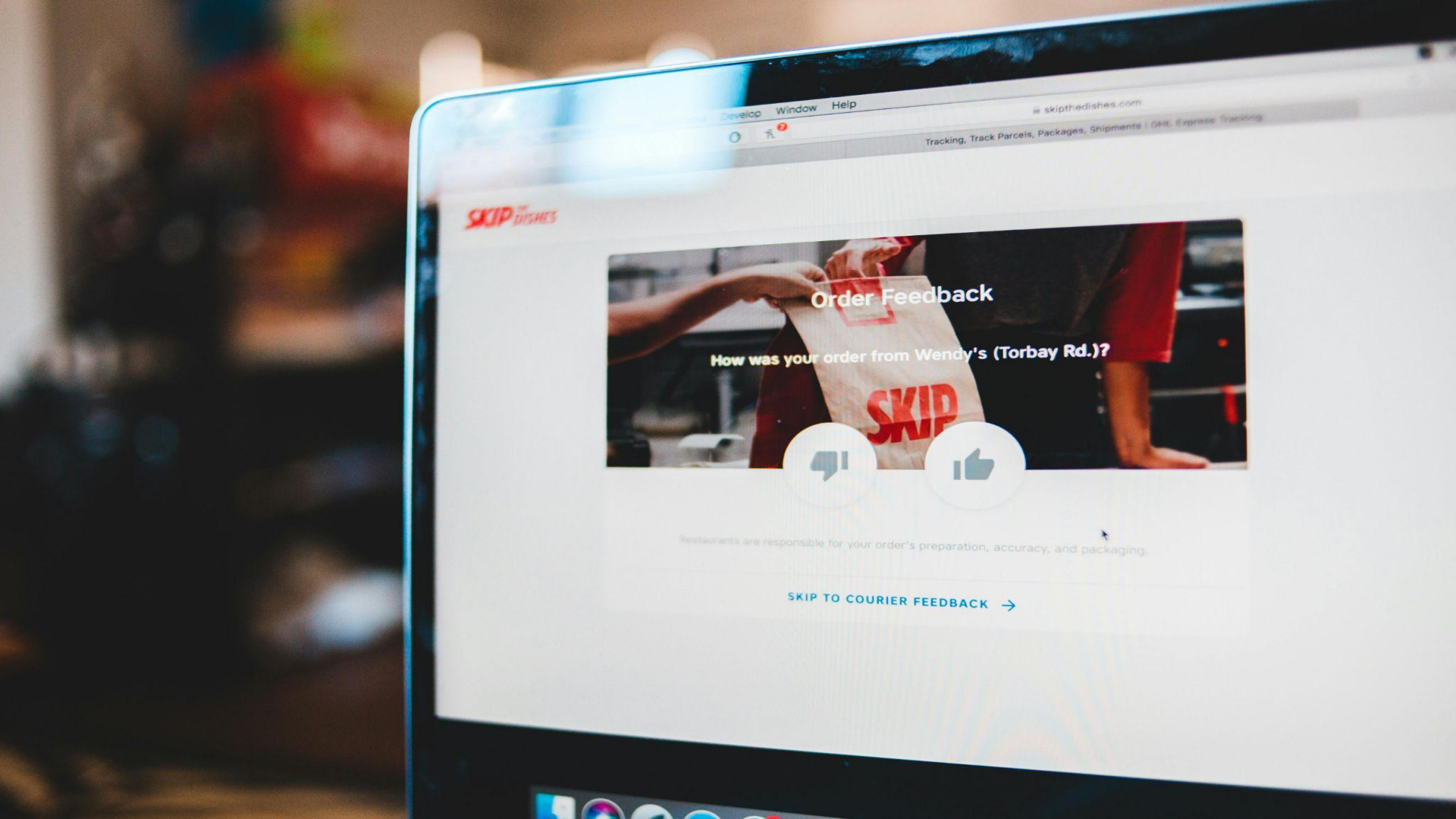
Part of Speech Tagging (POS)

Stylometrics

SCIKIT-LLM

LangChain

scikit-ollama


Develop Window Help
skipthedishes.com
Tracking, Track Parcels, Packages, Shipments | DHL Express Tracking
SKIP THE DISHES
Order Feedback
How was your order from Wendy's (Torbay Rd.)?
SKIP
Restaurants are responsible for your order's preparation, accuracy, and packaging.
SKIP TO COURIER FEEDBACK

Sentiment Analysis
Text Metrics
Exploratory Data Analysis
Data Visualizations
Regressions

Topic Modeling
Interactive Visualizations

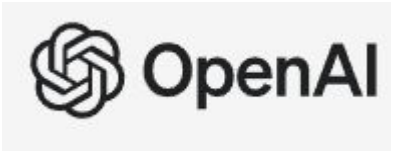
Clustering
Emotion Analysis

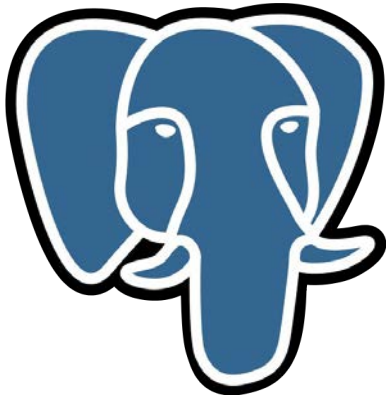
Association Mining
Network Analysis

Collaboration

Python can help provide better access to information, which facilitates collaboration between UX and our internal partners.


LangChain


OpenAI



LangChain

```
# Template for meta data
meta_template = ChatPromptTemplate.from_messages([
    ("system", "You are a helpful research assistant that extracts metadata from documents."),
    ("user", """You have been given the document below:\n\n

                {document_content}

                First, generate a concise summary no longer than 1 paragraph. Label this section 'Summary'.\n

                Then, list up to 5 main topics covered. If there are not 5 main topics, you may list fewer. Label this section 'Topics' and provide the topics as a numbered list.\n

                Finally, please extract the following information:\n
                1. Title \n
                2. Authors \n
                3. Publication date \n
                Label this last section 'Metadata' and provide each field on a new line.
            """
    )
])
```

```python
# Output test
print(llm_response.generations[0][0].text)
```

```
Here is the summary, main topics, and metadata for the provided text:

**Summary**
The paper discusses the evaluation of the System Usability Scale (SUS) using an alternative, the User Experience Questionnaire (UXQ). The authors found that the UXQ had acceptable reliability and validity, alt
hough with lower estimates than those in the original SUS research. They also developed a shorter version of the UXQ, called the UMUX-LITE, which showed good psychometric quality.

**Topics**

1. Evaluation of the System Usability Scale (SUS)
2. Development of an alternative questionnaire, the User Experience Questionnaire (UXQ)
3. Psychometric evaluation of the UXQ
4. Comparison of reliability and validity estimates with those in the original SUS research
5. Development of a shorter version of the UXQ, called the UMUX-LITE

**Metadata**

Title
User Experience Questionnaire: An Alternative to the System Usability Scale

Authors
Borsci, S., Federici, S., and Lauriola, M.

Publication date
Not specified (in the provided text)
```


LlamaIndex

Please remember…

1. Find the problems to solve that are repetitive, error prone, or mentally draining.
2. If others will be using your solution, don’t assume they can do what you can do (or that they even want to).
3. Know when to step back from an idea.
4. Don’t let a lack of support stop you from building something out.


Thank you