

# *Classy* Data Analysis

Hansen | Nagda | Pimentel | Reyes | Tai

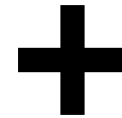


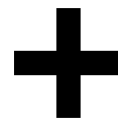


# The Challenge

- Currently, we understand non-profit organizations (NPO) in a one-dimensional realm; e.g. Health, Education, Human Rights, etc. but more often than not, the services of an NPO span multiple sectors.
- Financially speaking, small local charities operate very differently from multi-million dollar organizations.

**We need a more complex solution to find like-minded organizations.**





# The Forms

Any Non-Private Foundation

Gross Receipts < \$50,000,  
\$50,000 < Gross Receipts < \$200,000  
And Total Assets < \$500,000

Private Foundations

**990** Return of Organization Exempt From Income Tax

OMB No. 1545-0047

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations)

Do not enter social security numbers on this form as it may be made public.

Go to [www.irs.gov/Form990](http://www.irs.gov/Form990) for instructions and the latest information.

Open to Public Inspection

For the 2017 calendar year, or tax year beginning 2017, and ending 20

Check if applicable:

1. Address change

2. Name change

3. Initial return

4. First return/return after

5. Amended return

6. Application pending

7. Name and address of principal officer:

8. Form of organization: ☐ Sole proprietorship ☐ Partnership ☐ Corporation ☐ Trust ☐ Association ☐ Other

9. Website: ☐ Website ☐ Corporation ☐ Trust ☐ Association ☐ Other

10. Form of organization: ☐ Corporation ☐ Trust ☐ Association ☐ Other

11. State of legal domicile: ☐ State of legal domicile

Part I Summary

1. Briefly describe the organization's mission or most significant activities:

2. Check this box ☐ if the organization discontinued its operations or disposed of more than 25% of its net assets.

3. Number of voting members of the governing body (Part VII, line 1a)

4. Number of independent voting members of the governing body (Part VII, line 1b)

5. Total number of individuals employed in calendar year 2017 (Part VII, line 2g)

6. Total number of volunteers (estimate if necessary)

7a. Total unrelated business revenue from Part VIII, column (c), line 12

7b. Net unrelated business taxable income from Form 990-T, line 34

Revenue

8. Contributions and grants (Part VIII, line 1h)

9. Program service revenue (Part VIII, line 2g)

10. Investment income (Part VIII, column (A), lines 3, 4, and 7d)

11. Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)

12. Total revenue—add lines 8 through 11 (must equal Part VIII, column (A), line 12)

13. Grants and similar amounts paid (Part IX, column (A), lines 1-3)

14. Benefits paid to or for members (Part IX, column (A), line 4)

15. Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)

16a. Professional fundraising fees (Part IX, column (A), line 11e)

16b. Total fundraising expenses (Part IX, column (D), line 25)

17. Other expenses (Part IX, column (A), lines 11a-11d, 11f-24e)

18. Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)

19. Revenue less expenses. Subtract line 18 from line 12

20. Total assets (Part X, line 16)

21. Total liabilities (Part X, line 26)

22. Net assets or fund balances. Subtract line 21 from line 20

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

Signature of officer

Date

Type or print name and title

Preparer's signature

Date

Check ☐ if self-employed

Preparer's name

Phone no.

May the IRS discuss this return with the preparer shown above? (see instructions)

For Paperwork Reduction Act Notice, see the separate instructions.

Cat. No. 11982Y Form 990 (2017)

**990-EZ** Short Form Return of Organization Exempt From Income Tax

OMB No. 1545-1150

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations)

Do not enter social security numbers on this form as it may be made public.

Go to [www.irs.gov/Form990EZ](http://www.irs.gov/Form990EZ) for instructions and the latest information.

Open to Public Inspection

For the 2017 calendar year, or tax year beginning 2017, and ending 20

Check if applicable:

1. Address change

2. Name change

3. Initial return

4. First return/return after

5. Amended return

6. Application pending

7. Name and address of principal officer:

8. Form of organization: ☐ Sole proprietorship ☐ Partnership ☐ Corporation ☐ Trust ☐ Association ☐ Other

9. Website: ☐ Website ☐ Corporation ☐ Trust ☐ Association ☐ Other

10. Form of organization: ☐ Corporation ☐ Trust ☐ Association ☐ Other

11. State of legal domicile: ☐ State of legal domicile

Part I Revenue, Expenses, and Changes in Net Assets or Fund Balances (see the instructions for Part I)

1. Contributions, gifts, grants, and similar amounts received

2. Program service revenue including government fees and contracts

3. Membership dues and assessments

4. Investment income

5a. Gross amount from sales of assets other than inventory

5b. Less: cost or other basis and sales expenses

5c. Gain or (loss) from sale of assets other than inventory (Subtract line 5b from line 5a)

6. Gaming and fundraising events

6a. Gross income from gaming (attach Schedule G if greater than \$15,000)

6b. Gross income from fundraising events (not including \$ contributions)

6c. Less: direct expenses from gaming and fundraising events

6d. Net income or (loss) from gaming and fundraising events (add lines 6a and 6b and subtract line 6c)

7a. Gross sales of inventory, less returns and allowances

7b. Less: cost of goods sold

7c. Gross profit or (loss) from sales of inventory (Subtract line 7b from line 7a)

8. Other revenue (describe in Schedule O)

9. Total revenue. Add lines 1, 2, 3, 4, 5c, 6d, 7c, and 8

10. Grants and similar amounts paid (list in Schedule O)

11. Benefits paid to or for members

12. Salaries, other compensation, and employee benefits

13. Professional fees and other payments to independent contractors

14. Occupancy, rent, utilities, and maintenance

15. Printing, publications, postage, and shipping

16. Other expenses (describe in Schedule O)

17. Total expenses. Add lines 10 through 16

18. Excess or (deficit) for the year (Subtract line 17 from line 9)

19. Net assets or fund balances at beginning of year (from line 27, column (A)) (must agree with end-of-year figure reported on prior year's return)

20. Other changes in net assets or fund balances (explain in Schedule O)

21. Net assets or fund balances at end of year. Combine lines 18 through 20

**990-PF** Return of Private Foundation or Section 4947(a)(1) Trust Treated as Private Foundation

OMB No. 1545-0052

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations)

Do not enter social security numbers on this form as it may be made public.

Go to [www.irs.gov/Form990PF](http://www.irs.gov/Form990PF) for instructions and the latest information.

Open to Public Inspection

For the 2017 calendar year, or tax year beginning 2017, and ending 20

Check if applicable:

1. Address change

2. Name change

3. Initial return

4. First return/return after

5. Amended return

6. Application pending

7. Name and address of principal officer:

8. Form of organization: ☐ Sole proprietorship ☐ Partnership ☐ Corporation ☐ Trust ☐ Association ☐ Other

9. Website: ☐ Website ☐ Corporation ☐ Trust ☐ Association ☐ Other

10. Form of organization: ☐ Corporation ☐ Trust ☐ Association ☐ Other

11. State of legal domicile: ☐ State of legal domicile

Part I Analysis of Revenue and Expenses (The total of amounts in columns (b), (c), and (d) may not necessarily equal the amount in column (a) (see instructions))

1. Contributions, gifts, grants, etc. received (attach schedule)

2. Check ☐ if the foundation is not required to attach Sch. B

3. Interest on savings and temporary cash investments

4. Dividends and interest from securities

5a. Gross rents

5b. Net rental income or (loss)

6. Net gain or (loss) from sale of assets not on line 10

6a. Gross sales price for all assets on line 6a

6b. Capital gain net income (from Part IX, line 2)

6c. Net short-term capital gain

6d. Net long-term capital gain

7. Income modifications

8. Gross sales less returns and allowances

9. Less: Cost of goods sold

10. Gross profit or (loss) (attach schedule)

11. Other income (attach schedule)

12. Total. Add lines 1 through 11

13. Compensation of officers, directors, trustees, etc.

14. Travel, conferences, and meetings

15. Pension plans, employee benefits

16a. Legal fees (attach schedule)

16b. Accounting fees (attach schedule)

16c. Other professional fees (attach schedule)

17. Interest

18. Depreciation (attach schedule) and depletion

19. Occupancy

20. Printing and publications

21. Other expenses (attach schedule)

22. Total operating and administrative expenses. Add lines 13 through 21

23. Contributions, gifts, grants paid

24. Total expenses and disbursements. Add lines 22 and 23

25. Subtract line 26 from line 12

26. Excess of revenue over expenses and disbursements

27. Net investment income (if negative, enter -0-)

28. Adjusted net income (if negative, enter -0-)

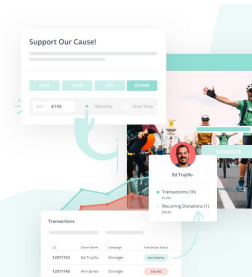
# The Questions

1. How do non-profit organizations cluster in this semantic space?
  - a. Are there groups that were not easily apparent before?
2. How can data help non-profits in their fundraising and other efforts?
3. How does one nonprofit compare to another?
  - a. Benchmarking
    - i. Financial Performance
    - ii. Accountability and Transparency
    - iii. Compensation of Leaders
    - iv. Social Engagement
    - v. etc.



*Classy*

The #1 online and mobile fundraising platform.





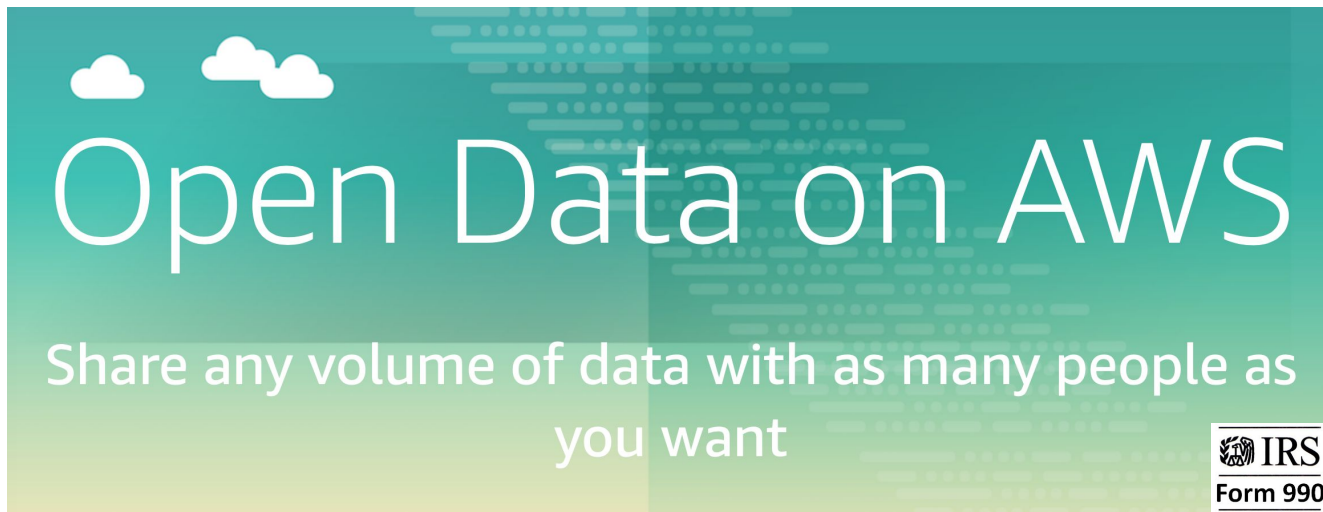
# The Stakeholders

- Classy Corporation
  - Use new social space to better engage with fundraising user base
  - Recommendations are more targeted with better similarity
- Non-Profit Researchers
  - Creating a new semantic space of non-profit organization can allow enhanced understanding of nonprofits' interrelationships rather than a wall of numbers.
- Other users
  - Publishing this model as an open source system allows other users to use this to create their own semantic space of non-profit organizations to develop new insights and recommendations






## The Data - Where From?

A banner with a teal-to-yellow gradient background. It features two white cloud icons in the top left, a faint background pattern of horizontal lines and dots, and the text 'Open Data on AWS' in large white font. Below this, the text 'Share any volume of data with as many people as you want' is written in a smaller white font. In the bottom right corner, there is a small IRS Form 990 logo.

Open Data on AWS

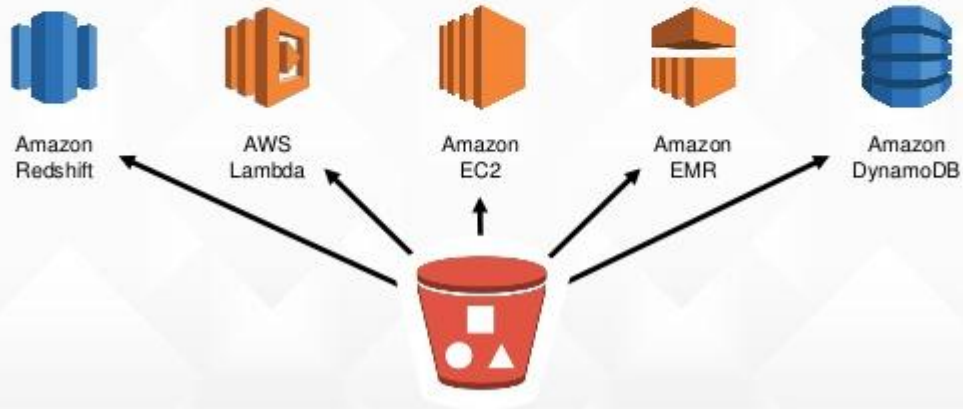
Share any volume of data with as many people as  
you want

 IRS  
Form 990

\* Forms 990, 990-EZ and 990-PF which have been electronically filed with the IRS

# The Data - Open Data on AWS

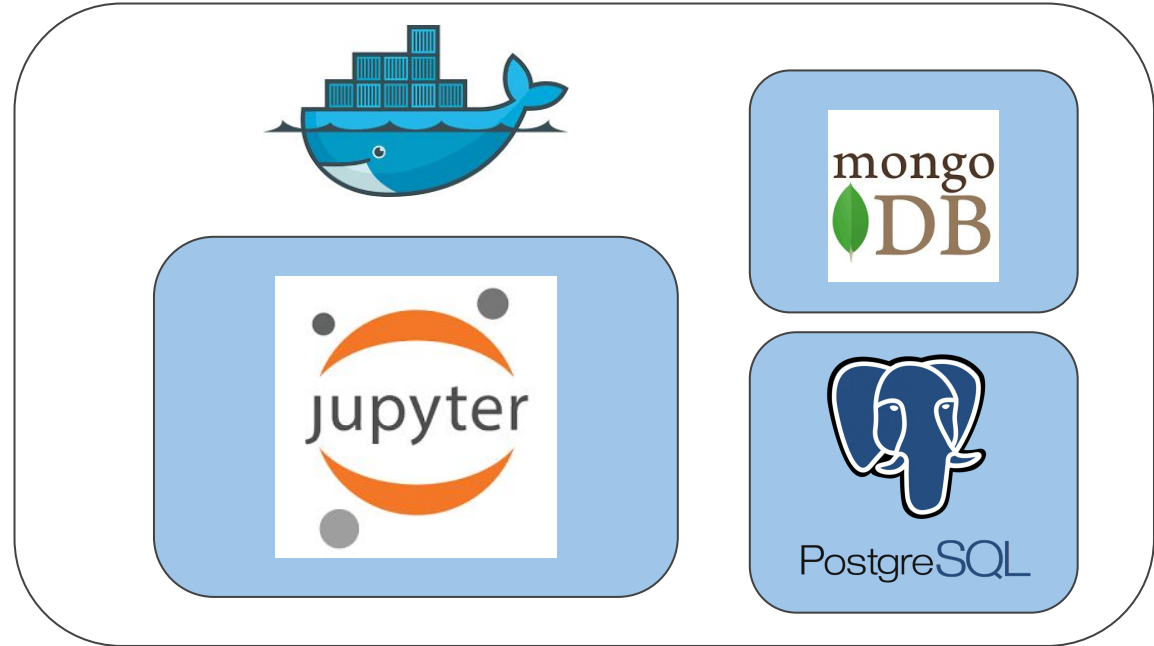
Making data open on AWS enables more innovation by making data available for rapid access to our flexible and low-cost computing resources.



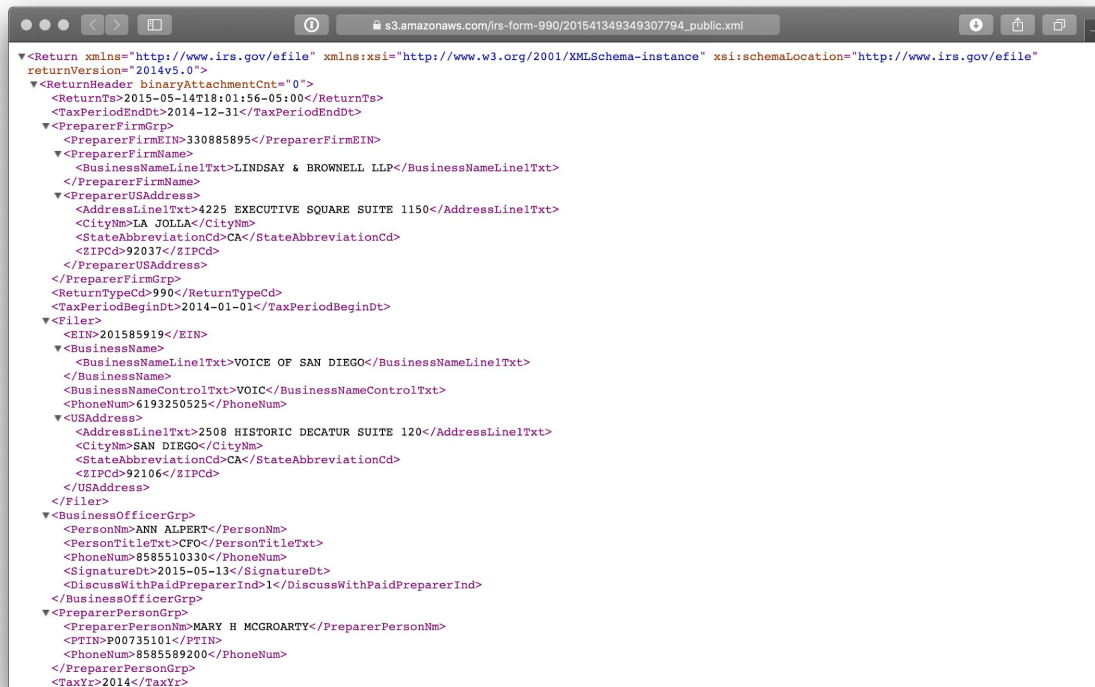




# The Data - Data Integration Framework



# The Data - Looks Like? Raw XML



A screenshot of a web browser window showing raw XML data. The address bar indicates the URL is `s3.amazonaws.com/irs-form-990/201541349349307794_public.xml`. The XML content is displayed with syntax highlighting and tree view icons on the left. The root element is `<Return>` with attributes `xmlns="http://www.irs.gov/efile"`, `xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"`, and `xsi:schemaLocation="http://www.irs.gov/efile"`. The XML includes sections for preparer information (Lindsay & Brownell LLP), two filer entries (VOICE OF SAN DIEGO and MARY H MCGROARTY), and tax year information (2014).









```
<Return xmlns="http://www.irs.gov/efile" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.irs.gov/efile"
returnVersion="2014v5.0">
  <ReturnHeader binaryAttachmentCnt="0">
    <ReturnTs>2015-05-14T18:01:56-05:00</ReturnTs>
    <TaxPeriodEndDt>2014-12-31</TaxPeriodEndDt>
  </ReturnHeader>
  <PreparerFirmGrp>
    <PreparerFirmEIN>330885895</PreparerFirmEIN>
    <PreparerFirmName>
      <BusinessNameLine1Txt>LINDSAY & BROWNELL LLP</BusinessNameLine1Txt>
    </PreparerFirmName>
    <PreparerUSAddress>
      <AddressLine1Txt>4225 EXECUTIVE SQUARE SUITE 1150</AddressLine1Txt>
      <CityNm>LA JOLLA</CityNm>
      <StateAbbreviationCd>CA</StateAbbreviationCd>
      <ZIPCd>92037</ZIPCd>
    </PreparerUSAddress>
  </PreparerFirmGrp>
  <ReturnTypeCd>990</ReturnTypeCd>
  <TaxPeriodBeginDt>2014-01-01</TaxPeriodBeginDt>
  <Filer>
    <EIN>201585919</EIN>
    <BusinessName>
      <BusinessNameLine1Txt>VOICE OF SAN DIEGO</BusinessNameLine1Txt>
    </BusinessName>
    <BusinessNameControlTxt>VOIC</BusinessNameControlTxt>
    <PhoneNum>6193250525</PhoneNum>
    <USAddress>
      <AddressLine1Txt>2508 HISTORIC DECATUR SUITE 120</AddressLine1Txt>
      <CityNm>SAN DIEGO</CityNm>
      <StateAbbreviationCd>CA</StateAbbreviationCd>
      <ZIPCd>92106</ZIPCd>
    </USAddress>
  </Filer>
  <BusinessOfficerGrp>
    <PersonNm>ANN ALPERT</PersonNm>
    <PersonTitleTxt>CFO</PersonTitleTxt>
    <PhoneNum>8585510330</PhoneNum>
    <SignatureDt>2015-05-13</SignatureDt>
    <DiscussWithPaidPreparerInd>1</DiscussWithPaidPreparerInd>
  </BusinessOfficerGrp>
  <PreparerPersonGrp>
    <PreparerPersonNm>MARY H MCGROARTY</PreparerPersonNm>
    <PTIN>P00735101</PTIN>
    <PhoneNum>8585589200</PhoneNum>
  </PreparerPersonGrp>
  <TaxYr>2014</TaxYr>
</Return>
```

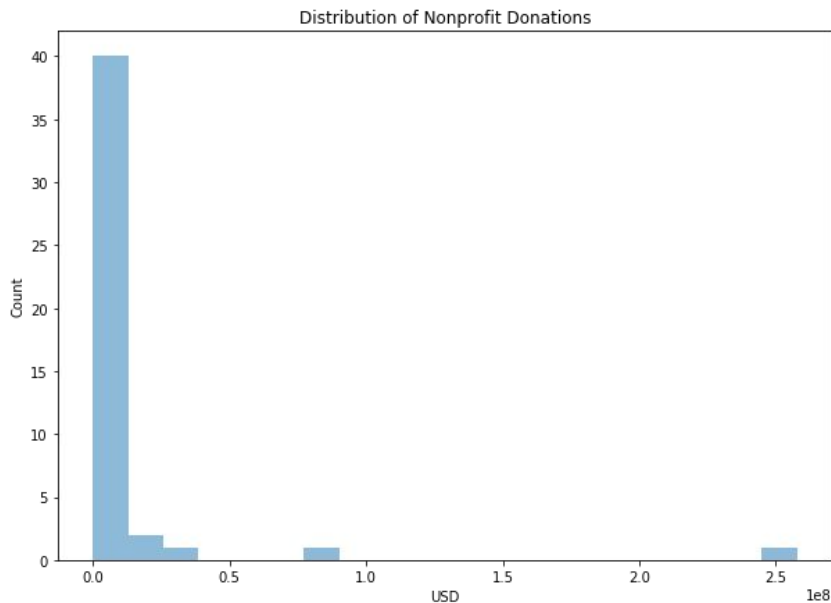


## The Data - Looks Like? Python JSON

```
{  
  'EIN': '462133136',  
  'TaxPeriod': '201601',  
  'DLN': '93491256004676',  
  'FormType': '990PF',  
  'URL': 'https://s3.amazonaws.com/irs-form-990/201622569349100467_public.xml',  
  'OrganizationName': 'BROOKLYN WARRIORS SOCCER ASSOCIATION INC',  
  'SubmittedOn': '2017-01-10',  
  'ObjectId': '201622569349100467',  
  'LastUpdated': '2017-02-11T02:39:43'  
}
```

# The Data - Looks Like? MongoDB

 (1) 042662873	{ 10 fields }	Object
 _id	042662873	String
 DLN	93493243000066	String
 EIN	042662873	String
 FormType	990	String
 LastUpdated	2017-01-11T22:15:15	String
 ObjectId	201612439349300006	String
 OrganizationName	ELKS BUILDING CORP OF NORWOOD	String
 SubmittedOn	2017-01-04	String
 TaxPeriod	201603	String
 URL	<a href="https://s3.amazonaws.com/irs-form-990/...">https://s3.amazonaws.com/irs-form-990/...</a>	String

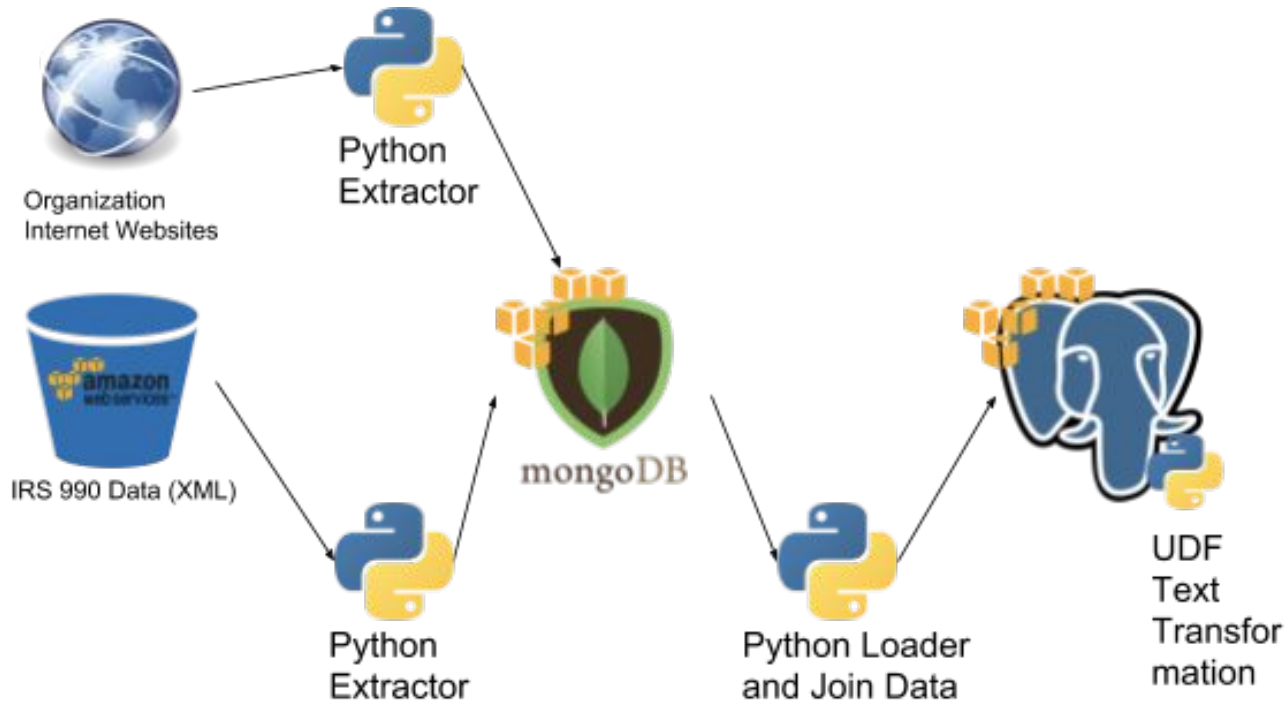


### Nonprofits Receipt Amounts on Exploratory Dataset



*Word Cloud of Exploratory Data Mission Statements*

# The Data Pipeline Components





# **Is It Doable?**



# Is It Doable? Yes!

- Previous efforts by other teams involved working on just the IRS form 990 data and trying to understand the data as is.
- We hope that with combining it with more rich data, that we can climb over this wall and understand the form 990 data in new interesting ways.







# Potential Rewards

## Business value

- Better user engagement and recommendations. Users can find similar organizations faster and more likely to engage (i.e. donate and volunteer).
- New understanding of organizational space. No longer need to use wide categorical umbrellas, but rather the clustered space describing specific high-impact aspects of the non-profit space.
  - Example:
    - Social Group: NACCP & Greenpeace
    - Women's Causes: Women's March & She Should Run





## In a Nutshell

**Deepen your understanding** of nonprofits

Ensure your money goes to the **right causes**

Get the most out of your networking efforts by  
**connecting with the right organizations**



**Questions?**

