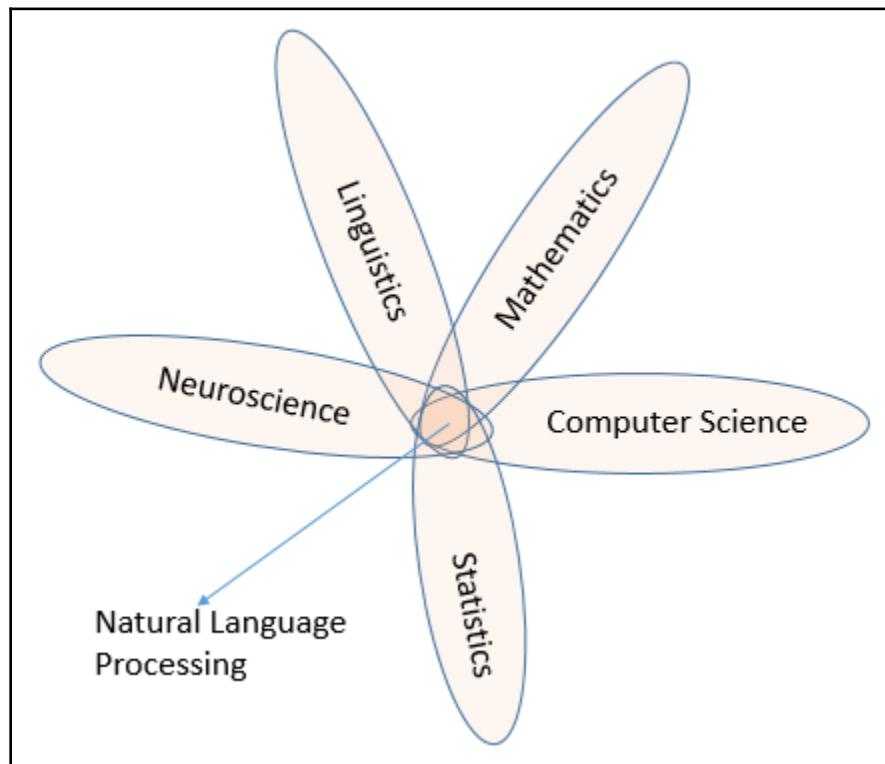


Chapter 1: Understanding the Basics of NLP



Mitsuku

World's best conversational AI

Hi. I'm the world's most humanlike conversational AI. You can talk to me normally or try to answer the...

...daily quiz question

... or play Tic Tac Toe

🤖 Add me to Mitsuku's brain! 🤖

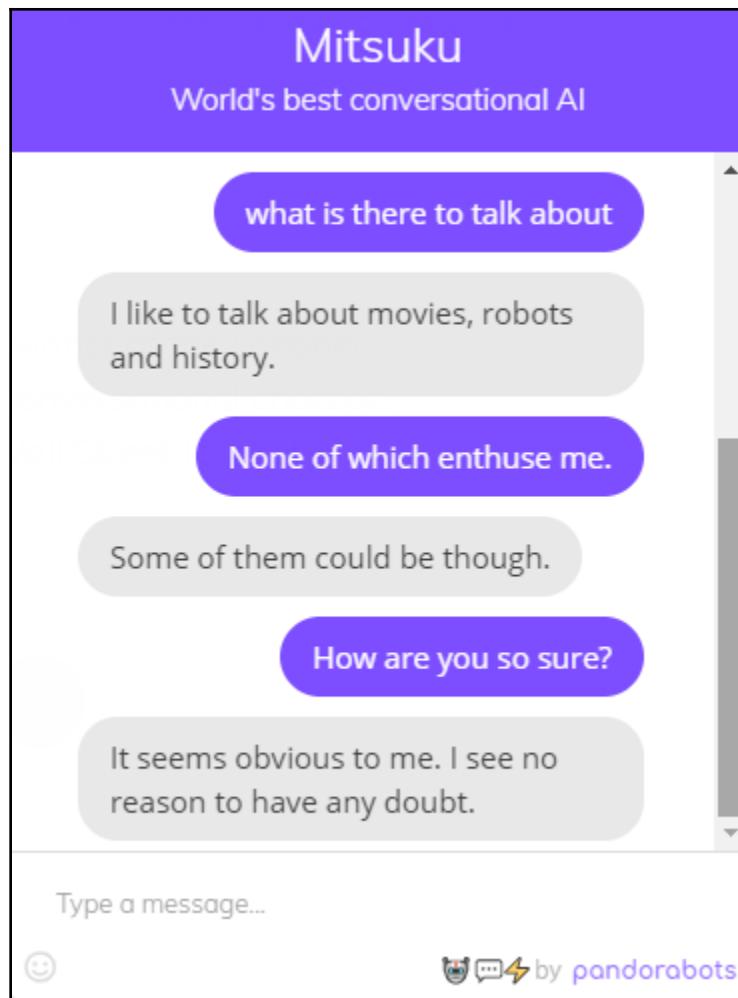
what is there to talk about

I like to talk about movies, robots and history.

Type a message...



🤖💬⚡ by pandorabots



The screenshot shows the Google Translate interface translating from English to Hindi. The source text is: "I don't have money to hire a translator. I wonder if I could use this to translate my book to Hindi". The translated text in Hindi is: "मेरे पास अनुवादक को नियुक्त करने के लिए पैसे नहीं हैं। मुझे आश्चर्य है कि अगर मैं अपनी किताब को हिंदी में अनुवाद करने के लिए इसका उपयोग कर सकता हूं". Below the Hindi text, the English equivalent is shown: "mere paas anuvaadak ko niyukt karane ke lie paise nahin hain. mujhe aashchary hai ki agar main apanee kitaab ko hindee mein anuvaad karane ke lie iska upayog kar sakata hoon".

English ▾

Hindi ▾

I don't have money to hire a translator. I wonder if I could use this to translate my book to Hindi.

मेरे पास अनुवादक को हायर करने के लिए पैसे नहीं हैं। मुझे आश्चर्य है कि अगर मैं इसका इस्तेमाल अपनी किताब को हिंदी में अनुवाद करने के लिए कर सकता हूँ।

100/5000

mere pas anuvadak ko hayer karane kay liye paise nahin hain | mujhe ashchary hai ki agar main iska istemal apni kitab ko hindi mein anuvad karane kay liye kr sakata hoon |

Source Language English Target Language Hindi

I don't have money to hire a translator. I wonder if I could use this to translate my book to Hindi.

मैं#वर्ग से इतर वाहनों के लिए धन नहीं है, किराए में अनुवादक है। मैं सोचता हूँ कि अगर मुझे मेरी पुस्तक को हिंदी में अनुवाद करने के लिए प्रयोग किया जा सकता है।

Translate Human Translation



Stanford Named Entity Tagger

Classifier: `english.conll.4class.distsim.crf.ser.gz` ▾

Output Format: `highlighted` ▾

Preserve Spacing: `yes` ▾

Please enter your text here:

```
Virat Kohli could be the cricketer from India to break  
Sachin Tendulkar's 100 century record.
```

Virat **Kohli** could be the cricketer from **India** to break **Sachin Tendulkar**'s 100 century record.

Potential tags:

ORGANIZATION

LOCATION

PERSON

MISC

Chapter 2: NLP Using Python

```
Anaconda Prompt
(base) C:\Users\User>pip install pandas
```

YEAR	MONTH	DAY	CARRIER	ORIGIN	DEST	SCHED_DEP_TIME	ACT_DEP_TIME	DEP_DELAY	SCHED_ARR_TIME	ACT_ARR_TIME	ARR_DELAY
2019	7	24	G4	PIE	AVL	1511	1533	22	1644	1659	15
2019	7	29	G4	AUS	SFB	2002	2010	8	2335	2344	9
2019	7	7	G4	GRI	LAS	1118	1118	0	1144	1139	-5
2019	7	7	G4	AUS	MEM	1643	1726	43	1827	1922	55
2019	7	8	G4	IND	PIE	858	905	7	1107	1119	12
2019	7	20	G4	PBG	FLL	1139	1135	-4	1457	1436	-21
2019	7	25	G4	GRR	AZA	1233	1240	7	1315	1314	-1
2019	7	31	G4	BNA	CID	1529	1528	-1	1701	1654	-7
2019	7	2	G4	SFB	LIT	1800	1907	67	1911	2016	65
2019	7	2	G4	SFB	DSM	1141	1136	-5	1330	1327	-3
2019	7	4	G4	PSC	LAX	1842	1854	12	2104	2125	21
2019	7	18	G4	RFD	PGD	1639	1652	13	2019	2035	16
2019	7	19	G4	TUS	PVU	1528	1527	-1	1808	1756	-12
2019	7	19	G4	PIE	FWA	1817	1813	-4	2034	2023	-11
2019	7	21	G4	BLV	LAS	1242	1231	-11	1405	1340	-25
2019	7	2	G4	LCK	PIE	1021	1014	-7	1231	1218	-13
2019	7	15	G4	TYS	BWI	1348	1344	-4	1516	1519	3
2019	7	12	G4	PGD	BNA	1036	1028	-8	1132	1109	-23
2019	7	16	G4	CID	PIE	1720	1835	75	2056	2213	77
2019	7	17	G4	AZA	LAS	930	1018	48	1036	1121	45

Qui savait que la traduction pouvait être amusante

谁知道翻译会很有趣

कौन जानता था कि अनुवाद मजेदार हो सकता है

webscraper.io/test-sites/e-commerce/allinone/computers/laptops

Test Sites

WEB SCRAPER CLOUD SCRAPER LEARN Install Login

Computers / Laptops

Product	Price	Description	Reviews
Asus VivoBook X4...	\$295.99	Asus VivoBook X441NA-GA190 Chocolate Black, 14", Celeron N3450, 4GB, 128GB SSD, Endless OS	14 reviews
Prestigio SmartB...	\$299.00	Prestigio SmartBook 133S Dark Grey, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, Windows 10 Pro	8 reviews
Prestigio SmartB...	\$299.00	Prestigio SmartBook 133S Gold, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, Windows 10 Pro	12 reviews

```
Out[146]: '<!DOCTYPE html>\n<html>\n<head>\n\n<t&t>!-- Anti-flicker snippet (recommended)\n-->\n<style>.async-hide { opacity: 0 !important } </style>\n<script>(function(a,s,y,n,c,h,i,d,e){s.className+=` '+'y;h.start=1*new Date;\n\nh.end=i=function(){s.className=s.className.replace(RegExp(` ?` +y)+` `)};n(a[n]=a[n]||\n[]).hide=h;setTimeout(function(){i();h.end=null},c);h.timeout=c;n})\n(window,document.documentElement,'async-hide','dataLayer',4000,\n{`GTM-NVFPDW\n':true});</script>\n<t><!-- Google Tag Manager --&gt;\n&lt;script&gt;(function(w,d,s,l,i)\n{w[l]=w[l]||[];w[l].push({`gtm.start`:`\n\t`+new Date().getTime(),event:`gtm.js`});var\nf=d.getElementsByTagName(s)[0],\n\ttj=d.createElement(s),dl=l[`dataLayer`]?`&amp;l=`+l:\n``;j.async=true;j.src=\n\t`+`https://www.googletagmanager.com/gtm.js?id=`+i\n+dl;f.parentNode.insertBefore(j,f);\n\ttj)(window,document,`script`,\n\t`dataLayer`,'GTM-\nNVFPDW');&lt;/script&gt;\n&lt;!-- End Google Tag Manager --&gt;\n&lt;title&gt;Web Scraper Test Sites&lt;/title&gt;\n&lt;meta charset="utf-8"&gt;\n&lt;meta http-equiv="X-UA-Compatible"\ncontent="IE=edge,chrome=1"&gt;\n&lt;meta name="keywords" content="web scraping,Web\nScraper,Chrome extension,Crawling,Cross platform scraper, "/&gt;\n&lt;meta name="description"\ncontent="The most popular web scraping extension. Start scraping in minutes. Automate your\nscrapping tasks with ease."&gt;</pre>

```

Home

Computers ▾

- Laptops
- Tablets
- Phones >

Computers / Laptops

Asus Vivo Asus VivoBook Chocolate Bla N3450, 4GB, ★★★★	Open link in new tab Open link in new window Open link in incognito window <input type="checkbox"/> Send link to MI MAX 2	299.00 Dark N3350 s 10 Pro reviews
Aspire EI 15.6", Pentium 4GB, 500GB, Linux	Save link as... Copy link address Adobe Acrobat Video DownloadHelper	321.94 Celeron N3350 1.1GHz, 4GB, 128GB SSD, Windows 10 Home
	Inspect Ctrl+Shift+I	Prestigio SmartB... \$299.00 Prestigio SmartBook 133S Gold, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, Windows 10 Pro ★★★★ 12 reviews
		 Lenovo V110-15IAP... \$356.49 Asus VivoBook 15 X540NA-GQ008T Chocolate Black, 15.6", Pentium N4200, 4GB, 500GB,

webscraper.io/test-sites/e-commerce/allinone/computers/laptops

div.col-sm-4.col-lg-4.col-md-4 242.5 × 289.98

Computers / Laptops

Asus VivoBook \$295.99 Asus VivoBook X441NA-GA190 Chocolate Black, 14", Celeron N3450, 4GB, 128GB ★★★★ 14 reviews	Prestigio Sm... \$299.00 Prestigio SmartBook 133S Dark Grey, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, ★★★ 8 reviews	Prestigio Sm... \$299.00 Prestigio SmartBook 133S Gold, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, ★★★★ 12 reviews

Elements Console Sources Network

```
<div class="row">
  ::before
  <div class="col-sm-4 col-lg-4 col-md-4" = $0>
    <div class="col-sm-4 col-lg-4 col-md-4"></div>
    <div class="col-sm-4 col-lg-4 col-md-4"></div>
</div>
```

Styles Event Listeners DOM Breakpoints Properties Accessibility

```
Filter :hover .cls + position: 0
element.style {
}
@media (min-width: 992px)
.col-md-4 {
  width: 33.3333333333%;}
```

Computers / Laptops



a.title 175.2 × 22.5

Asus VivoBook \$295.99

Asus VivoBook X441NA-GA190 Chocolate Black, 14", Celeron N3450, 4GB, 128GB
★★★ 14 reviews



Prestigio SmartBook 133S \$299.00

Prestigio SmartBook 133S Dark Grey, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, ★★ 8 reviews



Prestigio SmartBook 133S \$299.00

Prestigio SmartBook 133S Gold, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, ★★★★ 12 reviews

```
<div class="col-sm-4 col-lg-4 col-md-4">
  <div class="thumbnail">
    
  </div>
  <div class="caption">
    <h4 class="pull-right price">$295.99</h4>
    ...
    <a href="/test-sites/e-commerce/allinone/product/251" title="Asus VivoBook X441NA-GA190">Asus VivoBook X4...</a> == $0
  </div>
</div>
```

Styles Event Listeners DOM Breakpoints Properties Accessibility

Filter :hover .cls +

element.style { }

a { app.css?id=_ac76a2c4;51 color: #337ab7; text-decoration: none; }

margin - border - padding - auto × auto - - -

Computers / Laptops



h4.pull-right.price 69.26 × 18.75

Asus VivoBook \$295.99

Asus VivoBook X441NA-GA190 Chocolate Black, 14", Celeron N3450, 4GB, 128GB
★★★ 14 reviews



Prestigio SmartBook 133S \$299.00

Prestigio SmartBook 133S Dark Grey, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, ★★ 8 reviews



Prestigio SmartBook 133S \$299.00

Prestigio SmartBook 133S Gold, 13.3" FHD IPS, Celeron N3350 1.1GHz, 4GB, 32GB, ★★★★ 12 reviews

```
<div class="col-sm-4 col-lg-4 col-md-4">
  <div class="thumbnail">
    
  </div>
  <div class="caption">
    <h4 class="pull-right price">$295.99</h4>
    ...
    <a href="/test-sites/e-commerce/allinone/product/251" title="Asus VivoBook X441NA-GA190">Asus VivoBook X4...</a> == $0
  </div>
</div>
```

Styles Event Listeners DOM Breakpoints Properties Accessibility

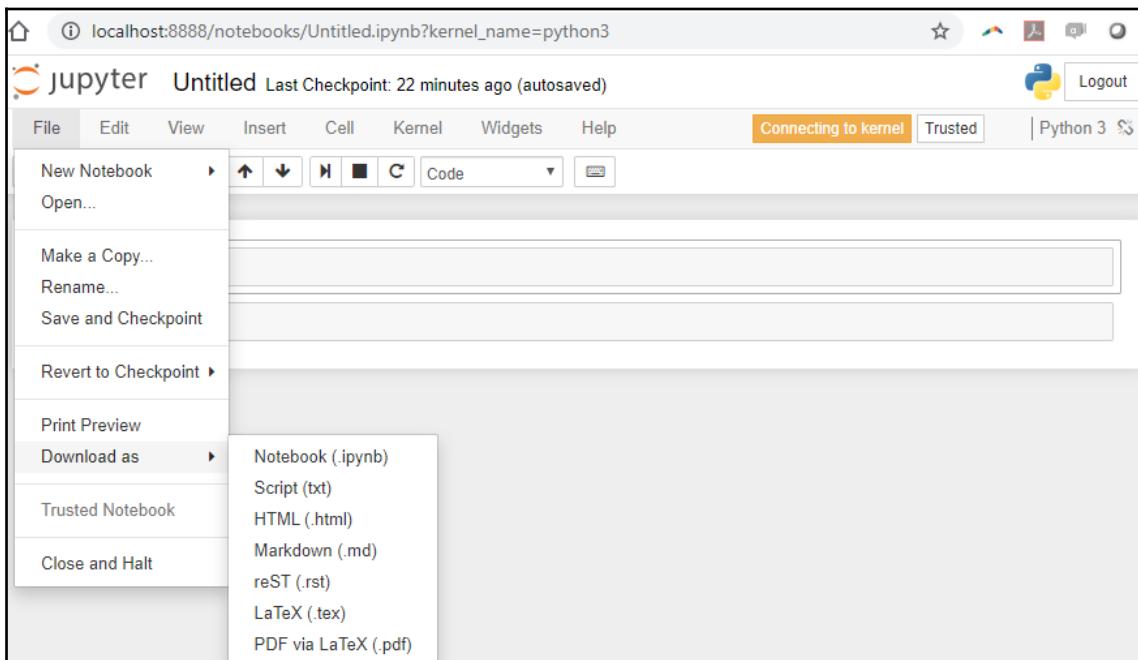
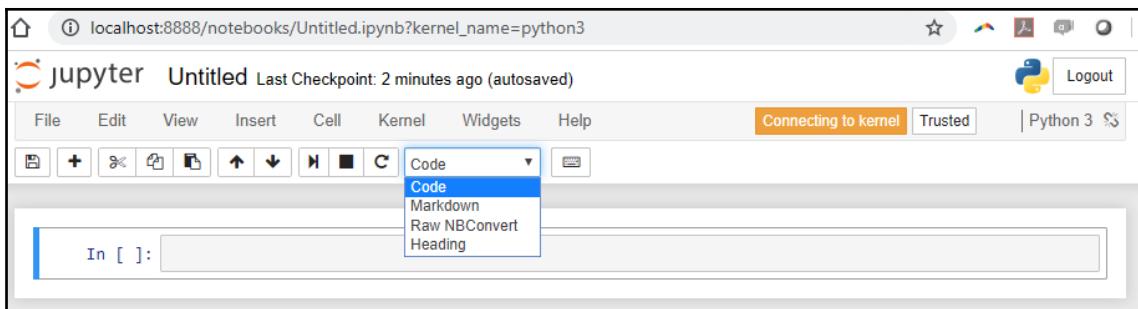
Filter :hover .cls +

Console What's New X

Highlights from the Chrome 80 update

Titles	Prices	Ratings
Asus VivoBook X441NA-GA190	\$295.99	3
Prestigio SmartBook 133S Dark Grey	\$299.00	2
Prestigio SmartBook 133S Gold	\$299.00	4
Aspire E1-510	\$306.99	3
Lenovo V110-15IAP	\$321.94	3
Lenovo V110-15IAP	\$356.49	2
Hewlett Packard 250 G6 Dark Ash Silver	\$364.46	1
Acer Aspire 3 A315-31 Black	\$372.70	2
Acer Aspire A315-31-C33J	\$379.94	2
Acer Aspire ES1-572 Black	\$379.95	4
Acer Aspire 3 A315-31 Black	\$391.48	4
Acer Aspire 3 A315-21	\$393.88	3
Asus VivoBook Max	\$399.00	1
Asus VivoBook E502NA-GO022T Dark Blue	\$399.99	4
Lenovo ThinkPad E31-80	\$404.23	1

The screenshot shows a Jupyter Notebook interface at the URL `localhost:8888/tree`. The top navigation bar includes a logo, a search bar, and user account information. Below the header, there are tabs for "Files", "Running", and "Clusters". A message "Select items to perform actions on them." is displayed above a file list area. The file list shows a single folder icon with a dropdown menu. The dropdown menu contains options for "Upload", "New", and "Create a new notebook with Python 3". Other options like "Text File", "Folder", and "Terminals Unavailable" are also listed. The main area below the file list displays the message "Notebook list empty."



The screenshot shows a Jupyter Notebook interface with the following details:

- Title Bar:** All the basic preprocessing in one place
- Header:** localhost:8888/notebooks/Chapter%203/Code/All%20the%20basic%20processing%20in%20one%20place.ipynb
- Toolbar:** File, Edit, View, Insert, Cell, Kernel, Widgets, Help
- Cell Buttons:** Trusted, Python 3
- Code Cells:**
 - In [1]:

```
import nltk
nltk.download('stopwords')
nltk.download('wordnet')
from nltk.corpus import stopwords
from nltk.stem.porter import PorterStemmer
from nltk.stem.snowball import SnowballStemmer
from nltk.stem.wordnet import WordNetLemmatizer
import pandas as pd
import re
```
 - In [2]:

```
df = pd.read_csv("../zomato_reviews.csv")
df.head(3)
```
 - Out[2]:

	Review	sentiment
0	Virat Kohli did a great thing to open his rest...	positive
1	This place have some really healthy options to ...	positive
2	Aerocity is the most finest place in Delhi for...	positive
 - In [3]:

```
corpus = pd.Series(df.Review.tolist()).astype(str)
```
 - In [4]:

```
corpus
```
 - Out[4]:

```
0      Virat Kohli did a great thing to open his rest...
1      This place have some really healthy options to ...
2      Aerocity is the most finest place in Delhi for...
3      Yesterday evening there was small team lunch ....
4      I find aerocity to be the best place in delhi ...
...
1591    || DESI LANE || So we were at alipore's most h...
```

Classification - Jupyter Notebook

localhost:8888/notebooks/Classification.ipynb

Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

Observations: We have data for 8792 restaurant, this would include restaurant chains.

```
In [11]: restaurant_chains = df["name"].value_counts()
```

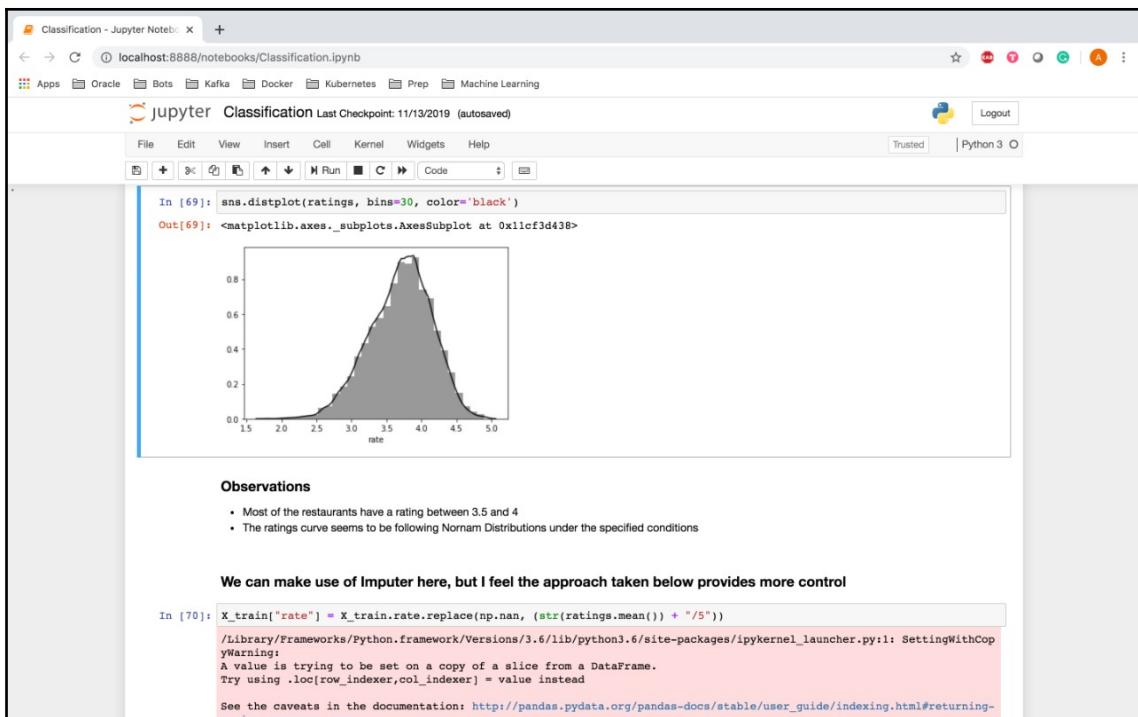
```
In [12]: restaurant_chains
```

```
Out[12]:
```

name	count
Cafe Coffee Day	96
Onesta	85
Just Bake	73
Empire Restaurant	71
Five Star Chicken	70
..	
Campus Juice Corner	1
Sri Rajalakshmi Sweets and Bakery	1
Get Grilled	1
Incanto - The Zuri	1
Nethravathi Military Hotel	1
Name: name, Length: 8792, dtype: int64	

```
In [13]: ax = sns.barplot(x = restaurant_chains[:10], y = restaurant_chains[:10].index, palette="Set3")
```

name	count
Cafe Coffee Day	96
Onesta	85
Just Bake	73
Empire Restaurant	71
Five Star Chicken	70
Kanti Sweets	68
Petoo	65
Polar Bear	63
Baskin Robbins	62
Pizza Hut	60



Classification - Jupyter Notebook

localhost:8888/notebooks/Classification.ipynb

Apps Oracle Bots Kafka Docker Kubernetes Prep Machine Learning

jupyter Classification Last Checkpoint: 11/13/2019 (autosaved)

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 Logout

Online order

```
In [15]: print(df["online_order"].nunique(), "possibilities for Online ordering in data:", df["online_order"].unique())
2 possibilities for Online ordering in data: ['Yes' 'No']

In [16]: sns.countplot(df['online_order'])
Out[16]: <matplotlib.axes._subplots.AxesSubplot at 0x12aaaf080>
```

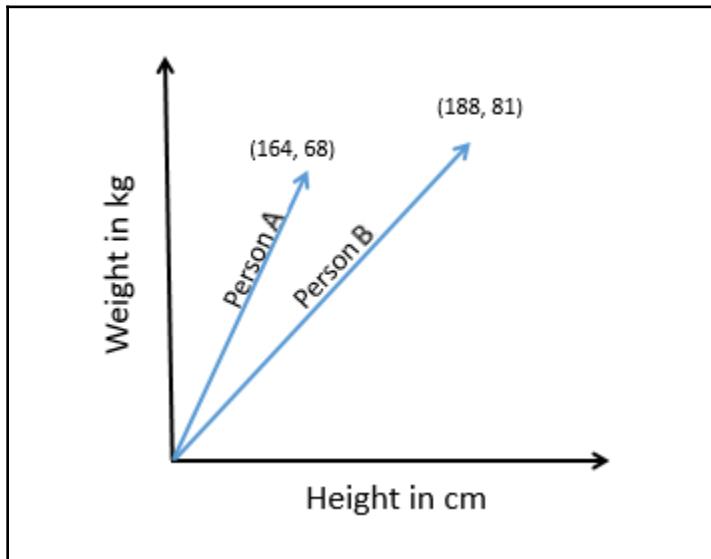
Observation : 30000+ restaurant accept online orders.

We will replace Yes with 1 and No with 0

```
In [17]: df["online_order"] = df["online_order"].map({"Yes": 1, "No":0})
```

Table Booking

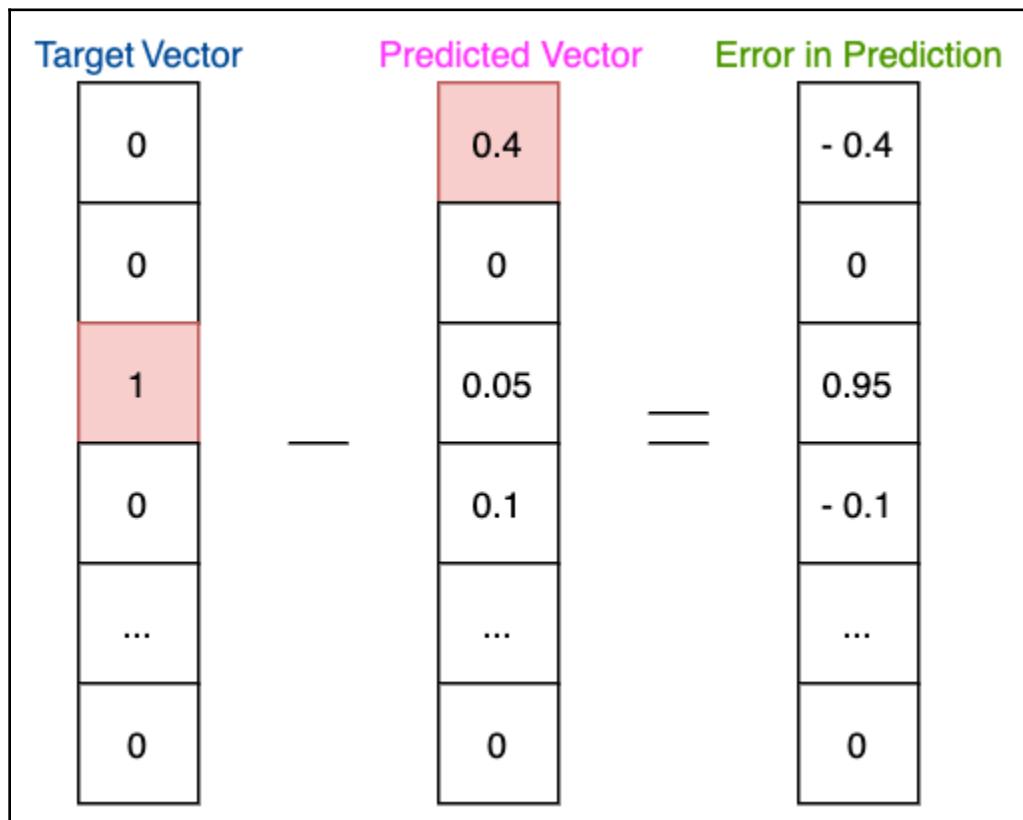
Chapter 4: Transforming Text into Data Structures

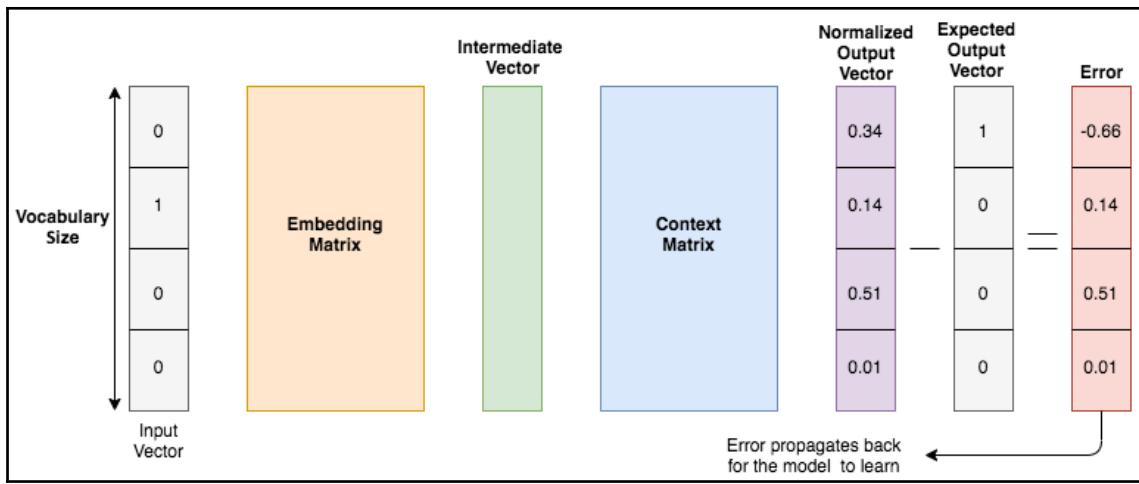


```
1  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Dec 27, 2013', 'unixTime': 1388131200, 'question': "Is this cover the one that fits the old  
nook color? Which I believe is 8x5.", 'answerType': 'Y', 'answer': "Yes this fits both the nook color and the same-shaped nook tablet!"}  
2  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Jan 5, 2015', 'unixTime': 1420444800, 'question': "Does it fit Nook GlowLight?", 'answerType':  
'N', 'answer': "No. The nook color or color tablet!"}  
3  {'answer': "I don't think so. The nook color is 5 x 8 so not sure anything smaller would stay locked in, but would be close.", 'asin': '0594033926',  
'answerTime': '2 days ago', 'question': "Would it fit Nook 1st Edition? 4.9in x 7.7in?", 'questionType': 'open-ended'}  
4  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': '17 days ago', 'question': "Will this fit a Nook Color that's 5 x 8?", 'answerType': 'Y',  
'answer': 'yes'}  
5  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Feb 10, 2015', 'unixTime': 1423555200, 'question': "will this fit the Samsung Galaxy Tab 4  
Nook 10.1?", 'answerType': 'N', 'answer': "No, the tab is smaller than the 'color'"}  
6  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Jan 30, 2015', 'unixTime': 1422604800, 'question': "does it have a flip stand?", 'answerType':  
'N', 'answer': "No, there is not a flip stand. It has a pocket in the front flap. It is a very nice cover."}  
7  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Jan 30, 2015', 'unixTime': 1422604800, 'question': "does this have a flip stand?", 'answerType':  
'N', 'answer': "No, it doesn't"}  
8  {'questionType': 'open-ended', 'asin': '0594033926', 'answerTime': 'Dec 22, 2014', 'unixTime': 1419235200, 'question': "also fits the HD+?", 'answer': "It  
should. They are the same size and the charging port is in the same place."}  
9  {'questionType': 'yes/no', 'asin': '0594033926', 'answerTime': 'Nov 16, 2014', 'unixTime': 1416124800, 'question': "Does it have 2 positions for the reader?  
Horizontal/vertical Thank You KWOD", 'answerType': 'Y', 'answer': 'Yes'}  
10 {'questionType': 'open-ended', 'asin': '0594033926', 'answerTime': 'Aug 7, 2014', 'unixTime': 1407394800, 'question': "Is there a closure mechanism? Bands,  
magnetic, etc.?", 'answer': "No- it is more like a normal book would be. It doesn't flop open- so it has never been an issue for me. The nook clips into a  
secure and safe holder inside that is small and convenient. This is the best cover I've ever had for my nook- trim and functional (no magnets or elastic  
needed)."}  
11
```

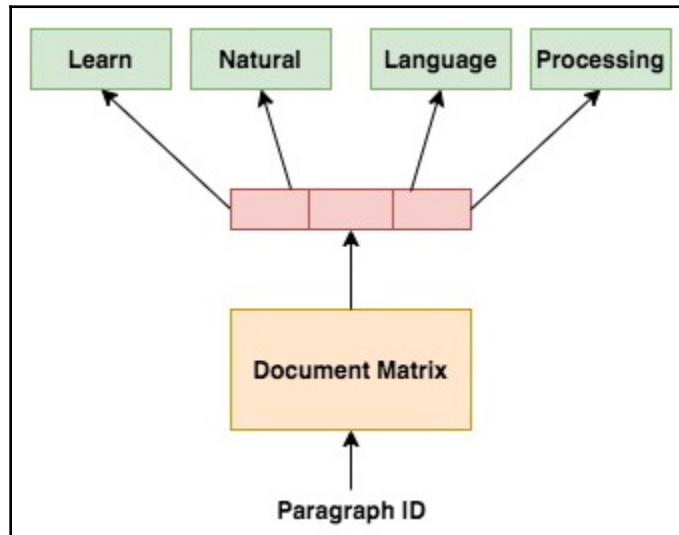
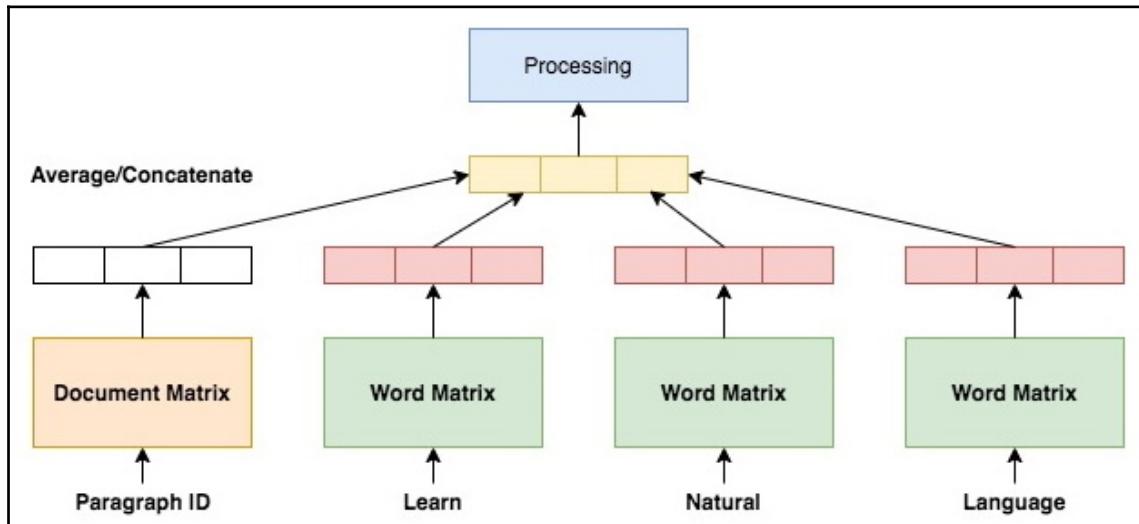
Chapter 5: Word Embeddings and Distance Measurements for Text

Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing
Let	us	make	an	effort	to	understand	Natural	Language	Processing

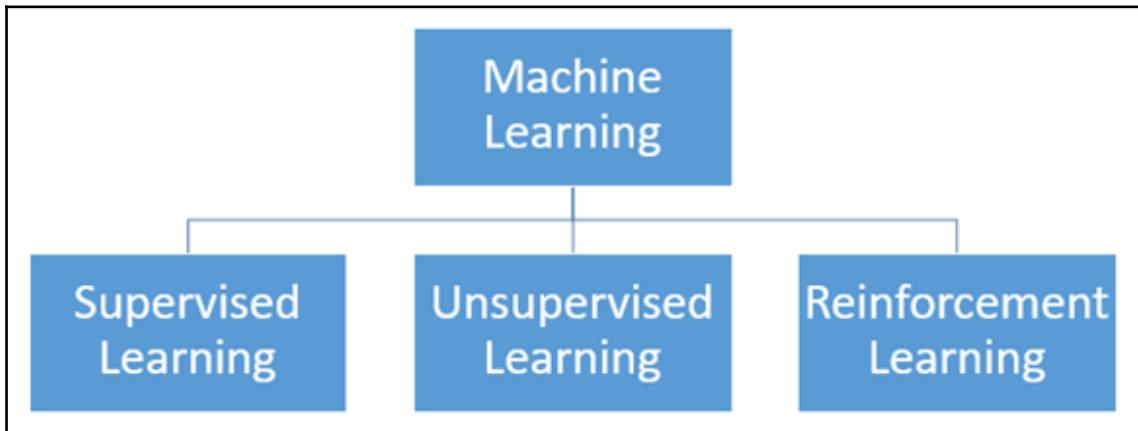




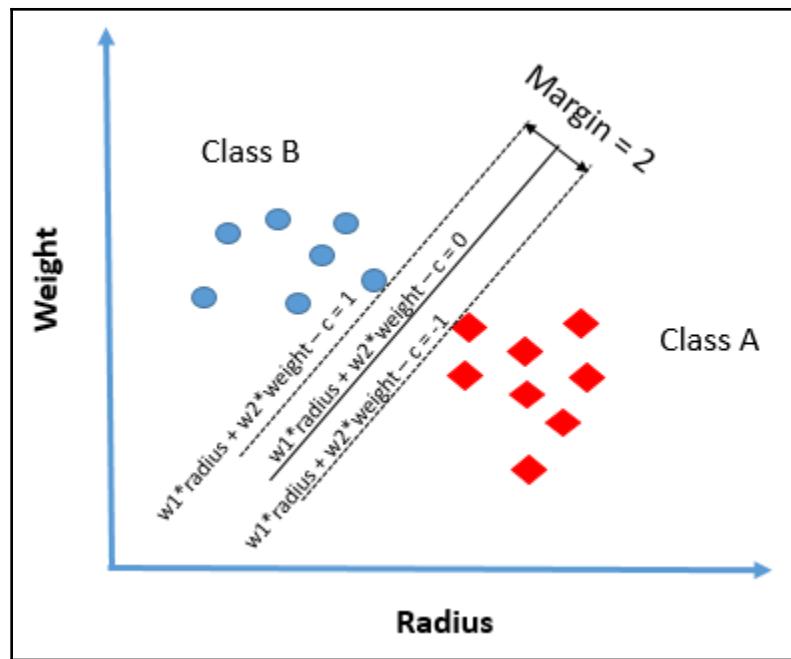
Chapter 6: Exploring Sentence-, Document-, and Character-Level Embeddings



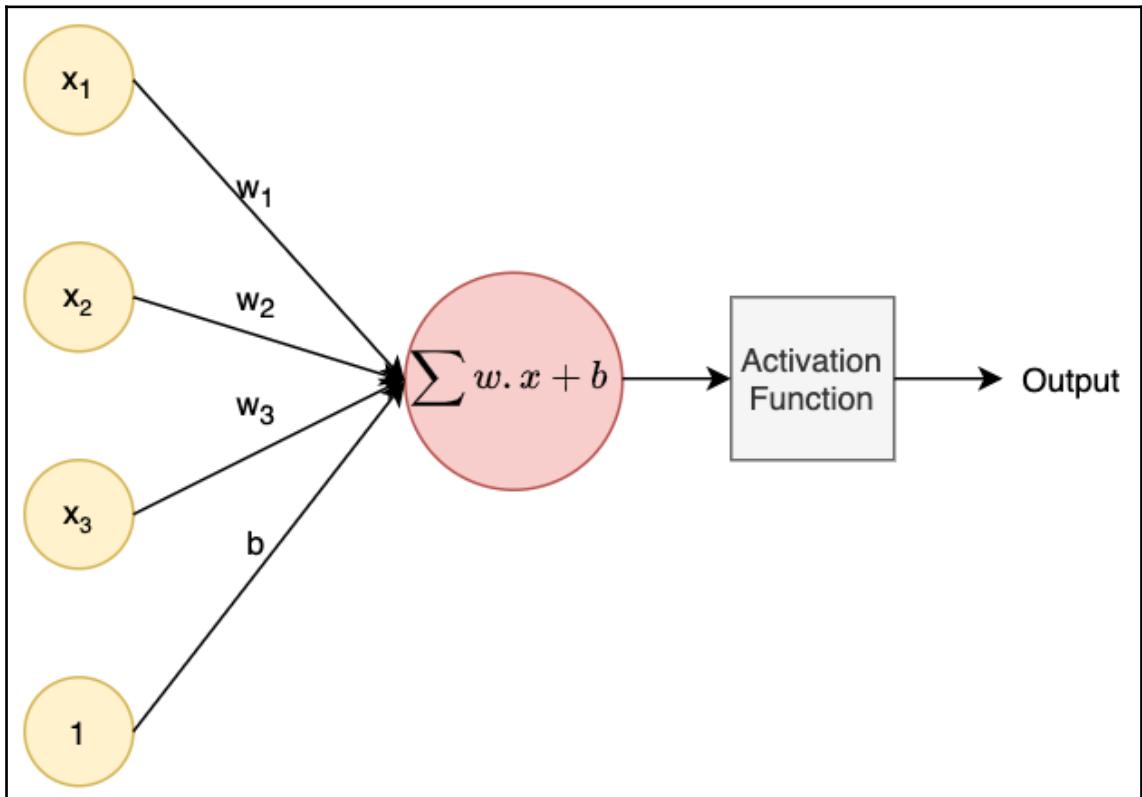
Chapter 7: Identifying Patterns in Text Using Machine Learning

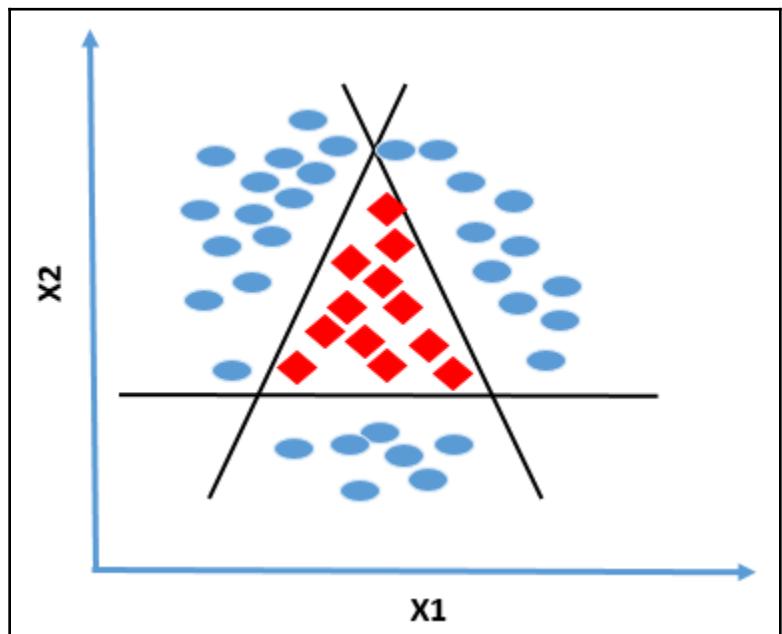
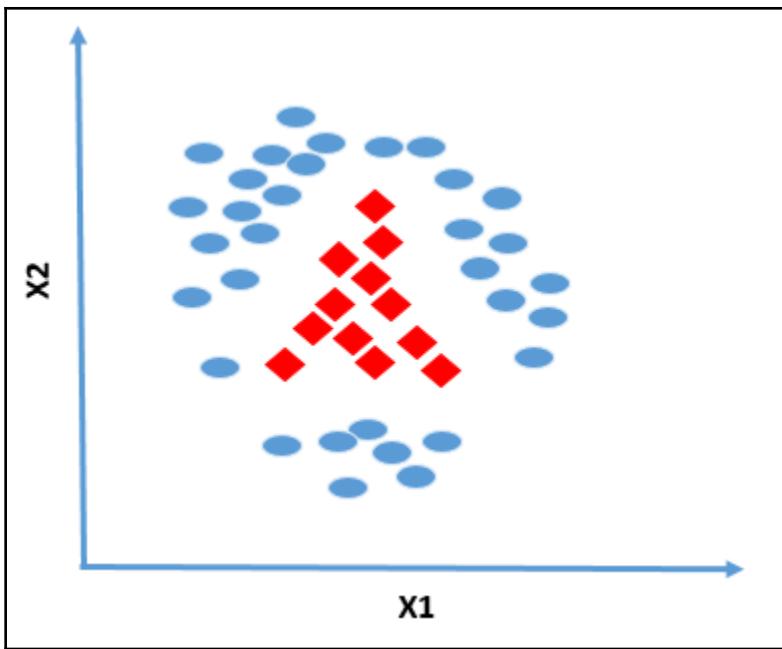


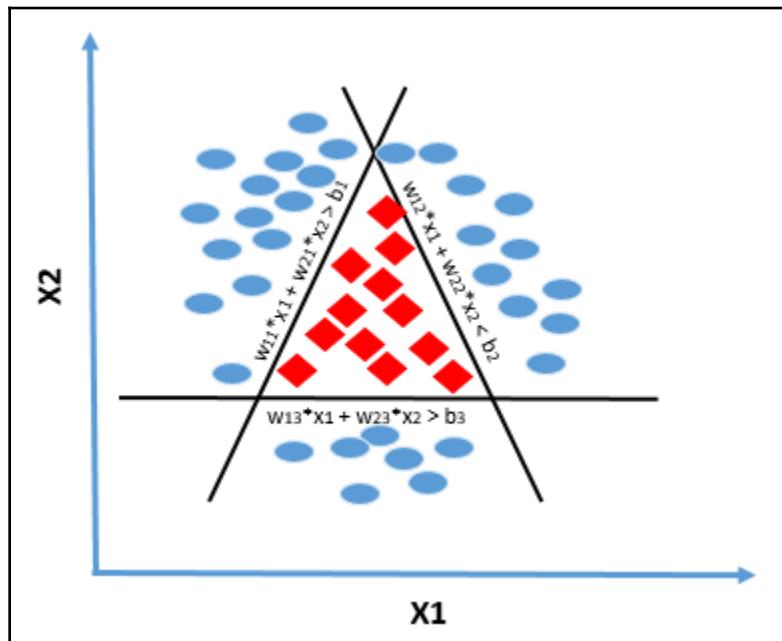
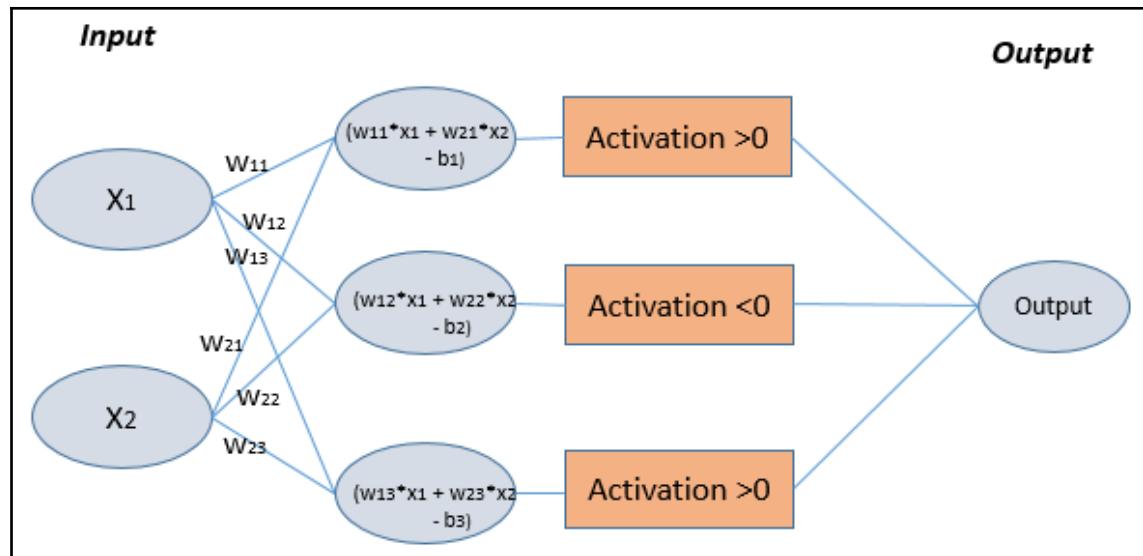
```
|So there is no way for me to plug it in here in the US unless I go by a converter.      0  
Good case, Excellent value.      1  
Great for the jawbone.      1  
Tied to charger for conversations lasting more than 45 minutes.MAJOR PROBLEMS!! 0  
The mic is great.      1  
I have to jiggle the plug to get it to line up right to get decent volume.      0  
If you have several dozen or several hundred contacts, then imagine the fun of sending each of them one by one. 0  
If you are Razr owner...you must have this!      1  
Needless to say, I wasted my money.      0  
What a waste of money and time!.      0
```

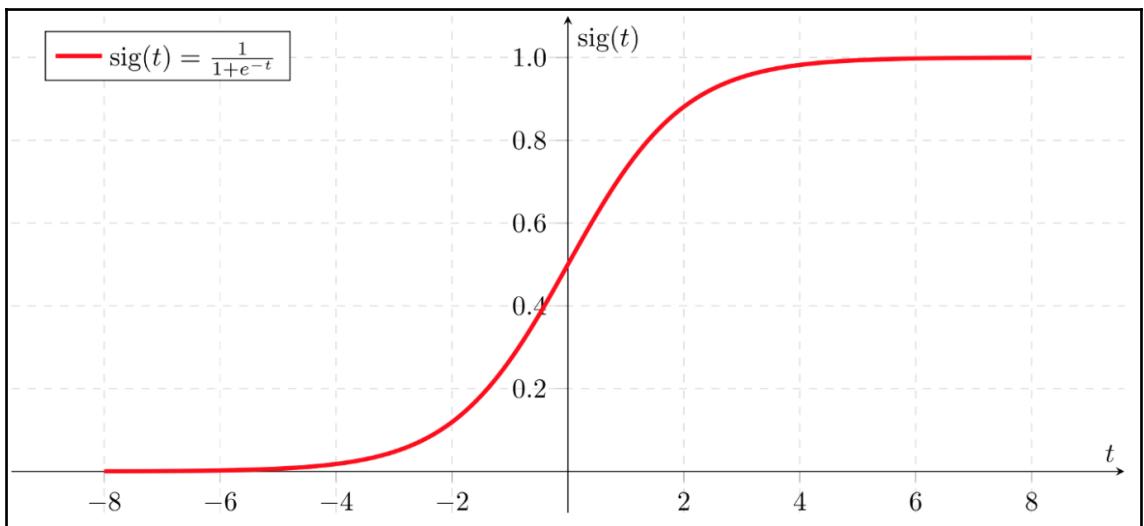
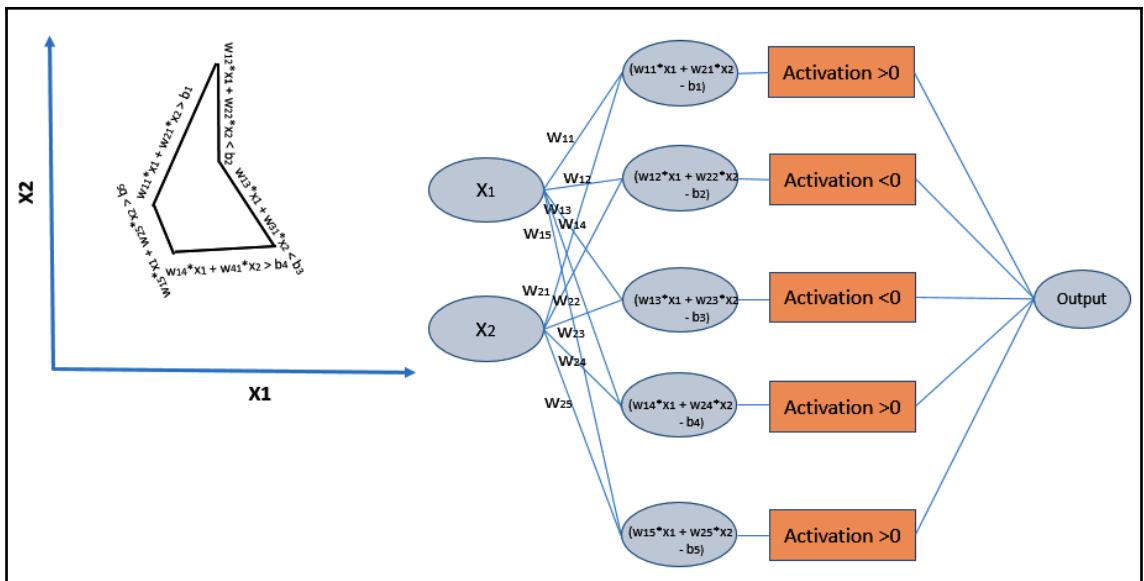


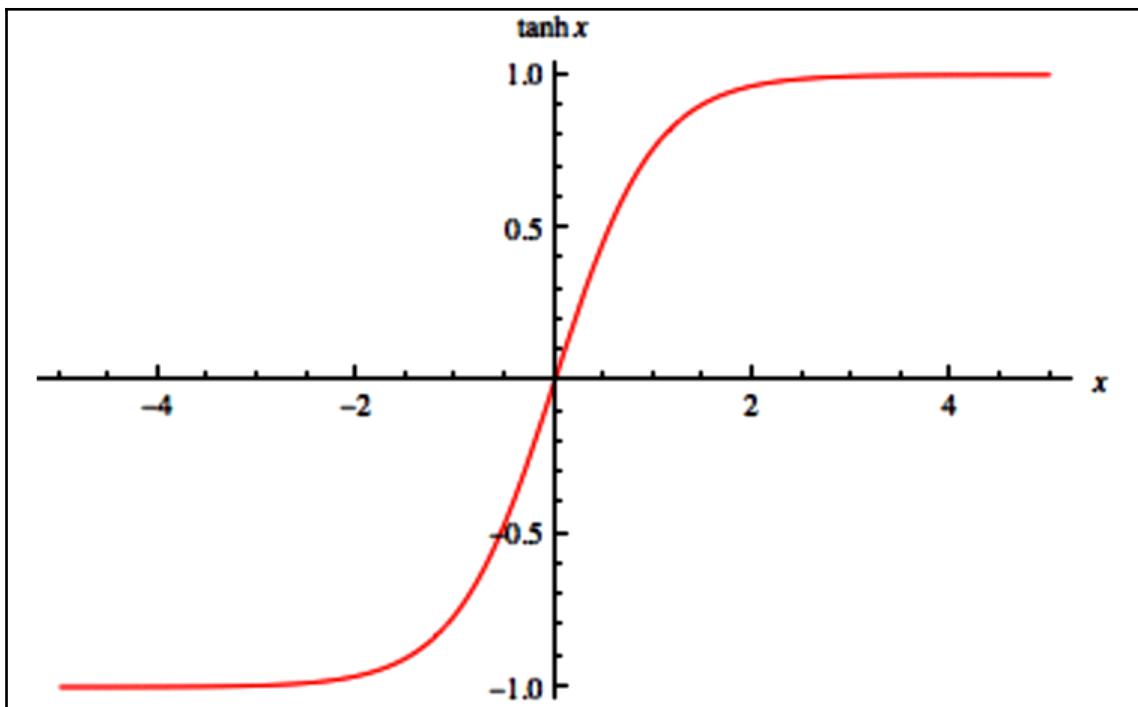
Chapter 8: From Human Neurons to Artificial Neurons for Understanding Text

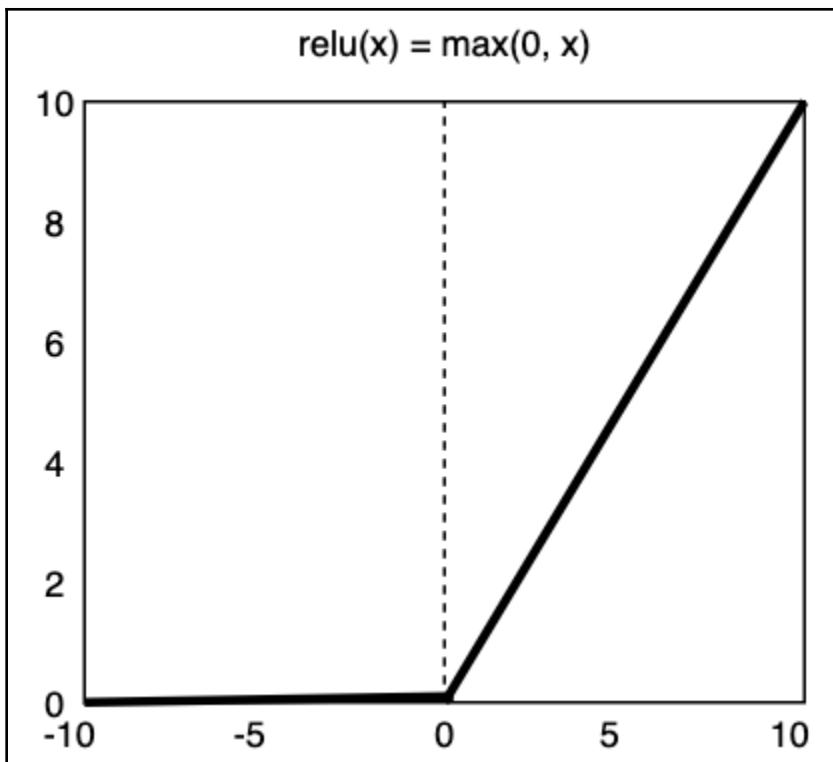


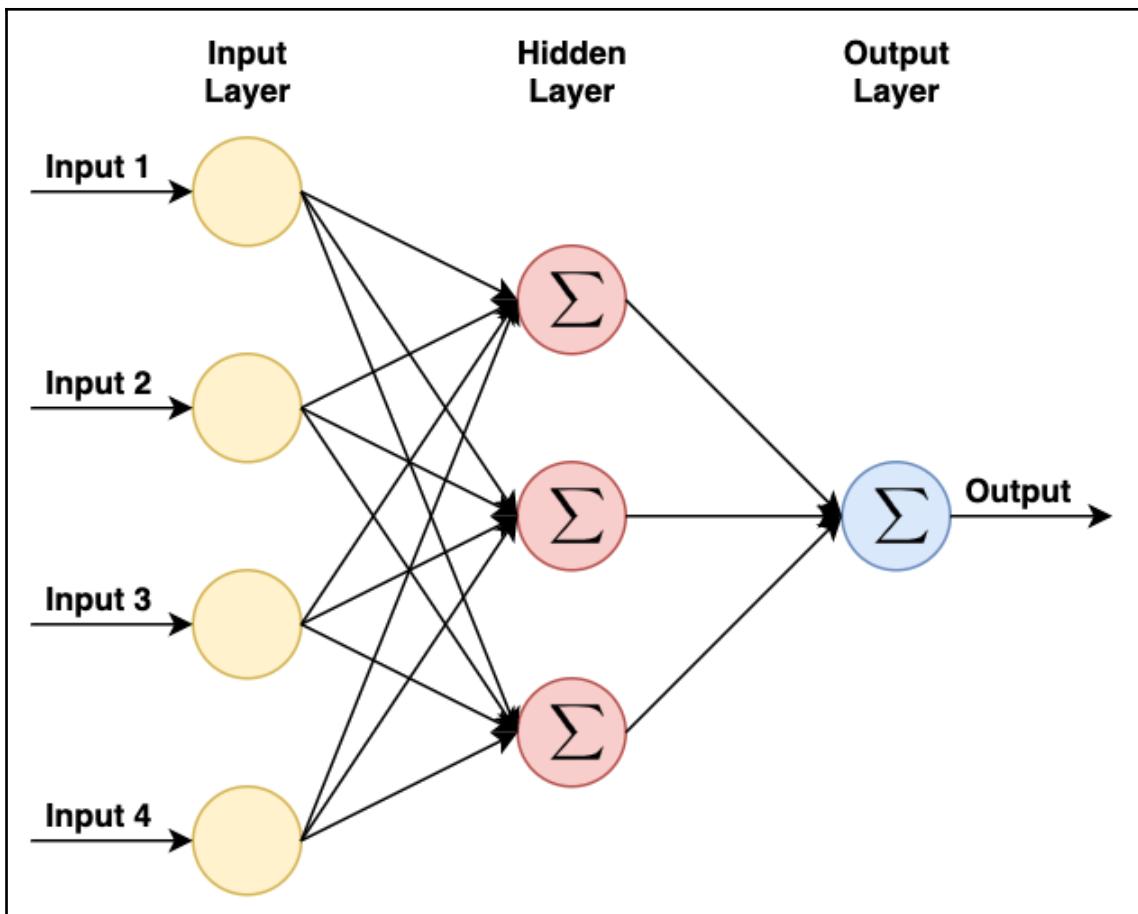












Question	
0	DESC:manner How did serfdom develop in and the...
1	ENTY:cremat What films featured the character ...
2	DESC:manner How can I find a list of celebriti...
3	ENTY:animal What fowl grabs the spotlight afte...
4	ABBR:exp What is the full form of .com ?\n

- | | |
| --- | --- |
| 0 | DESC:manner How did serfdom develop in and the... |
- | | |
| --- | --- |
| 1 | ENTY:cremat What films featured the character ... |
- | | |
| --- | --- |
| 2 | DESC:manner How can I find a list of celebriti... |
- | | |
| --- | --- |
| 3 | ENTY:animal What fowl grabs the spotlight afte... |
- | | |
| --- | --- |
| 4 | ABBR:exp What is the full form of .com ?\n |

Chapter 9: Applying Convolutions to Text

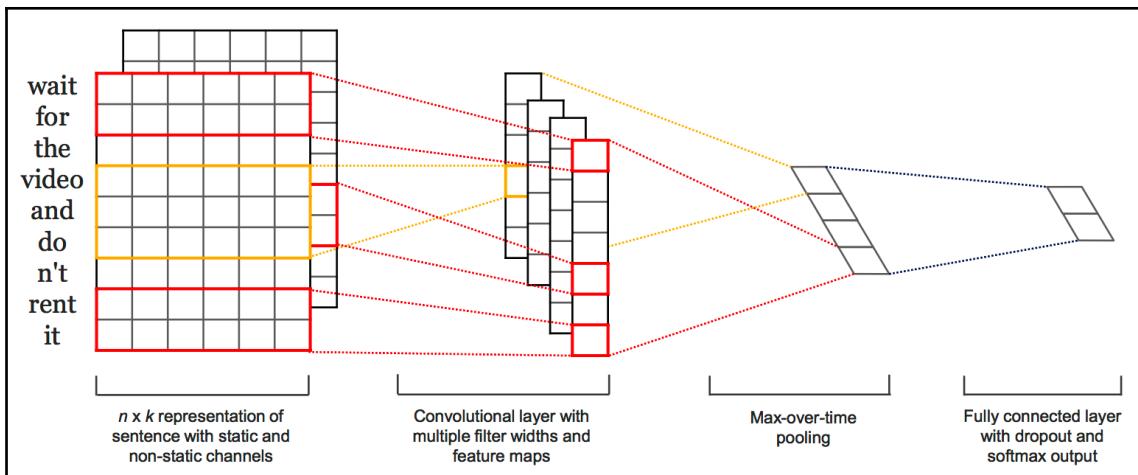


6	1	4	3
8	6	7	9
4	3	2	7
1	3	5	4

8	9
4	7

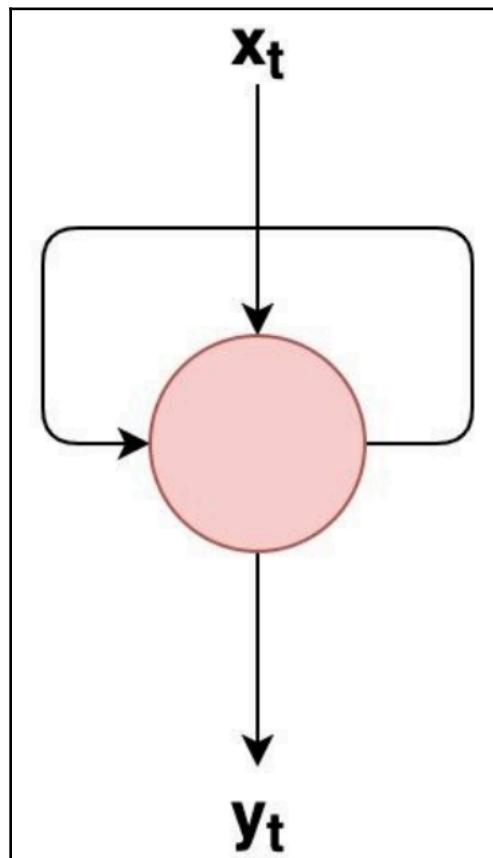
5	6
3	5

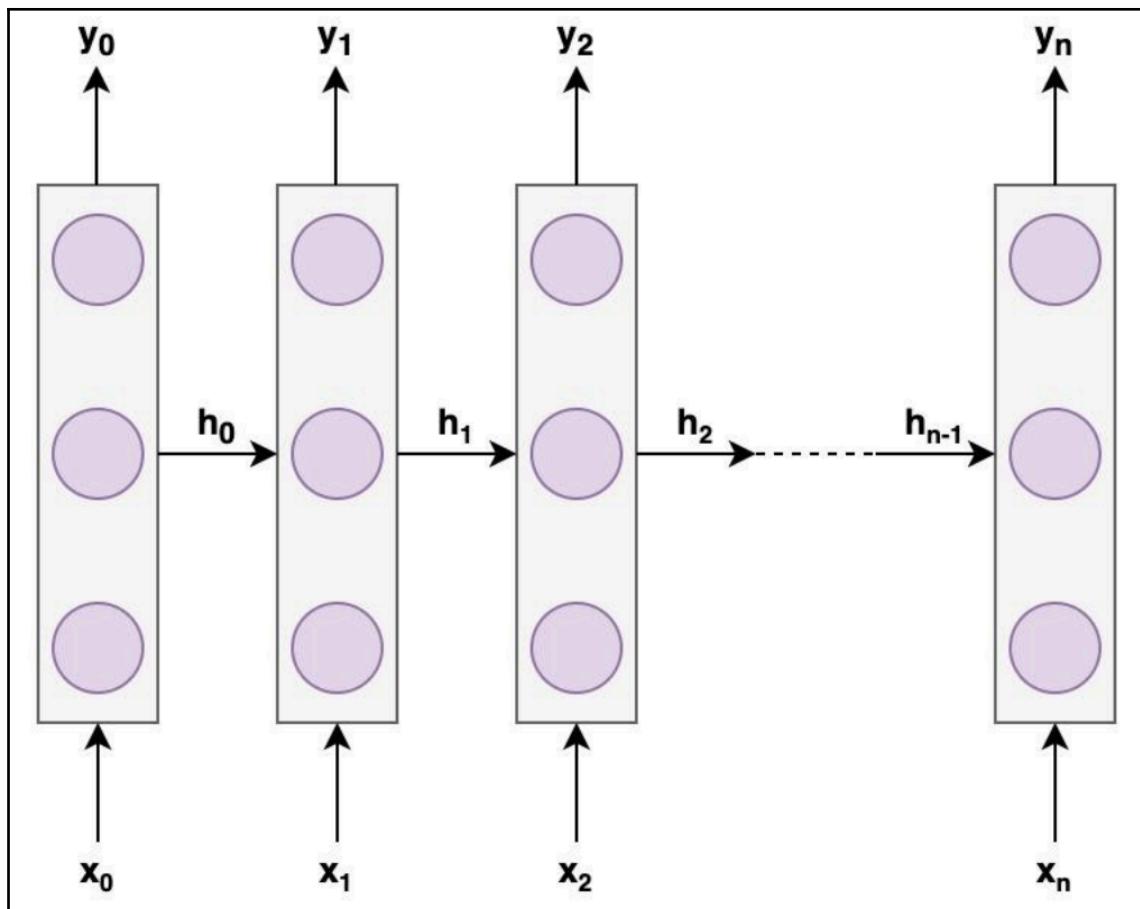
21	23
11	18

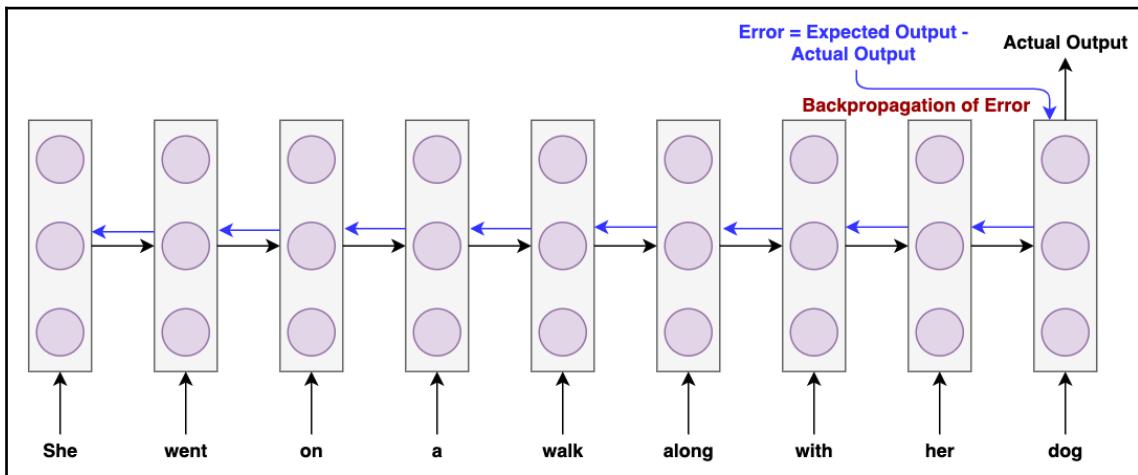
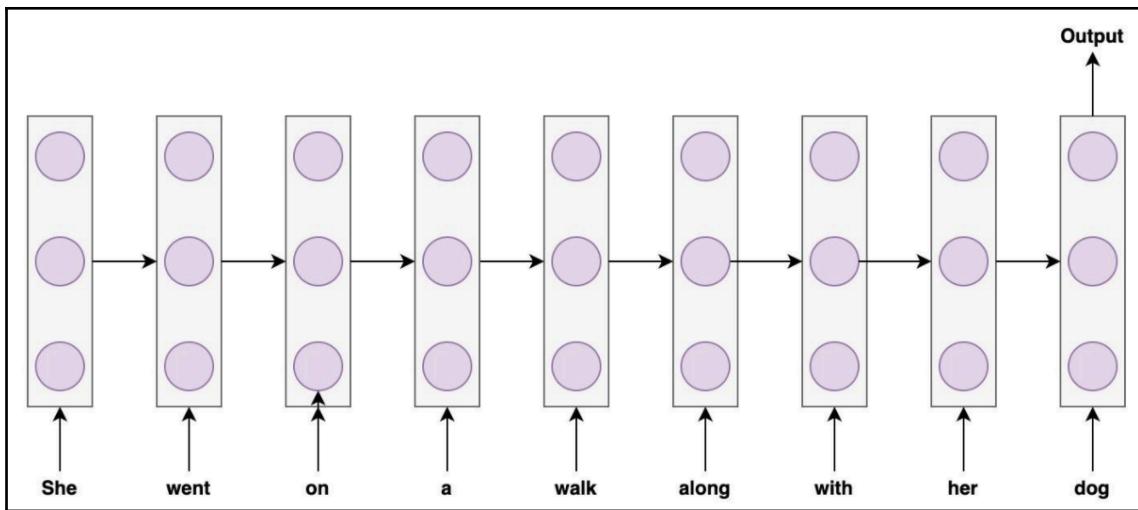


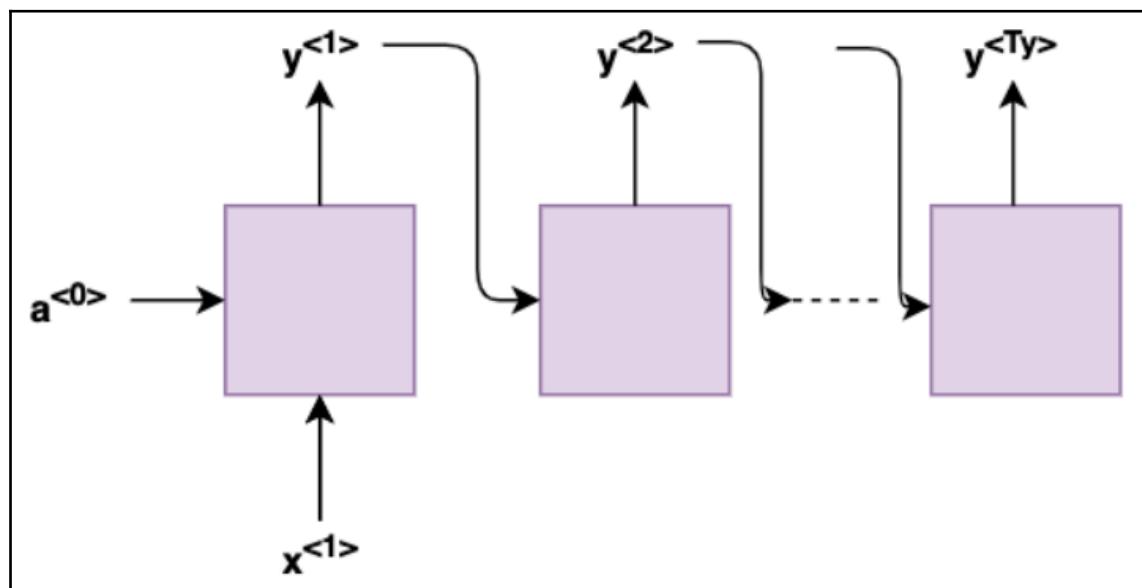
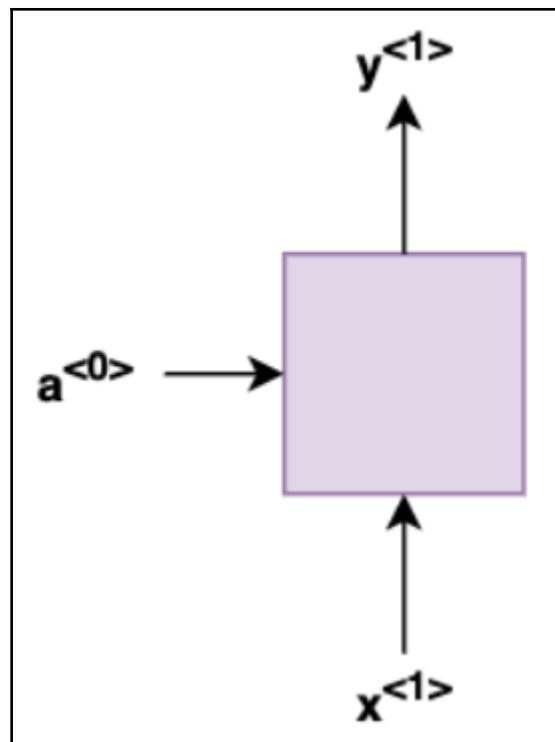
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1	0 dem rep. totally nails why congress is falling...	https://www.huffingtonpost.com/entry/donna-edw...
2	0 eat your veggies: 9 deliciously different recipes	https://www.huffingtonpost.com/entry/eat-your-...
3	1 inclement weather prevents liar from getting t...	https://local.theonion.com/inclement-weather-p...
4	1 mother comes pretty close to using word 'strea...	https://www.theonion.com/mother-comes-pretty-c...

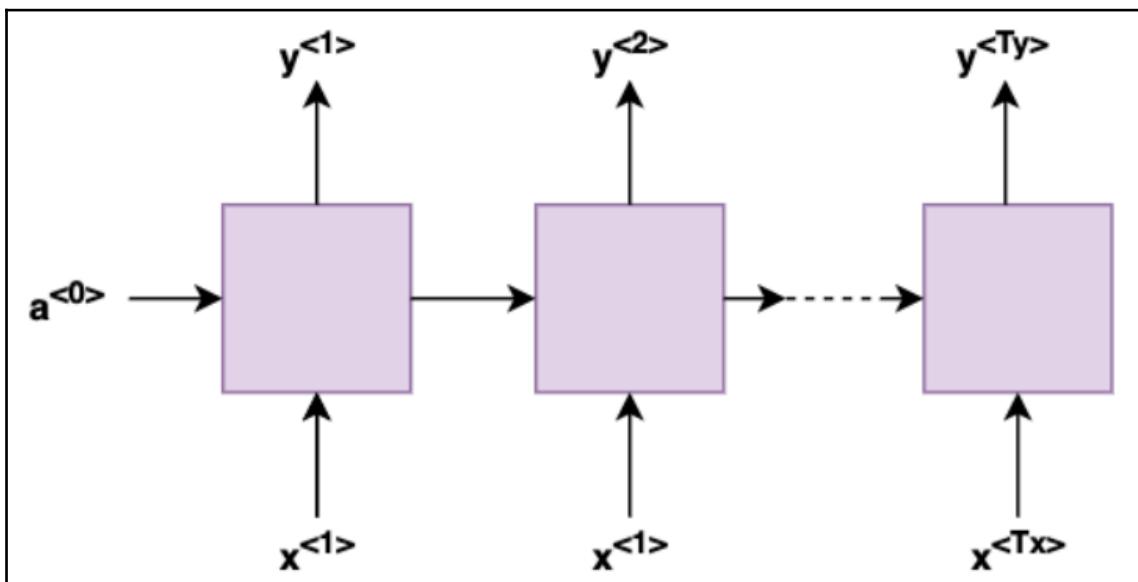
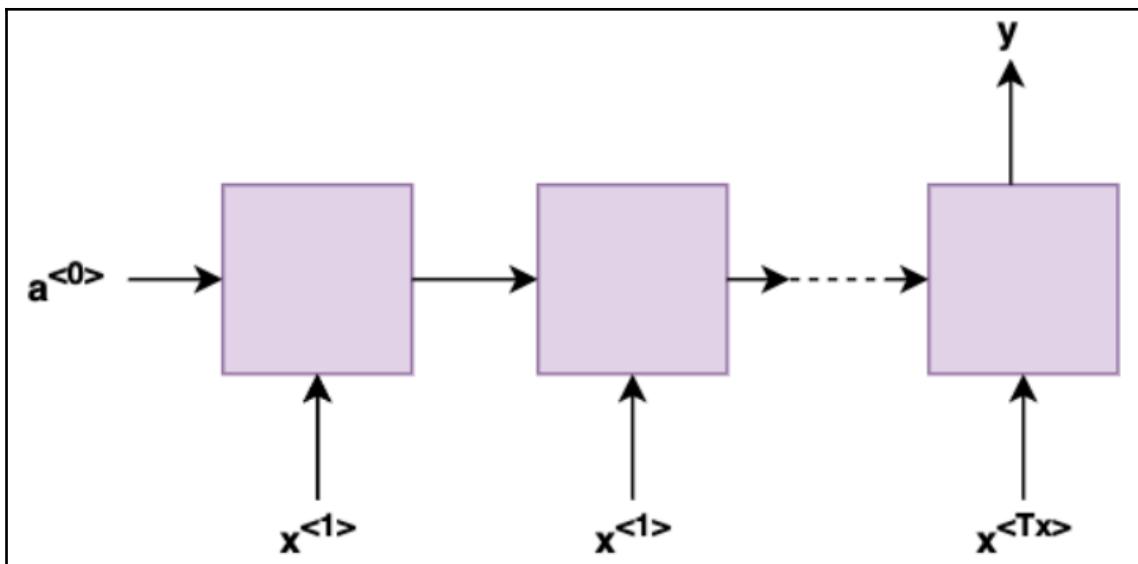
Chapter 10: Capturing Temporal Relationships in Text

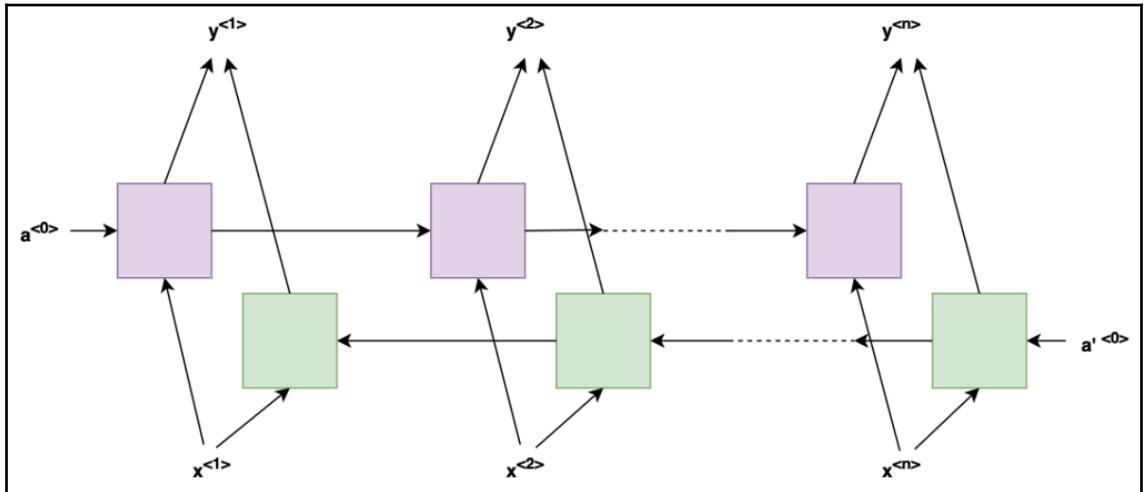
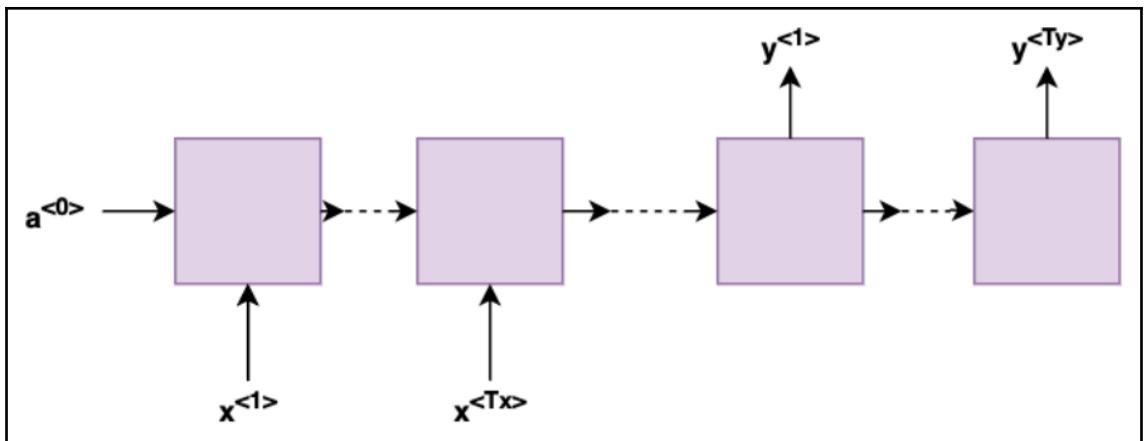


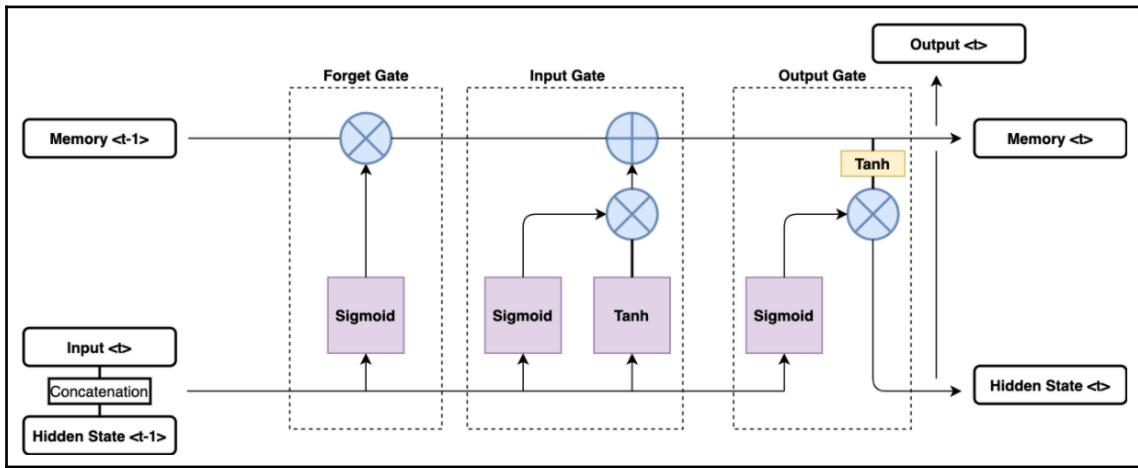
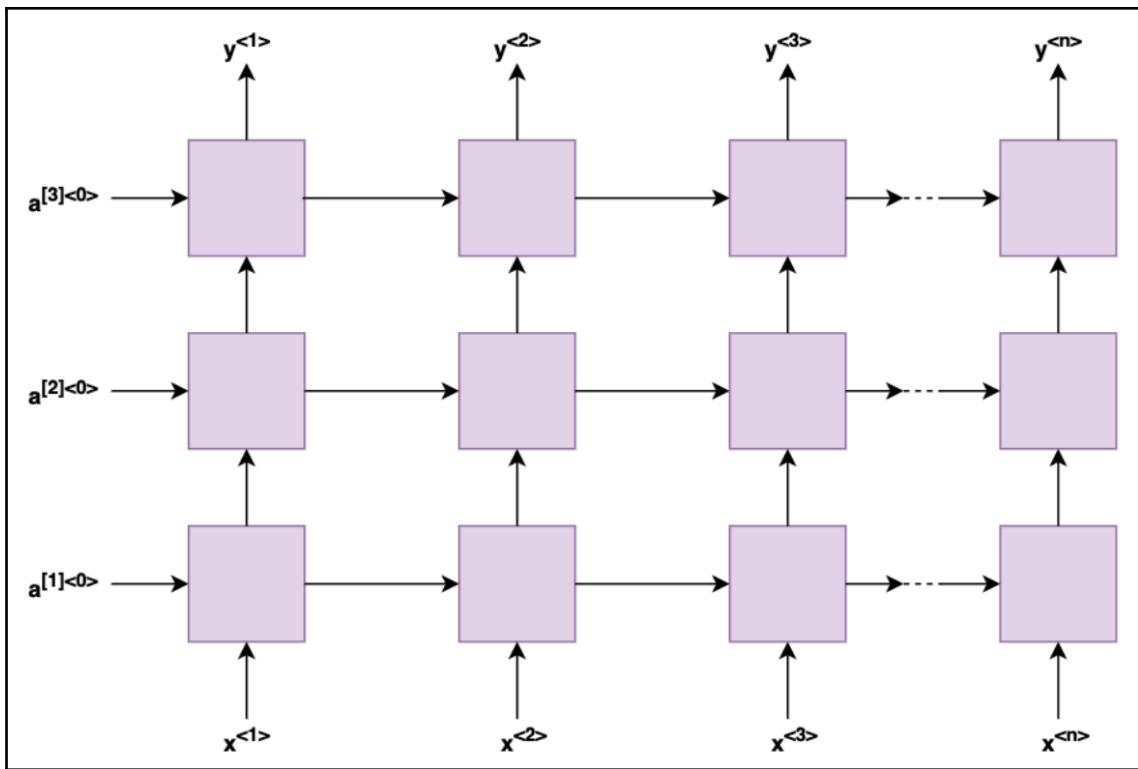








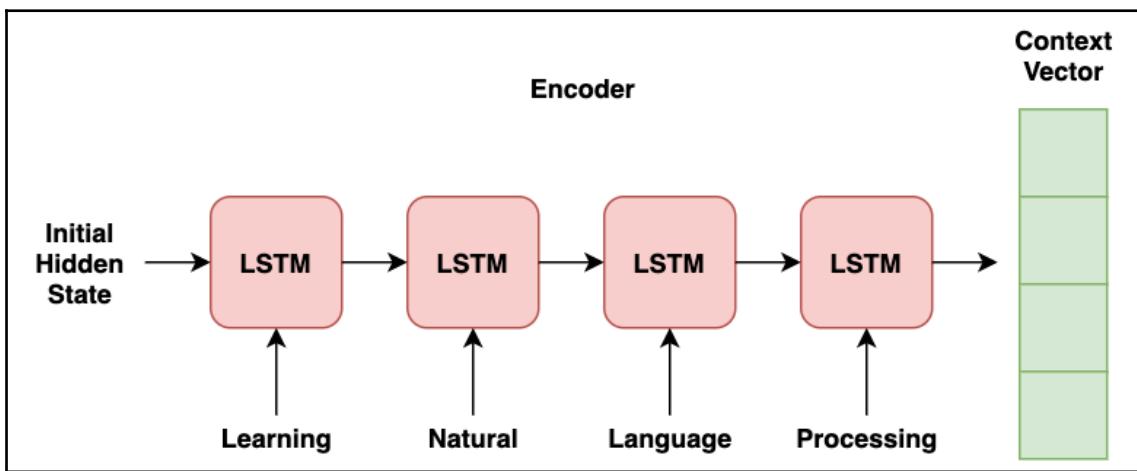
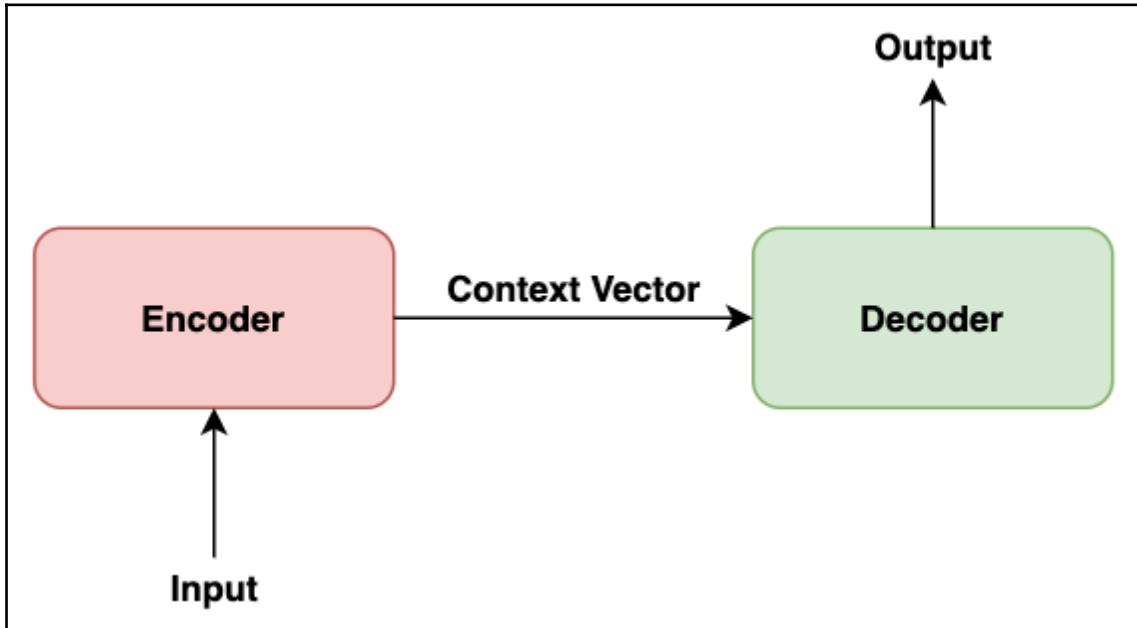


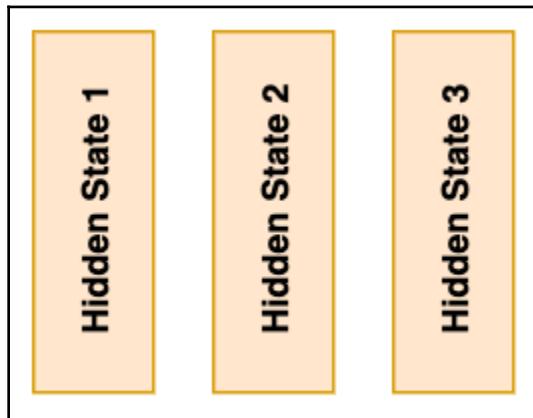
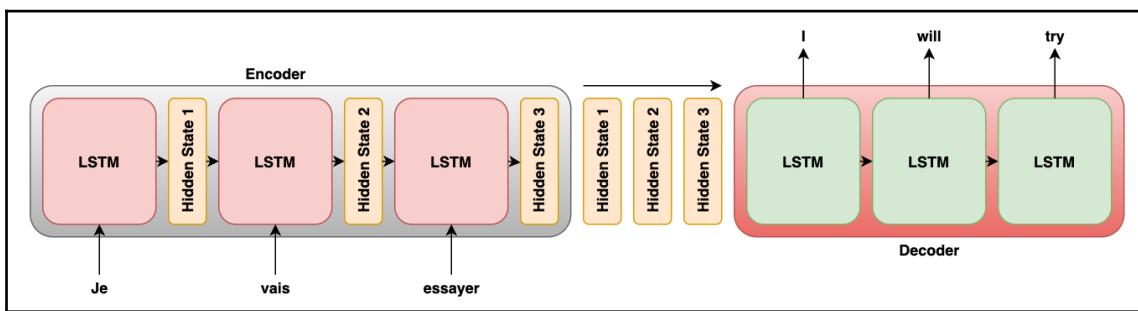
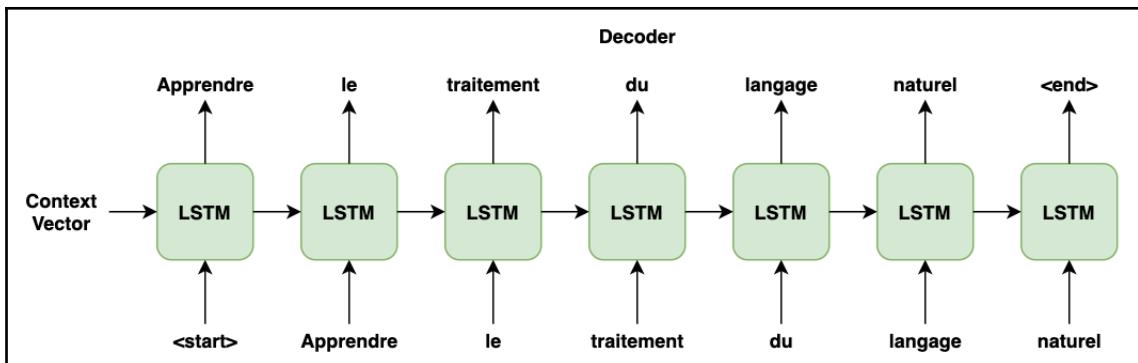


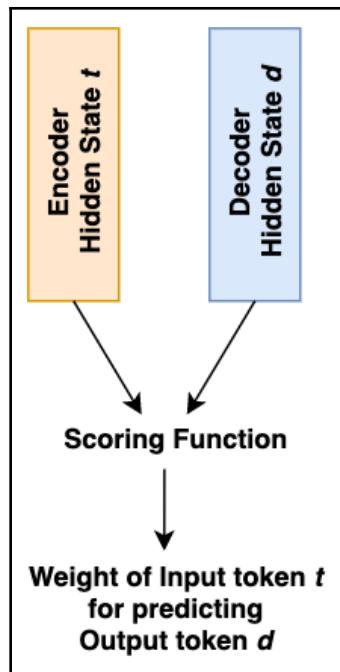
	area	city	country	crawl_date	highlight_value	hotel_overview	hotel_star_rating
0	Hardasji Ki Magri	Udaipur	India	2016-06-21	{{facility}}	Zion Home Stay is located in a city that sets...	1 star
1	Near Nai Gaon	Udaipur	India	2016-06-21	{{facility}}	Araliayas Resorts is a 3 star hotel located ...	3 star
2	Near Bagore Ki Haveli	Udaipur	India	2016-06-21	{{facility}}	A 2 star property is located at 24 km from Ma...	2 star
3	Dabok	Udaipur	India	2016-06-21	Airport Transfer Car rental Conference Hall Cu...	SNP House Airport Hotel And Restaurant is loa...	1 star
4	East Udaipur	Udaipur	India	2016-06-21	{{facility}}	Hotel Pichola Haveli is situated in the beau...	2 star

	area	city	country	crawl_date	highlight_value	hotel_overview	hotel_star_rating
294	Charai	Mumbai	India	2016-08-28	Doctor on Call Front desk Laundry Service Park...	Nestled in Mumbai, a city with strong historic...	3
309	Andheri (East)	Mumbai	India	2016-08-28	Air Conditioned Airport Transfer Conference Ha...	3 km from Chhatrapati Shivaji International Ai...	2
321	Khar	Mumbai	India	2016-08-28	Airport/Rlyw Stn Transfer Bar Conference Hall ...	Location Hotel Royal Garden is situated on Juh...	3
334	Andheri (East)	Mumbai	India	2016-08-28	24 Hour Check in-Icon 24 hour reception 24 hou...	City Guest House is a beautiful property locat...	2
1238	Andheri (East)	Mumbai	NaN	2016-08-22	24 Hour Check in-Icon 24 hour reception 24 hou...	Sai Residency Hotel is situated in the City of...	2

Chapter 11: State of the Art in NLP



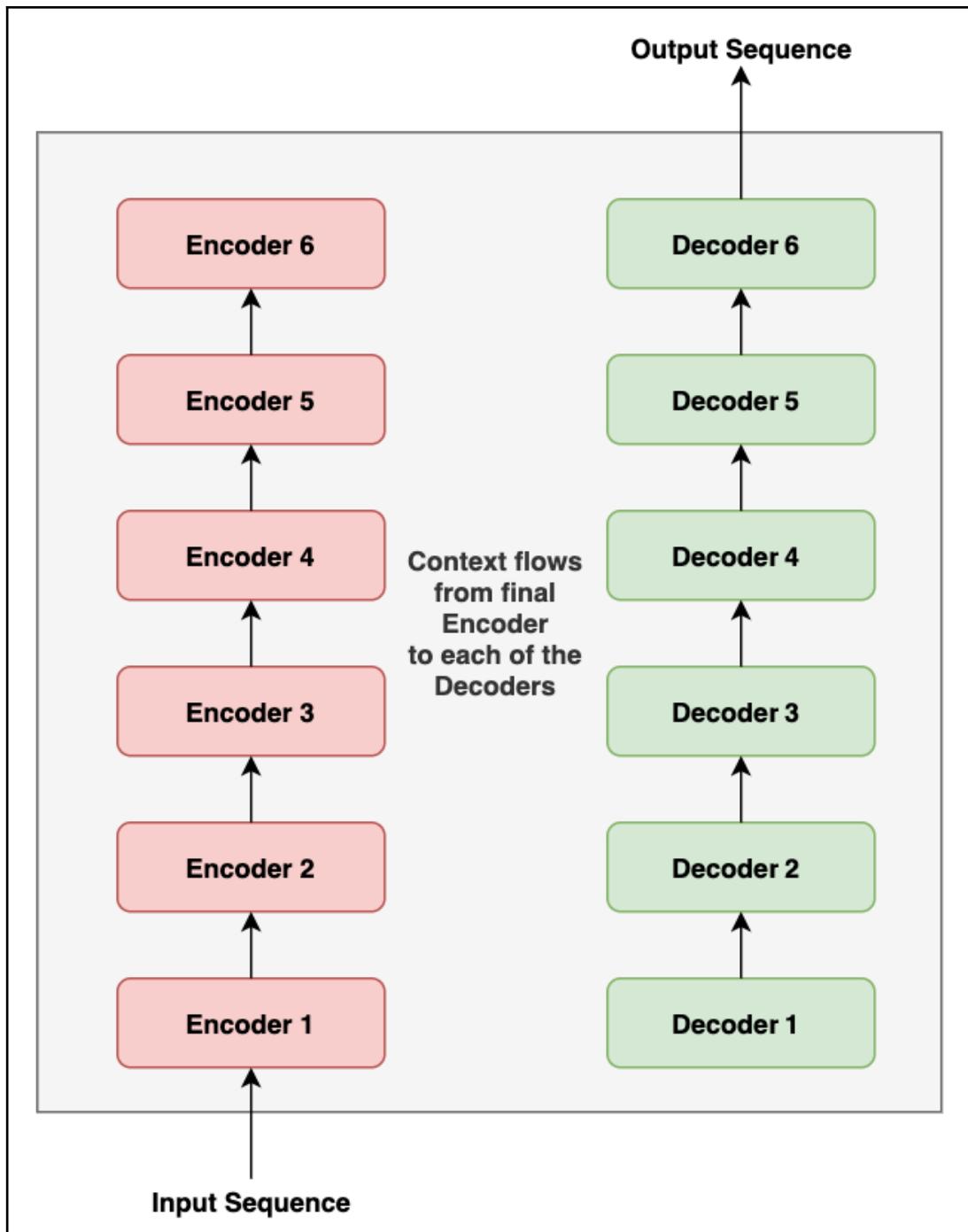


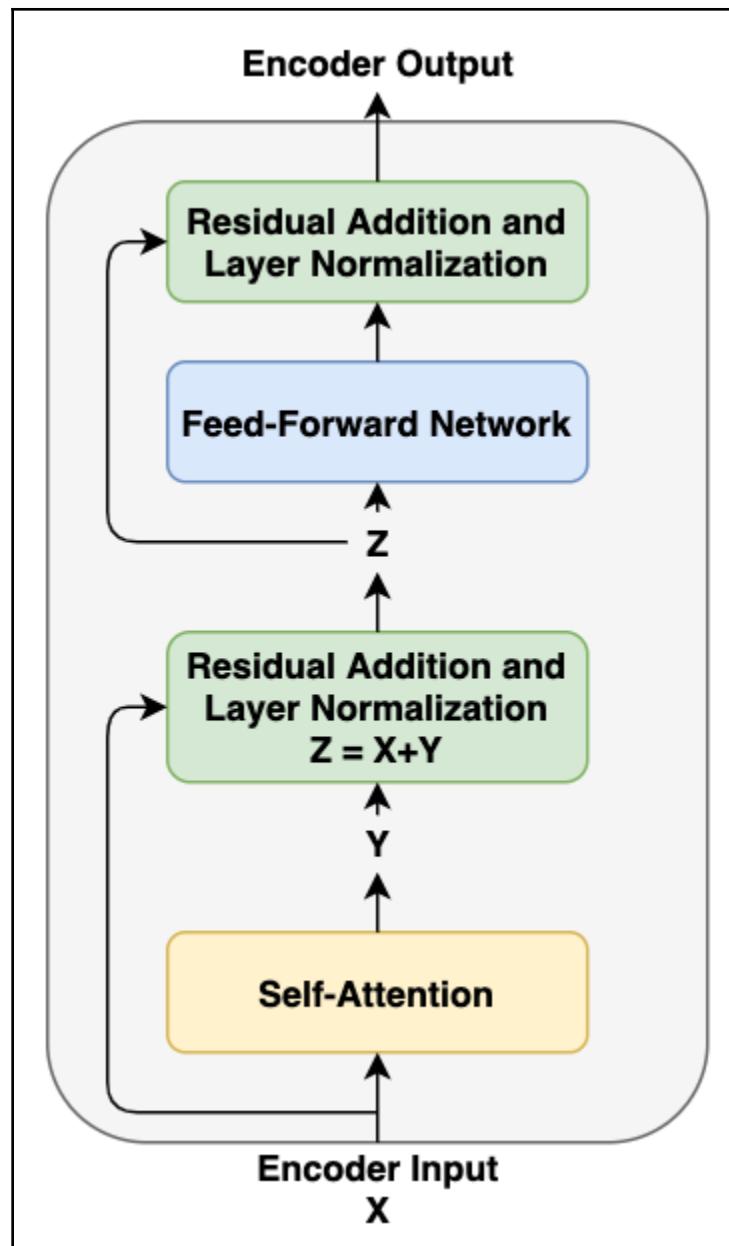


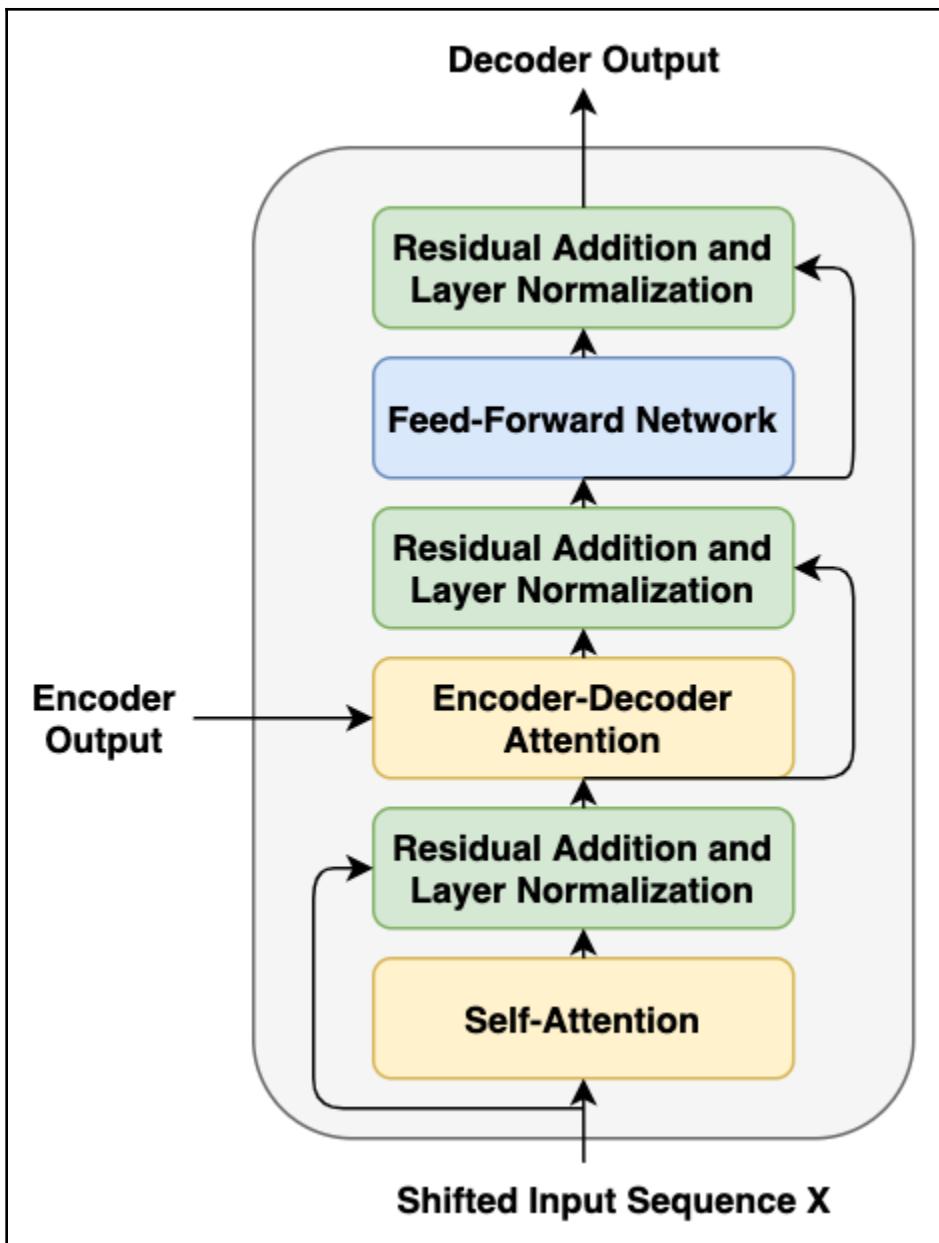
11	5	5
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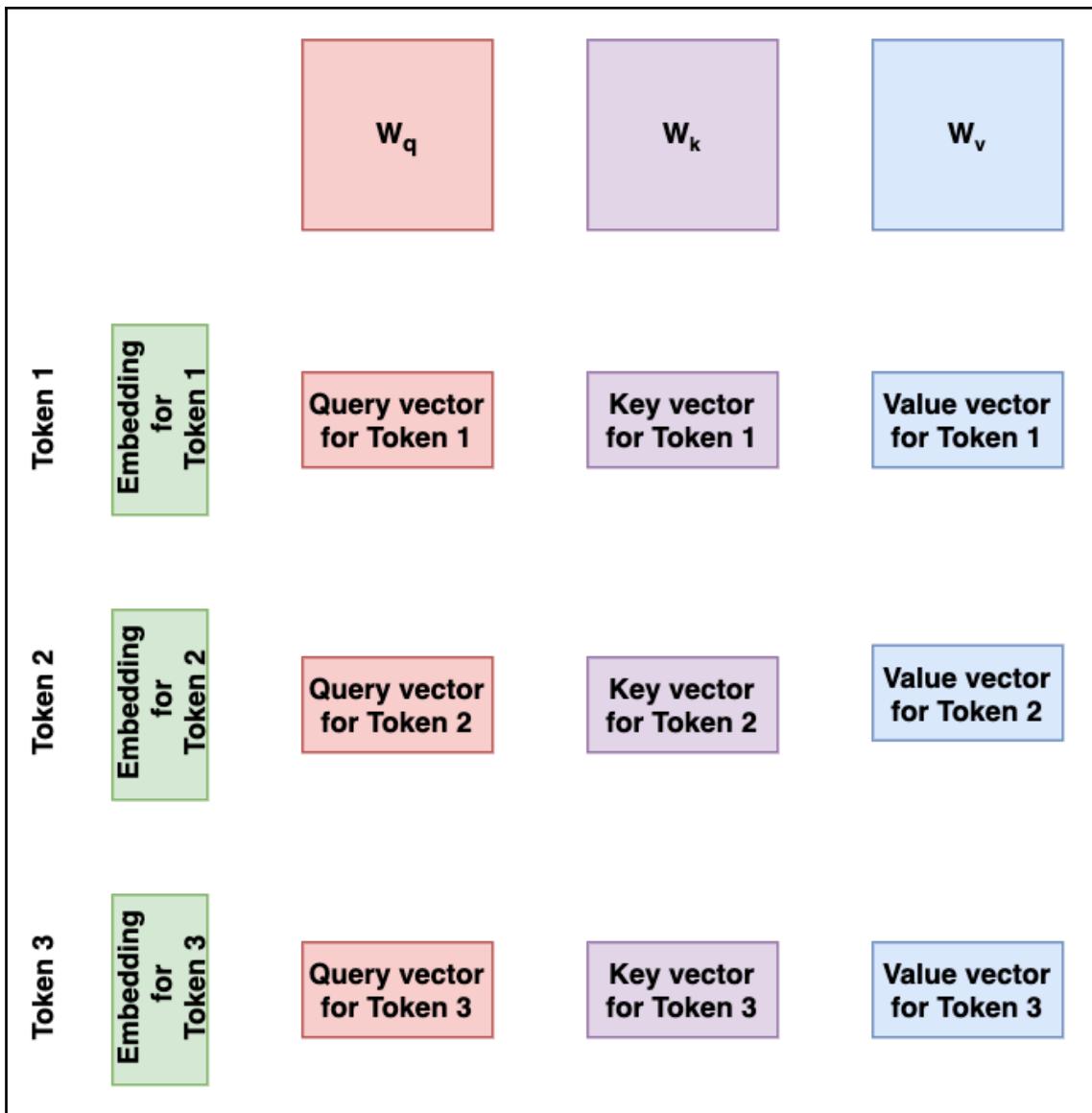
0.995	0.0025	0.0025
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Natural	Language
Input Embedding for Token 1	Input Embedding for Token 2
Query vector for Token 1 (q_1)	Query vector for Token 2 (q_2)
Key vector for Token 1 (k_1)	Key vector for Token 2 (k_2)
Value vector for Token 1 (v_1)	Value vector for Token 2 (v_2)
Score computation $s_1 = q_2 * k_1 = 128$	Score computation $s_1 = q_2 * k_2 = 160$
Division by root of d_k $s_1/8 = 16$	Division by root of d_k $s_2/8 = 20$
Softmax score = 0.02	Softmax score = 0.98
Softmax score* v_1	Softmax score* v_2
	Self-Attention Output for Token 2 = Sum of vectors obtained in previous step

