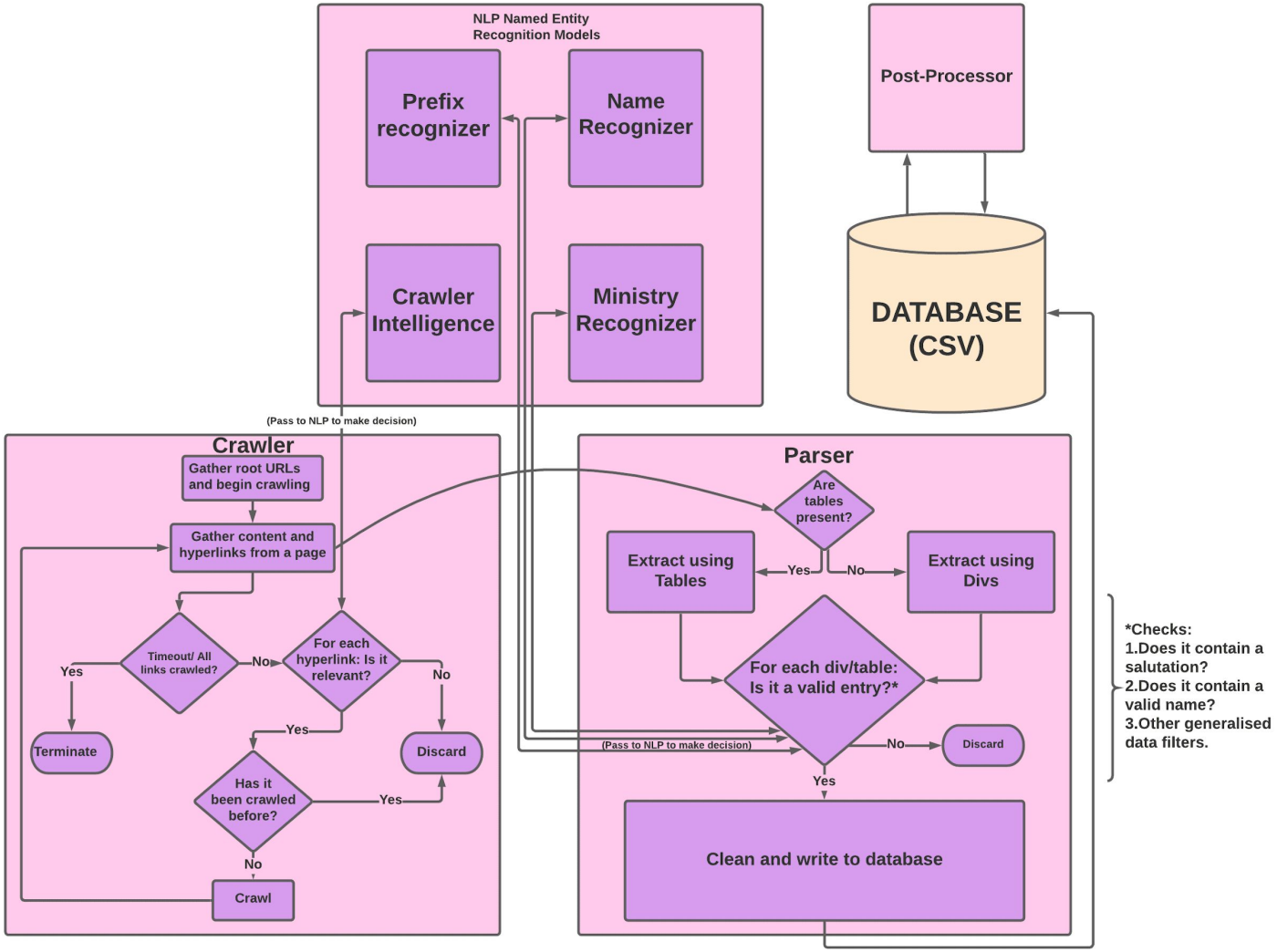
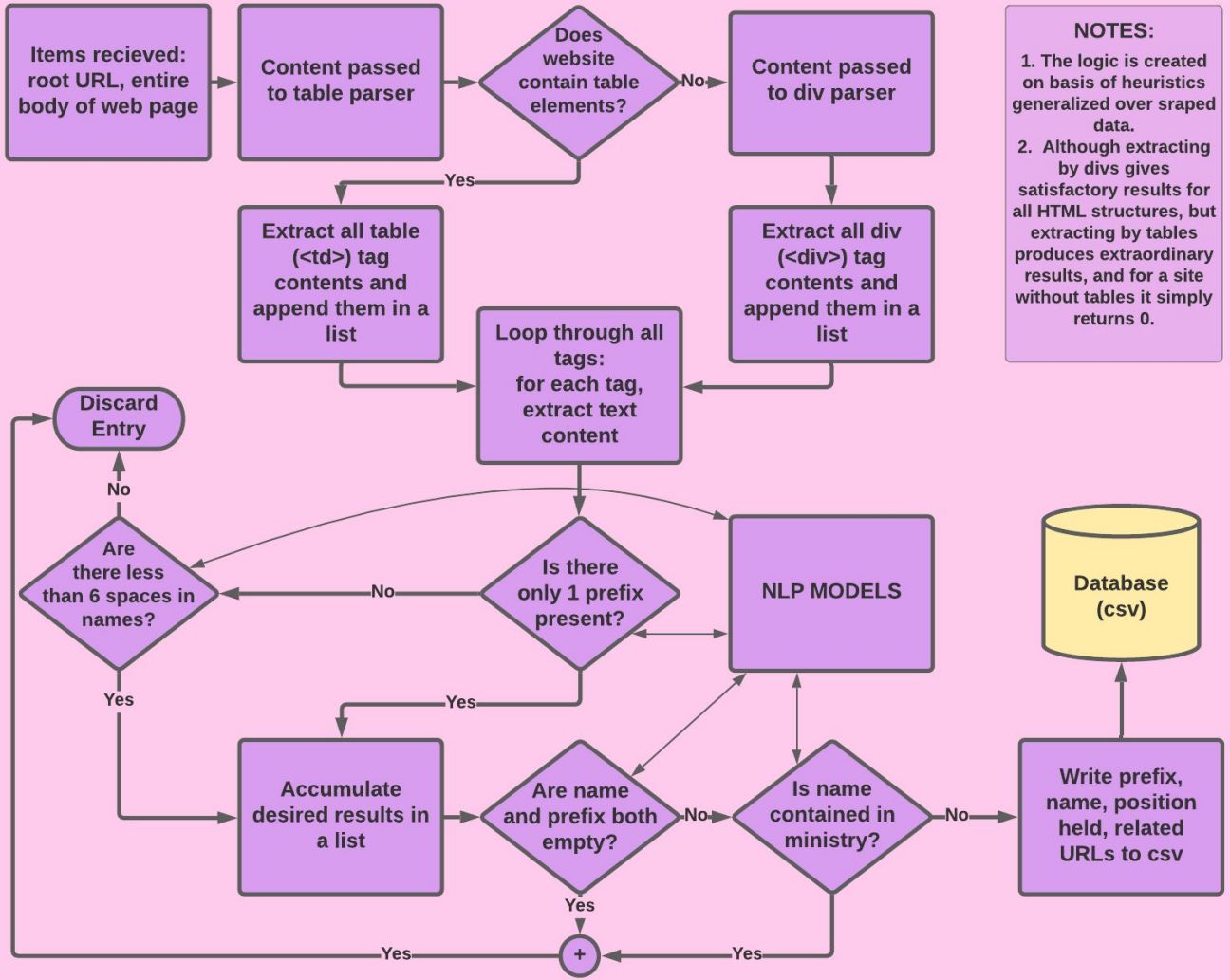
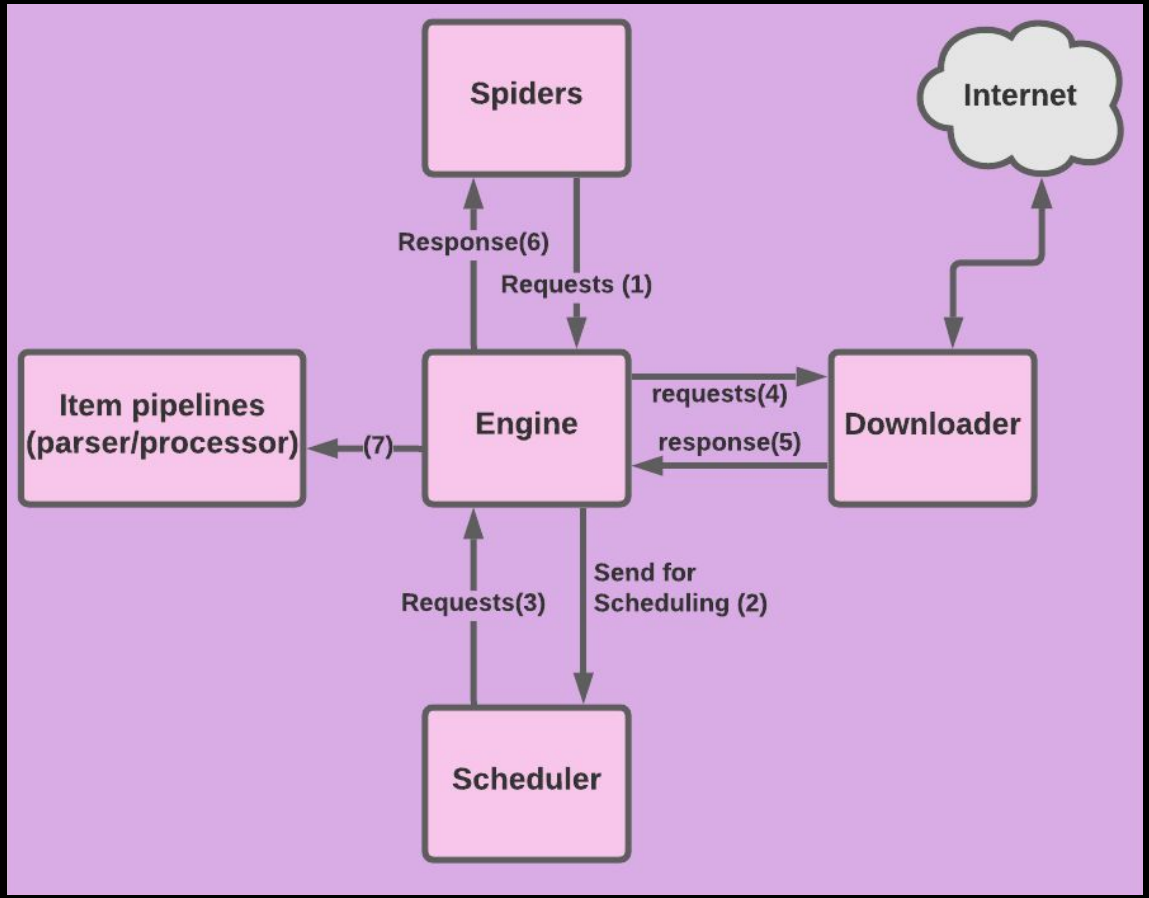
ThaparWings 2020

# Team: Bicameral Minds

Team Members:
Avik Kuthiala
Naman Tuli


NLP Named Entity Recognition Models
Prefix recognizer
Name Recognizer
Crawler Intelligence
Ministry Recognizer
Post-Processor
DATABASE (CSV)
(Pass to NLP to make decision)
Crawler
Gather root URLs and begin crawling
Gather content and hyperlinks from a page
Timeout/ All links crawled?
Yes
No
For each hyperlink: Is it relevant?
No
Yes
Terminate
Discard
Has it been crawled before?
Yes
No
Crawl
Parser
Are tables present?
Yes
No
Extract using Tables
Extract using Divs
For each div/table: Is it a valid entry?*
(Pass to NLP to make decision)
No
Discard
Yes
Clean and write to database
*Checks:
1.Does it contain a salutation?
2.Does it contain a valid name?
3.Other generalised data filters.


Items recieved: root URL, entire body of web page
Content passed to table parser
Does website contain table elements?
No
Content passed to div parser
Yes
Extract all table (<td>) tag contents and append them in a list
Extract all div ( ) tag contents and append them in a list
Loop through all tags: for each tag, extract text content
NOTES:
1. The logic is created on basis of heuristics generalized over sraped data.
2. Although extracting by divs gives satisfactory results for all HTML structures, but extracting by tables produces extraordinary results, and for a site without tables it simply returns 0.
Discard Entry
No
Are there less than 6 spaces in names?
No
Is there only 1 prefix present?
NLP MODELS
Database (csv)
Yes
Yes
Accumulate desired results in a list
Are name and prefix both empty?
No
Is name contained in ministry?
No
Write prefix, name, position held, related URLs to csv
Yes
Yes
+
Yes


Spiders
Internet
Response(6)
Requests (1)
Item pipelines
(parser/processor)
(7)
Engine
requests(4)
response(5)
Downloader
Requests(3)
Send for
Scheduling (2)
Scheduler

```
21  def pred(tag):
22      tag = tag.strip().lower()
23      stop_words = ["external website"]
24      for sw in stop_words:
25          if sw in tag:
26              return 0
27
28      if(tag.isnumeric()):
29          return 1
30      doc = nlpIntel(tag)
31
32      for ent in doc.ents:
33          if ent.text!=0:
34              #print(tag)
35              return 1
36      return 0
```

Crawler passes text content of <a> tag to this function to decide if it should be crawled or not.

1. If there is a strict domain that is not to be crawled, it is to be added in this list.

2. If the text is a number: crawl it.
   Doing this ensures that multiple pages of a same domain are crawled (for eg. india.gov.in/lok-sabha/?page=2 must not be skipped).

3. If NLP model says crawl, we crawl.

```
90  def sc_divs(url, soup):
91      divs = soup.findAll("div")
92      result = []
93      repeat_check = []
94      for div in divs:
95          content = div.text.strip().replace("\n","")
96          if content in repeat_check:
97              continue
98          repeat_check.append(content)
99
100         if has_name(content) == 0:
101             continue
102
103         tags = div.findAll("a", href=True)
104         links = [tag["href"] for tag in tags]
105         if links:
106             for i in range(len(links)):
107                 if "http" not in links[i]:
108                     links[i] = url + links[i]
109
110         result.append([content, links])
111     #print(len(repeat_check),repeat_check)
112     return result
```

1. Find all divs.
2. For each div, check for repeats.
3. If there is 0 result from has_name function, discard.
4. Find all associated links.
5. Return this 2D list.

```python
def returner(string):
    doc = nlp_Name(string)
    name=""
    stop_words=['Shri','Smt','Smt.','Dr.','Dr','Mr','Mrs','Cabinet','Minister
                'Contact','Facebook','Account'] #some very common stop-words
    for count,ent in enumerate(doc.ents):
        name+=ent.text+" "
        if count==0:
            break
    ret_name=""
    for words in name.split(" "):
        if words not in stop_words:
            ret_name+=words+" "
    doc =nlp_Min(string)
    ministry=""
    for ent in doc.ents:
        ministry+=ent.text+" "
    doc =nlp_Pref(string)
    prefix=""
    for ent in doc.ents:
        prefix+=ent.text+" "
    return prefix, ret_name, ministry
```

What this function does is:

Call the 3 NER* models extract Prefixes (Mr. Ms. etc), Names, position held (or ministry) and returns it to CSV writer.

*Named Entity Recognition.

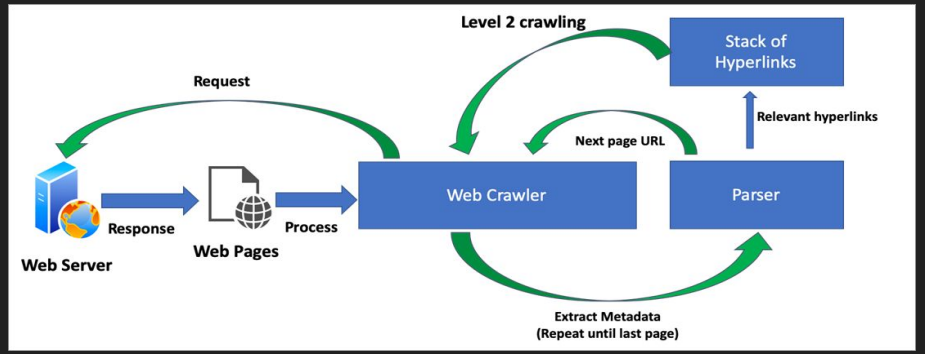
```
def parse_soup(url, soup):
    if sc_table(url, soup) is not 0:
        content =  sc_table(url, soup)
    else:
        content =  sc_divs(url, soup)
    #return content
    write_obj = open("austria.csv", 'a+', newline='')
    csv_writer = writer(write_obj)
    for items in content:
        prefix,ret_name,ministry=returner(items[0])
        l1 = [prefix.strip(),ret_name.strip(),ministry.strip()]
        if l1[0] == '' and l1[1] == '': #no name no salutation //cleaner step
            continue
        if l1[1] in l1[2]:   #name found in ministry //cleaner step
            continue
        l1.append(' '.join(items[1])) #urls
        csv_writer.writerow(l1)
    write_obj.close()
```

Search for tables, if yes, scrape tables, otherwise scrape divs.

Do some more cleaning, write to CSV.

# Crawler Intelligence

Since the domain of websites given to us is very large and most of the websites are deep and have only a fraction of the content is deemed scrapable, it becomes integral to devise a strategy that could solve this problem and make the efforts of the parser minimum. We have taken ideas from https://ieeexplore.ieee.org/document/7087203 and have proposed a novel method consisting of a combined approach that solves the problem at hand.




The approaches have been enlisted as follows:

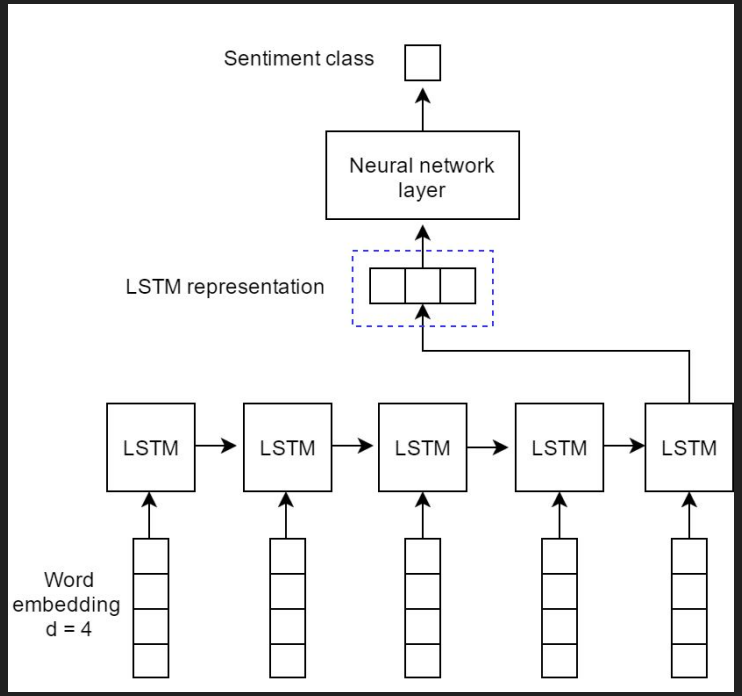
1. Lexicon based approach using RNN and LSTMs.
2. NER based approach implemented using Spacy for a custom trained dataset

# Lexicon Based Approach

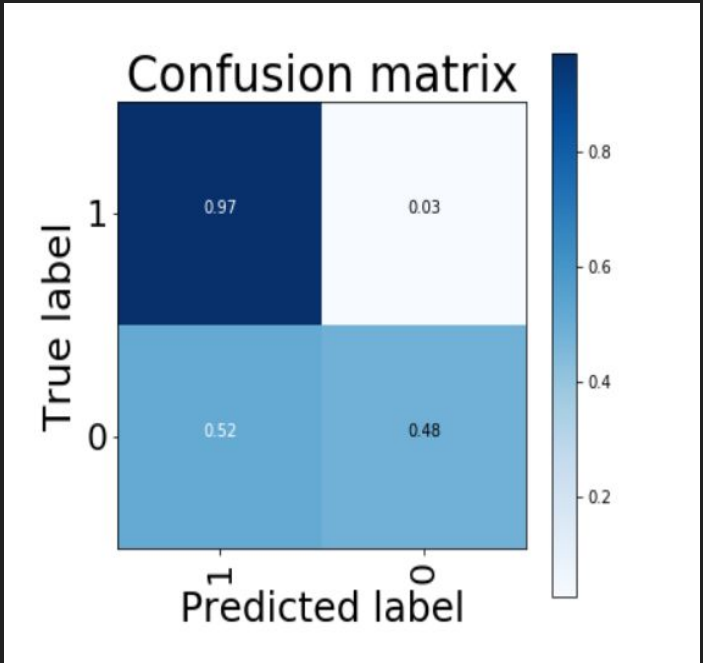
We have manually  curated a database that consists of 1500 lines of text of :
1.Words needed to be scraped (+ve)
2. Noise/Trash

```
['Directorate General of Commercial Intelligence and Statistics',
 'new-zealand-transport-agency',
 'new-zealand-defence-force',
 'city-rail-link-limited',
 'kiwirail']
```

```
['चंडीगढ़ में पशुपालन और मत्स्य पालन विभाग',
 'Information on Allotment of regular LPG distributorship to ESM/Widows',
 'campaign medal rolls',
 'Making payments through WorldPay']
```



# Results on Sentiment Based Approach(3:1 Split)




```
ACCURACY: 0.7679192815792586
LOSS: 0.5050979286079699
```

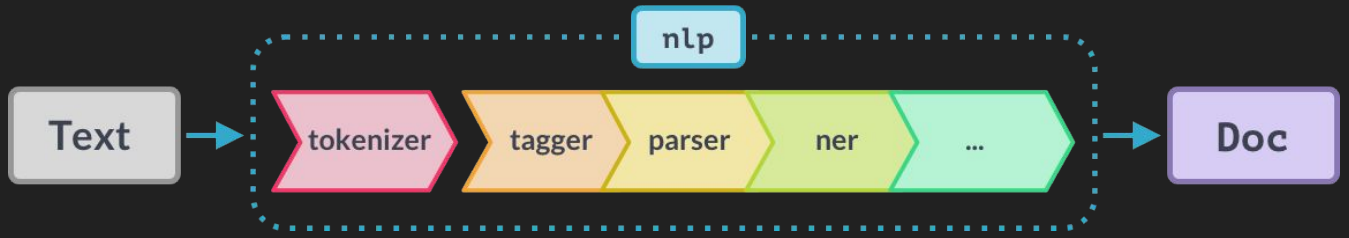
Drawbacks:

1. Overfitting due to lack of large enough training data
2. Some false values creeping in as true values
3. Mismatch in values
   For eg.
   Minister of Finance
   Reports of Finance

Positives:

1. High TPR means that no true values are being neglected
2. If we ignore the false positives by setting a high probability threshold this could be used

# Named Entity Recognition (NER)




NER is probably the only strategy that can be used to solve this problem of filtering the noise out of the data.
Among NER, we used both HuggingFace Transformers( BERT,ROBERTA,DISTILBERT) and spacy custom trained models for the problem.
But we discarded the former as the latter gave better results on the test data.

NER only extracts the useful information from the text and renders rest of the text unchanged.

# RESULTS AND POSITIVES

```
TRAIN_DATA=['Ministry of Home Affairs',"Finance Ministry","Judiciary","Ministry of Women","Records","SignUp","Records","Documents"]
hypothetical=["Ministry of Women and Finance Affairs","Ministry of ML","Intelligence Department"]
language_barrier=[" Finance Dokumentar"]
```

```
for t in TRAIN_DATA:
    print(output(t))
```

```
1
1
1
1
None
None
None
None
```

```
for t in hypothetical:
    print(output(t))
```

```
1
1
1
```

```
for t in language_barrier:
    print(output(t))
```

```
1
```

# NER Models for Entity Recognition

```
TEST=["Dr Husain Khan Contact Facebook Account Twitter Account Ministry of Agriculture & Farmers ",
      "Ramaphosa, Matamela Cyril, Mr  Presidency  (The) ",
      "His Highness Sheikh Mohammed Bin Rashid Al Maktoum Vice-President Prime Minister and Minister of Defence",
      "Mr Luke Cooper Minister of Foreign Affairs",
      "Minsiter of Health Mr Samir Handanovic"]
```

```
('Husain Khan ', 'Dr ', 'Ministry of Agriculture & Farmers ')
('Ramaphosa Matamela Cyril ', 'Mr ', 'Presidency ')
('Mohammed Bin Rashid Al Maktoum ', 'His Highness Sheikh ', 'Vice-President Prime Minister and Minister of Defence ')
('Luke Cooper ', 'Mr ', 'Minister of Foreign Affairs ')
('Samir Handanovic ', 'Mr ', 'Minsiter of Health ')
```

# Consolidated Database India

| | | | | |
|---|---|---|---|---|
| 76 | Shri | Nitin | Ministry of Road Transport and HighwaysMinistry of M | https://morth.nic.in/sites/default/files/Directory_21.01.2020.pdf https://www.facebook.com/nitin |
| 77 | Shri | D.V. | Ministry of Chemicals and Fertilizers | https://chemicals.nic.in/sites/default/files/Minister_0_0.pdf https://www.facebook.com/DVSBJP/ |
| 78 | Smt. | Nirmala Sitharaman | Ministry of FinanceMinistry of Corporate Affairs | https://doe.gov.in/minister/meet-union-finance-minister https://www.facebook.com/nirmala.sitha |
| 79 | Shri | Ramvilas Paswan | Ministry of Consumer Affairs, Food and Public Distribu | https://consumeraffairs.nic.in/about-us/whos-who https://www.facebook.com/rvplojapa5/ https:/ |
| 80 | Shri | Narendra Singh | Ministry of Agriculture & Farmers WelfareMinistry of F | https://www.panchayat.gov.in/web/guest/who-s-is-who https://www.facebook.com/narendrasing |
| 81 | Shri | Ravi Shankar Prasad | Ministry of Law and JusticeMinistry of Communicatior | http://meity.gov.in/content/cabinet-minister https://www.facebook.com/RaviShankarPrasadOffici |
| 82 | Smt. | Harsimrat Kaur Badal | Ministry of Food | http://www.mofpi.nic.in/about-us/whos-who https://www.facebook.com/Harsimratkaurbadal htt |
| 83 | Shri | Thaawar Chand Gehlot | Ministry of Social Justice and Empowerment | http://socialjustice.nic.in/UserView/index?mid=76721 https://www.facebook.com/thawarchand.ge |
| 84 | Dr. | Subrahmanyam Jaishankar | Ministry of External Affairs | https://meatel.nic.in/ https://twitter.com/drsjaishankar |
| 85 | Shri | Ramesh Pokhriyal ' | Ministry of Education | https://mhrd.gov.in/whos-who https://www.facebook.com/DrRPNishank/ https://twitter.com/drrp |
| 86 | Shri | Arjun Munda | Ministry of Tribal Affairs | https://tribal.nic.in/contactUs.aspx https://www.facebook.com/arjunmunda/ https://twitter.com/ |
| 87 | Smt. | Smriti Zubin Irani | Ministry of Women and Child DevelopmentMinistry of | http://texmin.nic.in/whos-who https://www.facebook.com/Smriti.Irani.Official https://twitter.com |
| 88 | Dr. | Harsh Vardhan | Ministry of Health and Family WelfareMinistry of Scier | https://main.mohfw.gov.in/about-us/whos-who https://www.facebook.com/drharshvardhanoffici |
| 89 | Shri | Prakash | Ministry of Environment, Forest and Climate ChangeM | http://moef.gov.in/about-the-ministry/ministers/cabinet-minister-2/ https://www.facebook.com/P |
| 90 | Shri | Piyush | Ministry of RailwaysMinistry of Commerce and Industi | http://www.indianrailways.gov.in/biodata_mr.html https://www.facebook.com/PiyushGoyalOfficia |
| 91 | Shri | Mukhtar Abbas | Ministry of Minority Affairs | http://www.minorityaffairs.gov.in/about-us/who-is--who https://www.facebook.com/naqvimukht |
| 92 | Shri | Pralhad Joshi | Ministry of Parliamentary AffairsMinistry of CoalMinis | https://mpa.gov.in/about-us/ministry-telephone-list https://www.facebook.com/pralhadvjoshi/ |
| 93 | Dr. | Mahendra Nath | Ministry of Skill Development and Entrepreneurship | https://www.msde.gov.in/contact-minister.html https://www.facebook.com/drmnpandeymp/ http |
| 94 | Shri | Giriraj Singh  Animal Husbandry | Ministry of Animal Husbandry, Dairying and Fisheries | http://www.dahd.nic.in/about-us/whos-who https://www.facebook.com/girirajsinghpage https://t |
| 95 | Shri | Gajendra Singh | Ministry of Jal Shakti | http://mowr.gov.in/minister/shri-gajendra-singh-shekhawat https://www.facebook.com/mpjodhpu |
| 96 | Shri | Santosh | Ministry of Labour and Employment | http://labour.gov.in/whos-who https://www.facebook.com/santosh.gangwar |
| 97 | Shri Shripad | Ayurveda, Yoga | | https://main.ayush.gov.in/about-us/whos-who https://www.facebook.com/shripadynaik/ https://t |
| 98 | Dr. | Jitendra Singh | Ministry of Development of North Eastern Region | http://mdoner.gov.in/content/minister-doner https://www.facebook.com/drjitendras https://twitt |
| 99 | Shri | Kiren | Ministry of Youth Affairs and Sports | https://yas.nic.in/contactus https://www.facebook.com/KirenRijiju/ https://twitter.com/kirenrijiju |
| 100 | Shri | Raj Kumar Singh | Ministry of PowerMinistry of New and Renewable Ene | https://powermin.nic.in/en/content/contact-us-0 https://www.facebook.com/RajKumarSinghIndia |
| 101 | Shri | Hardeep Singh | Ministry of Housing and Urban AffairsMinistry of Civil / | http://mohua.gov.in/cms/telephone-directory.php https://www.facebook.com/HardeepSPuri https |
| 102 | Shri | Mansukh L. Mandaviya | Ministry of Shipping | http://sagarmala.gov.in/ https://www.facebook.com/mansukhmandviya https://twitter.com/mans |
| 103 | Dr. | Jitendra Singh | | http://mdoner.gov.in/content/minister-doner https://www.facebook.com/drjitendras https://twitt |
| 104 | Shri | Kiren | Ministry of Minority Affairs | http://www.minorityaffairs.gov.in/about-us/who-is--who https://www.facebook.com/KirenRijiju/ |
| 105 | Shri | Raj Kumar Singh | Ministry of Skill Development and Entrepreneurship | https://www.msde.gov.in/contact-mos.html https://www.facebook.com/RajKumarSinghIndia https |
| 106 | Shri | Hardeep Singh | Ministry of Commerce and Industry | https://commerce.gov.in/OfficerContact.aspx https://www.facebook.com/HardeepSPuri https://tw |
| 107 | Shri | Mansukh L. Mandaviya | Ministry of Chemicals and Fertilizers | https://chemicals.nic.in/sites/default/files/PHARMACEUTICALS.....docx%20-%20Shortcut.lnk_.pc |
| 108 | Shri | Faggansingh Kulaste | Ministry of Steel | https://steel.gov.in/telephone-directory https://www.facebook.com/FSKulaste/ https://twitter.com |
| 109 | Shri | Ashwini Kumar Choubey , Health and | Ministry of Health and Family | https://main.mohfw.gov.in/about-us/whos-who https://www.facebook.com/AshwiniKChoubey/ |

# UAE

| | | | | |
|---|---|---|---|---|
| 39 | Sheikh | Mohammed bin Rashid Al Maktoum | National AgendaHis Highness Vice-President a | https://uaecabinet.ae/en/national-agenda |
| 40 | His Highness Sheikh | Home UAE Federal Supreme Council | UAE Federal Supreme Council | https://uaecabinet.ae/en https://uaecabinet.ae/en/uae https://uaecabinet.ae/e |
| 41 | His Highness Sheikh | Home UAE Federal Supreme Council | UAE Federal Supreme Council | https://uaecabinet.ae/en https://uaecabinet.ae/en/uae https://uaecabinet.ae/e |
| 42 | His Highness Sheikh | Home UAE Federal Supreme Council | UAE Federal Supreme Council | https://uaecabinet.ae/en https://uaecabinet.ae/en/uae https://uaecabinet.ae/e |
| 43 | His Excellency | Sultan bin Saeed Al BadiCabinet | Cabinet Members Minister of Minister of Mini | https://twitter.com/alhammadihh https://twitter.com/nouraalkaabi https://ww |
| 44 | His Excellency | Sultan bin Saeed Al BadiCabinet | Minister of Minister of Minister of State for D | https://twitter.com/alhammadihh https://twitter.com/nouraalkaabi https://ww |
| 45 | His Excellency | Sultan bin Saeed Al BadiCabinet | Minister of Justice | |
| 46 | His Excellency | Hussain bin Ibrahim Al HammadiCabinet | Minister of Education | https://twitter.com/alhammadihh |
| 47 | His Excellency | Mohammed bin Ahmad Al BawardiCabinet | Minister of State for Defence Affairs | |
| 48 | Her Excellency | Mohammed Al KaabiCabinet | Minister of Culture and Youth | https://twitter.com/nouraalkaabi https://www.instagram.com/nak/ |
| 49 | Her Excellency | Sarah bint Yousif Al AmiriMinister | | https://twitter.com/SarahAmiri1 https://www.instagram.com/SarahAmiri1/ |
| 50 | His Excellency | Omar bin Sultan Al OlamaMinister | | https://twitter.com/omarsalolama/ https://www.instagram.com/omarsalolama |
| 51 | HIS EXCELLENCY | AHMED ALI AL | | |
| 52 | Her Excellency | Ohoud bint | | https://twitter.com/ohoodalroumi https://www.instagram.com/ohoodalroumi/ |
| 53 | Her Excellency | Suhail Faris Al MazruiMinister | | https://twitter.com/shamma https://instagram.com/shamma |
| 54 | His Excellency | Zaki Anwar | | https://twitter.com/Zakinus |
| 55 | Her Excellency | Mohammed Saeed Hareb AlmheiriMinister | | https://twitter.com/mariammalmheiri/ https://www.instagram.com/mariamma |
| 56 | His Excellency | Obaid bin Humaid Al TayerCabinet | Minister of State for Financial Affairs | |
| 57 | His Excellency | Suhail bin Mohammed Faraj Faris Al MazroueiC | Minister of Energy and Infrastructure | https://twitter.com/hesuhail https://www.instagram.com/shlbinfaraj/ |
| 58 | His Excellency Sheikh | Nahayan Mabarak Al NahayanCabinet | Minister of Tolerance and Coexistence | |
| 59 | His Excellency | Mohammed bin Abdullah Al GergawiCabinet | Minister of Cabinet Affairs | |
| 60 | His Excellency | Ahmed Juma Al ZaabiMinister | | |
| 61 | His Excellency | Bin Mohamed Al OwaisCabinet | Minister of Health and Prevention Minister of State for Federal National Council Affairs | |
| 62 | His Excellency Dr. | Anwar bin Mohammed GargashCabinet | Minister of State for Foreign Affairs | https://twitter.com/anwargargash https://www.instagram.com/anwargargash/ |
| 63 | His Excellency | Nasser bin | Minister of Human Resources and Emiratisation | |

# SOUTH AFRICA

| | | | |
|---|---|---|---|
| Dr | Ruth Segomotsi Mompati District | Water and Sanitation welcomes court order issued | https://www.gov.za/media-statements/speeches/water-and-sanitation-welcomes-court-order-issu |
| Mr | Ramaphosa | Presidency | https://www.gov.za/about-government/leaders/about-government/contact-directory/matamela-cy |
| Mr | Mabuza | Presidency | https://www.gov.za/about-government/leaders/about-government/contact-directory/david-dabed |
| Ms | Didiza | Agriculture, Land Reform and Rural Development | https://www.gov.za/about-government/leaders/about-government/contact-directory/angela-thok |
| Ms | Motshekga | Basic Education | https://www.gov.za/about-government/leaders/about-government/contact-directory/matsie-ange |
| Ms | Ndabeni-Abrahams | Communications and Digital Technologies | https://www.gov.za/about-government/leaders/about-government/contact-directory/tembisa-stel |
| Dr | Dlamini Zuma | Cooperative Governance and Traditional Affairs | https://www.gov.za/about-government/leaders/about-government/contact-directory/nkosazana-c |
| Ms | Mapisa-Nqakula | Defence and Military Veterans | https://www.gov.za/about-government/leaders/about-government/contact-directory/nosiviwe-no |
| Mr | Thembelani Thulas | Employment and Labour | https://www.gov.za/about-government/leaders/about-government/contact-directory/thembelani-t |
| Ms | Creecy | Environment, Forestry and Fisheries | https://www.gov.za/about-government/leaders/about-government/contact-directory/environment |
| Mr | Mboweni | Finance | https://www.gov.za/about-government/leaders/about-government/contact-directory/finance-mini |
| Dr | ] | Health | https://www.gov.za/about-government/leaders/about-government/contact-directory/cooperative- |
| Dr | Nzimande | Higher Education, Science and Technology | https://www.gov.za/about-government/leaders/about-government/contact-directory/bonginkosi-e |
| Dr | Pakishe Aaron | Home Affairs | https://www.gov.za/about-government/leaders/about-government/contact-directory/pakishe-aaro |
| Ms | Grace Naledi Mandisa | International Relations and Cooperation | https://www.gov.za/about-government/leaders/about-government/contact-directory/grace-naledi |
| Mr | Lamola | Justice and Correctional Services | https://www.gov.za/about-government/leaders/about-government/contact-directory/justice-and-c |
| Mr | Samson Gwede | Mineral Resources and Energy | https://www.gov.za/about-government/leaders/about-government/contact-directory/mineral-reso |
| Gen | Cele | Police | https://www.gov.za/about-government/leaders/about-government/contact-directory/bheki-cele-g |
| Mr | Mthembu, Jackson | Presidency | https://www.gov.za/about-government/leaders/about-government/contact-directory/presidency/j |
| Ms | Nkoana-Mashabane | Presidency for Women, Youth and Persons with Disabilit | https://www.gov.za/about-government/leaders/about-government/contact-directory/maite-nkoan |
| Mr | Gordhan | Public Enterprises | https://www.gov.za/about-government/leaders/about-government/contact-directory/pravin-jamna |
| Mr | Mchunu | Public Service and Administration | https://www.gov.za/about-government/leaders/about-government/contact-directory/senzo-mchu |
| Ms | de Lille | Public Works and Infrastructure | https://www.gov.za/about-government/leaders/about-government/contact-directory/public-works |
| Ms | Ntshavheni | Small Business Development | https://www.gov.za/about-government/leaders/about-government/contact-directory/small-busine |
| Ms | ] | Social Development | https://www.gov.za/about-government/leaders/about-government/contact-directory/lindiwe-zulu- |
| Mr | Nkosinathi Emmanuel ' | Sports, Arts and Culture | https://www.gov.za/about-government/leaders/about-government/contact-directory/nkosinathi-e |
| Ms | Dlodlo | State Security | https://www.gov.za/about-government/leaders/about-government/contact-directory/ayanda-dlod |
| Ms | Kubayi-Ngubane | Tourism | https://www.gov.za/about-government/leaders/about-government/contact-directory/mmamoloko |
| Mr | Patel, Ebrahim | Trade and Industry | https://www.gov.za/about-government/leaders/about-government/contact-directory/ebrahim-pat |
| Mr | Mbalula | Transport | https://www.gov.za/about-government/leaders/about-government/contact-directory/fikile-april-m |
| Mr | Skwatsha | Agriculture, Rural Development and Land Reform | https://www.gov.za/about-government/leaders/about-government/contact-directory/mcebisi-skw |
| Mr | Agriculture | Agriculture, Rural Development and Land Reform | https://www.gov.za/about-government/leaders/about-government/contact-directory/agriculture-l |
| Ms | Mbaule | Basic Education | https://www.gov.za/about-government/leaders/about-government/contact-directory/internationa |

# CANADA

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| Dr. | Chris Alexander | Minister of Citizenship and Immigration Minister of Citizenship and | https://www.canada.ca/en/immigration-refugees-citizenship/news/archives/speech |
| Dr. | Chris Alexander | Minister of Citizenship and Immigration Minister of Citizenship and | https://www.canada.ca/en/immigration-refugees-citizenship/news/archives/speech |
| Dr. | Oyedeji AyonrindeAssociate | Department of PsychiatryQueen | |
| Dr. | Elaine HyshkaAssistant | Health Policy and ManagementSchool of Public Health, University of AlbertaA health services expert who focuses on advancing | |
| Dr. | Didier Jutras-AswadPsychiatrist | | |
| Dr. | Amy PorathDirector | | |
| Dr. | Maude St-OngeMedical | | |
| Dr. | Phil TibboProfessor | Department of PsychiatryDalhousie UniversityA | |
| Dr. | Mark WareAssociate | Family Medicine and AnesthesiaMcGill UniversityA | |
| Mr. | James WigmoreForensic Toxicologist | Mr. James WigmoreForensic Toxicologist | |