NLP-Part-3

November 13, 2024

0.0.1 Part 3)

Make an interactive notebook.

In addition to presenting the project slides, at the end of the presentation each student will demonstrate their code using a famous person suggested by the other students that exists in the DBpedia set.

[1]:
```
!pip install ipywidgets
```

```
Requirement already satisfied: ipywidgets in /usr/local/lib/python3.12/site-
packages (8.1.5)
Requirement already satisfied: comm>=0.1.3 in /usr/local/lib/python3.12/site-
packages (from ipywidgets) (0.2.2)
Requirement already satisfied: ipython>=6.1.0 in /usr/local/lib/python3.12/site-
packages (from ipywidgets) (8.29.0)
Requirement already satisfied: traitlets>=4.3.1 in
/usr/local/lib/python3.12/site-packages (from ipywidgets) (5.14.3)
Requirement already satisfied: widgetsnbextension~=4.0.12 in
/usr/local/lib/python3.12/site-packages (from ipywidgets) (4.0.13)
Requirement already satisfied: jupyterlab-widgets~=3.0.12 in
/usr/local/lib/python3.12/site-packages (from ipywidgets) (3.0.13)
Requirement already satisfied: decorator in /usr/local/lib/python3.12/site-
packages (from ipython>=6.1.0->ipywidgets) (5.1.1)
Requirement already satisfied: jedi>=0.16 in /usr/local/lib/python3.12/site-
packages (from ipython>=6.1.0->ipywidgets) (0.19.1)
Requirement already satisfied: matplotlib-inline in
/usr/local/lib/python3.12/site-packages (from ipython>=6.1.0->ipywidgets)
(0.1.7)
Requirement already satisfied: prompt-toolkit<3.1.0,>=3.0.41 in
/usr/local/lib/python3.12/site-packages (from ipython>=6.1.0->ipywidgets)
(3.0.48)
Requirement already satisfied: pygments>=2.4.0 in
/usr/local/lib/python3.12/site-packages (from ipython>=6.1.0->ipywidgets)
(2.18.0)
Requirement already satisfied: stack-data in /usr/local/lib/python3.12/site-
packages (from ipython>=6.1.0->ipywidgets) (0.6.3)
Requirement already satisfied: pexpect>4.3 in /usr/local/lib/python3.12/site-
packages (from ipython>=6.1.0->ipywidgets) (4.9.0)
Requirement already satisfied: parso<0.9.0,>=0.8.3 in
```

```
/usr/local/lib/python3.12/site-packages (from
jedi>=0.16->ipython>=6.1.0->ipywidgets) (0.8.4)
Requirement already satisfied: ptyprocess>=0.5 in
/usr/local/lib/python3.12/site-packages (from
pexpect>4.3->ipython>=6.1.0->ipywidgets) (0.7.0)
Requirement already satisfied: wcwidth in /usr/local/lib/python3.12/site-
packages (from prompt-toolkit<3.1.0,>=3.0.41->ipython>=6.1.0->ipywidgets)
(0.2.13)
Requirement already satisfied: executing>=1.2.0 in
/usr/local/lib/python3.12/site-packages (from stack-
data->ipython>=6.1.0->ipywidgets) (2.1.0)
Requirement already satisfied: asttokens>=2.1.0 in
/usr/local/lib/python3.12/site-packages (from stack-
data->ipython>=6.1.0->ipywidgets) (2.4.1)
Requirement already satisfied: pure-eval in /usr/local/lib/python3.12/site-
packages (from stack-data->ipython>=6.1.0->ipywidgets) (0.2.3)
Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.12/site-
packages (from asttokens>=2.1.0->stack-data->ipython>=6.1.0->ipywidgets)
(1.16.0)
WARNING: Running pip as the 'root' user can result in broken permissions
and conflicting behaviour with the system package manager, possibly rendering
your system unusable.It is recommended to use a virtual environment instead:
https://pip.pypa.io/warnings/venv. Use the --root-user-action option if you know
what you are doing and want to suppress this warning.
```

[ ]:
```
import ipywidgets as widgets
from IPython.display import display
```

[3]:
```
person_name_widget = widgets.Text(value="Albert Einstein", placeholder="Enter␣
↪person name", description="Person:", disabled=False)
nearest_neighbors_widget = widgets.Textarea(value="Marie Curie\nIsaac␣
↪Newton\nGalileo Galilei\nStephen Hawking\nRichard Feynman\nNikola␣
↪Tesla\nCharles Darwin\nAristotle\nArchimedes\nLeonardo da Vinci",␣
↪placeholder="Enter nearest neighbors (one per line)", description="Neighbors:
↪", disabled=False)
```

[ ]:
```
```

[6]:
```
def process_input(b):
    person_name = person_name_widget.value
    nearest_neighbors = nearest_neighbors_widget.value.split('\n')

    main_sentiment, wikipedia_ranking = analyze_wikipedia_content(person_name,␣
↪nearest_neighbors)
```

```
    if main_sentiment is not None:
        output = f"Sentiment of {person_name}'s Wikipedia page:\n"
        output += f"Polarity: {main_sentiment.polarity}\n"
        output += f"Subjectivity: {main_sentiment.subjectivity}\n\n"

        output += "Wikipedia ranking of nearest neighbors:\n"
        for i, neighbor in enumerate(wikipedia_ranking):
            output += f"{i+1}. {neighbor}\n"

        output += "\nComparison of rankings:\n"
        for i in range(len(nearest_neighbors)):
            if nearest_neighbors[i] in wikipedia_ranking:
                output += f"{nearest_neighbors[i]}: Original rank {i+1},␣
 ↪Wikipedia rank {wikipedia_ranking.index(nearest_neighbors[i])+1}\n"
            else:
                output += f"{nearest_neighbors[i]}: Original rank {i+1}, Not␣
 ↪found in Wikipedia ranking\n"

        output_widget.value = output
    else:
        output_widget.value = f"No Wikipedia page found for {person_name}.␣
 ↪Unable to perform analysis."

# Create a button to trigger the analysis
analyze_button = widgets.Button(description="Analyze")
analyze_button.on_click(process_input)

# Create an output widget to display the results
output_widget = widgets.Textarea(value="", placeholder="Results will appear␣
 ↪here", description="Results:", disabled=True)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[6], line 5, in process_input(b)
      2 person_name = person_name_widget.value
      3 nearest_neighbors = nearest_neighbors_widget.value.split('\n')
----> 5 main_sentiment, wikipedia_ranking =␣
 ↪analyze_wikipedia_content(person_name, nearest_neighbors)
      7 if main_sentiment is not None:
      8     output = f"Sentiment of {person_name}'s Wikipedia page:\n"

NameError: name 'analyze_wikipedia_content' is not defined
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
```

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[7]:
```
# This will display the interactive widgets
display(person_name_widget)
display(nearest_neighbors_widget)
display(analyze_button)
display(output_widget)
```

```
Text(value='Albert Einstein', description='Person:', placeholder='Enter person␣
  ↪name')
```

```
Textarea(value='Marie Curie\nIsaac Newton\nGalileo Galilei\nStephen␣
  ↪Hawking\nRichard Feynman\nNikola Tesla\nCh…
```

```
Button(description='Analyze', style=ButtonStyle())

Textarea(value='', description='Results:', disabled=True, placeholder='Results␣
  ↪will appear here')
```