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# CITY OF SAN DIEGO GET-IT-DONE DASHBOARD

## FINAL REPORT FOR PROJECT 2

UCSD Data Science and Visualization Bootcamp  
April 2020

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# ARTICULATION AND RATIONALE

The objective of this report is to describe the goal, process and observations of transforming a dataset into a dynamic dashboard for business metrics. For this project, City of San Diego's Get-It-Done app data was used.

Get It Done San Diego is the official app for reporting non-emergency problems to the City of San Diego. App users can report problems like potholes or graffiti and connect directly to the City's work tracking system.

The app has been in use since 2016 and the City of San Diego publishes annual Get-It-Done datasets in CSV format for historical data, and JSON format for the current year to date.

**Intended audience:** City of San Diego Leadership

**Decision:** Strategic/Operational – identify problem-areas, monitor and gauge effectiveness of the Get-It-Done program overall and by Council district, using:

- Service request volume by period, type, council district
- Average response time from open to closed
- Open/closed deltas
- Service request volumes by type by council district

**Decision timing:** Ongoing for the life of the app

**Importance:** The dashboard can assist City Leadership in quickly identifying problem areas or problem periods, such as holidays, tourist season, etc.

**What actions can be taken:** The dashboard is a monitoring tool for City Leadership allowing for further investigation, remedying or use a pro-active approach as appropriate for the issue. For instance, during tourist season or while large conventions are in town, it is possible that mobile service requests for scooters spike. If the City had historical data to confirm this, the City could take a pro-active approach and request that the scooter service vendors increase their collection efforts during those times, thereby reducing the number of service requests, the amount of resources the City would otherwise have to dedicate, and last but not least: reduce the nuisance factor for the public.

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# SETTING UP

## SOURCES

City of San Diego Get It Done program files:

<https://data.sandiego.gov/datasets/get-it-done-311/>

Used for Project:

- Get It Done Requests JSON API – json

- Get It Done Requests year-to-date – csv

- Get It Done Requests 2020 – csv

- Get It Done Requests 2019 – csv

Not used but listed for future consideration:

- Get It Done Requests 2018 – csv

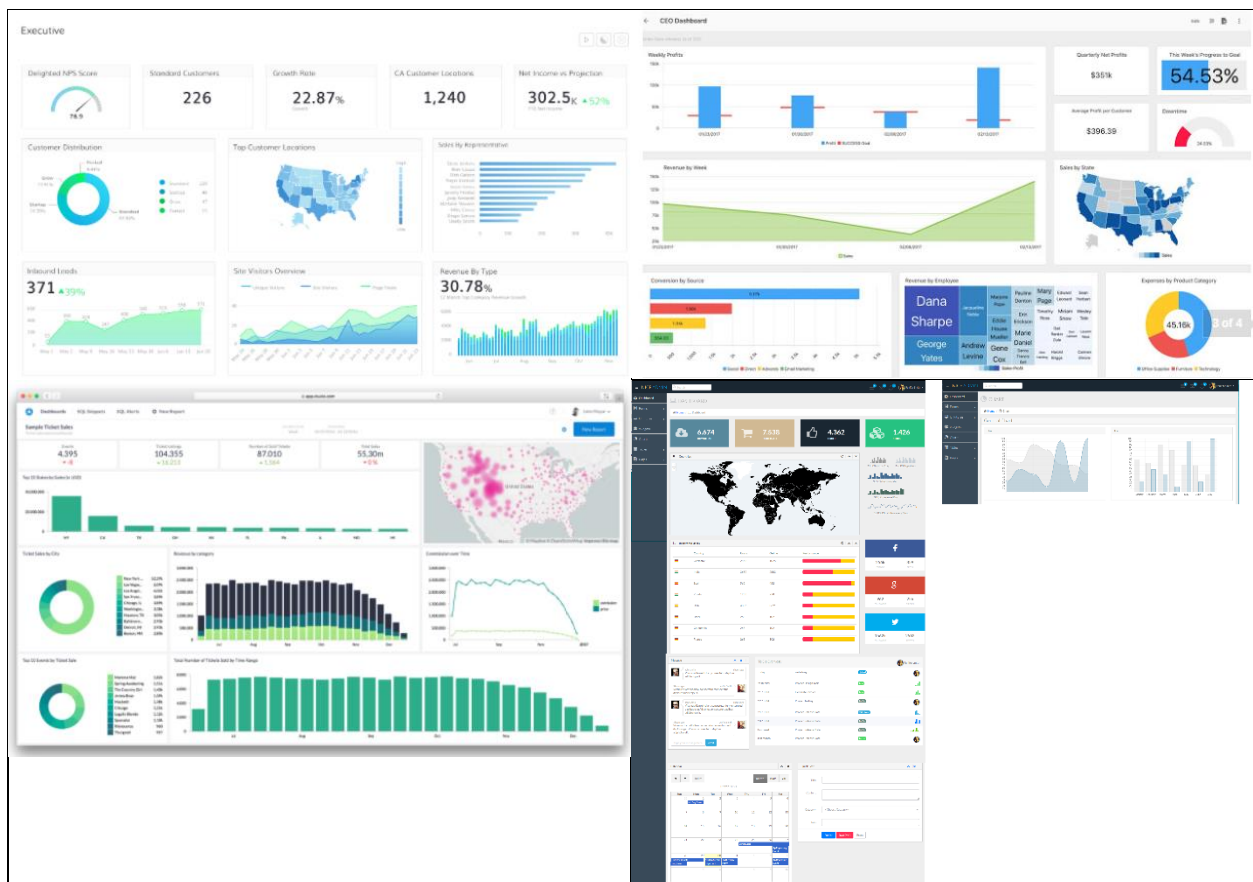
- Get It Done Requests 2017 – csv

- Get It Done Requests 2016 – csv9 CSV files

City Council Districts geojson:

<https://data.sandiego.gov/datasets/city-council-districts/>

# INSPIRING VISUALIZATIONS



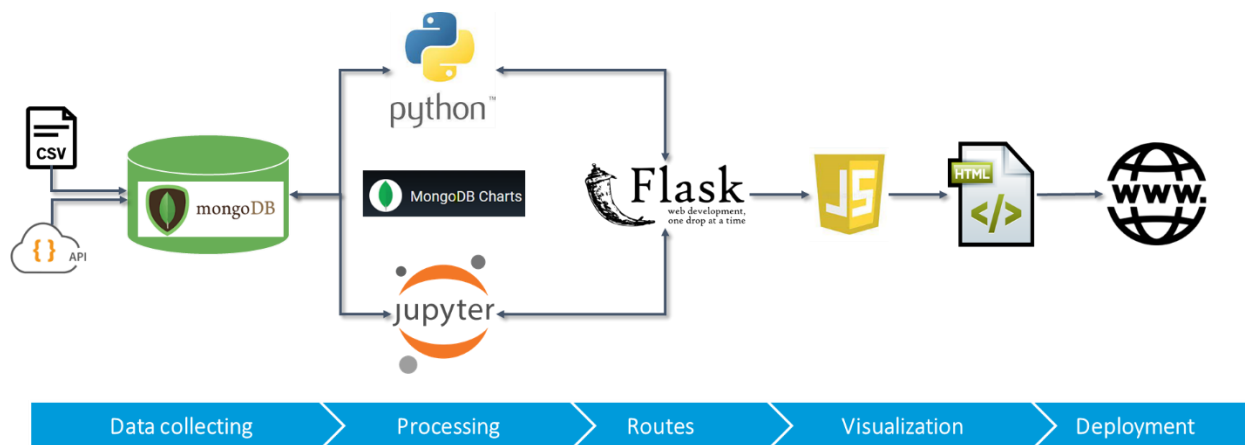
## ORIGINAL SKETCHES



# EXECUTION

The approach consisted of a two-tier environment where data from the CSVs is imported into a MongoDB database, and the year-to-date data published in JSON-format is called in via API.

- Download the source files to a Github repository with branches for all team members
- Create Atlas Cloud MongoDB
- Create documents from the CSV files in MongoDB converting strings to numbers or date values where appropriate
- Connect to mongodb, read collections, add group by and count service name, filter by date
- Create graphs in MongoDB Charts
- Create pre-populated summary and chart documents in MongoDB to reduce dashboard loading time
- Use NiceAdmin dashboard template and modify for purpose
- Use Python, Jupyter, Flask, Javascript, HTML/CCS to process and load data
- Populate and deploy dashboard



*As of time of writing, deployment is in flux.*

## LIBRARIES

### New and mention-worthy:

<b>DNS</b>	Enables connection to Atlas MongoDB.
<b>Flask CORS</b>	Cross origin resource sharing (enables running API calls when origin is different from web origin).
<b>Pytz</b>	Accurate cross-platform time calculation.
<b>Django</b>	Stores datetime information in UTC, uses time-zone-aware datetime objects internally, and translates them to the end user's time zone.

### All libraries / dependencies

App.py – Flask Routes	Jupyter Notebook– Data gathering
<pre>import os from flask import (Flask,     render_template, jsonify, request,     redirect) import pymongo from src import config from bson.json_util import dumps import json import requests import dns import datetime from datetime import datetime import pytz from django.utils import timezone from flask import CORS</pre>	<pre>import requests import pymongo import dns import datetime from datetime import datetime from dateutil import parser import pytz from django.utils import timezone from time import sleep import json import config import requests  #Project defined dependencies import config from pprint import pprint</pre>
Python – Class Visualizer	Jupyter Notebook – Visualizations
<pre>import pymongo import dns import datetime import json import pandas as pd import numpy as np from matplotlib import pyplot as plt import config</pre>	<pre>from matplotlib import pyplot as plt import pandas as pd  #Project defined modules import config import visualization as viz</pre>



## MONGODB

Approximately 680,000 service requests for 2019 and 2020 were imported into MongoDB. Strings were converted to numbers or dates where appropriate.

Column1	Column2	Column3
num	service_request_id	json
num	service_request_parent_id	
num	sap_notification_number	
date	date_requested	requested_c
num	case_age_days	calculate
	service_name	json
	case_record_type	service_cod
date	date_closed	calculate ba
	status	json
double	lat	json
double	lng	json
	street_address	address
	zipcode	
	council_district	
num	comm_plan_code	
num	comm_plan_name	
	park_name	
	case_origin	
	referred	
	public_description	
	iamfloc	
	floc	

## getitdone\_db.sandiego

Documents

Aggregations

Schema

Explain Plan

Indexes

FILTER { field: 'value' }

ADD DATA



VIEW



~680,000  
documents

```
> _id: ObjectId("6062a328659e962620d4dcd6")
service_request_id: 3190603
date_requested: 2021-01-01T08:23:00.000+00:00
case_age_days: 28
service_name: "Container Left Out"
case_record_type: "ESD Complaint/Report"
date_closed: 2021-01-29T08:00:00.000+00:00
status: "Closed"
lat: 32.749027899999966
lng: -117.2405783
street_address: "4673 Lotus St"
council_district: 2
comm_plan_code: 23
comm_plan_name: "Ocean Beach"
case_origin: "Mobile"
public_description: "2nd report. Tenant has kept containers out since move in- Nov 1. A war..."
```

```
_id: ObjectId("6062a328659e962620d4dcd7")
service_request_id: 3190605
date_requested: 2021-01-01T08:28:00.000+00:00
case_age_days: 10
case_record_type: "Parking"
date_closed: 2021-01-10T08:00:00.000+00:00
status: "Closed"
lat: 32.70159
lng: -117.09878
street_address: "4434 Benfield Ct, San Diego, Ca 92113, Usa"
zipcode: "92113"
council_district: 4
comm_plan_code: 37
comm_plan_name: "Southeastern San Diego"
case_origin: "Mobile"
public_description: "When is a police going to be driving around ocean view and imperial av..."
```

```
_id: ObjectId("6062a328659e962620d4dcd8")
service_request_id: 3190606
date_requested: 2021-01-01T08:35:00.000+00:00
case_age_days: 56
```

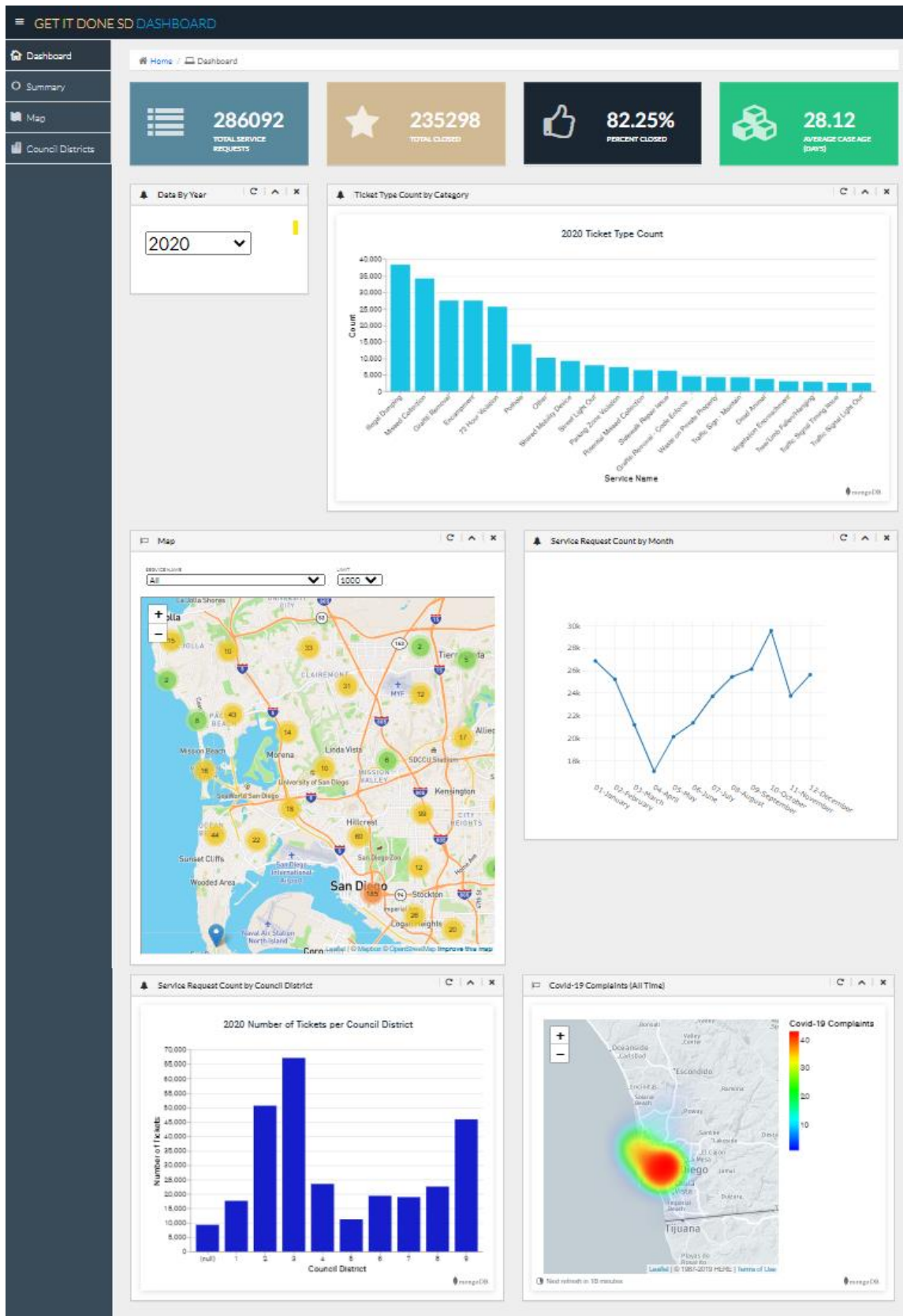
---

# DASHBOARD

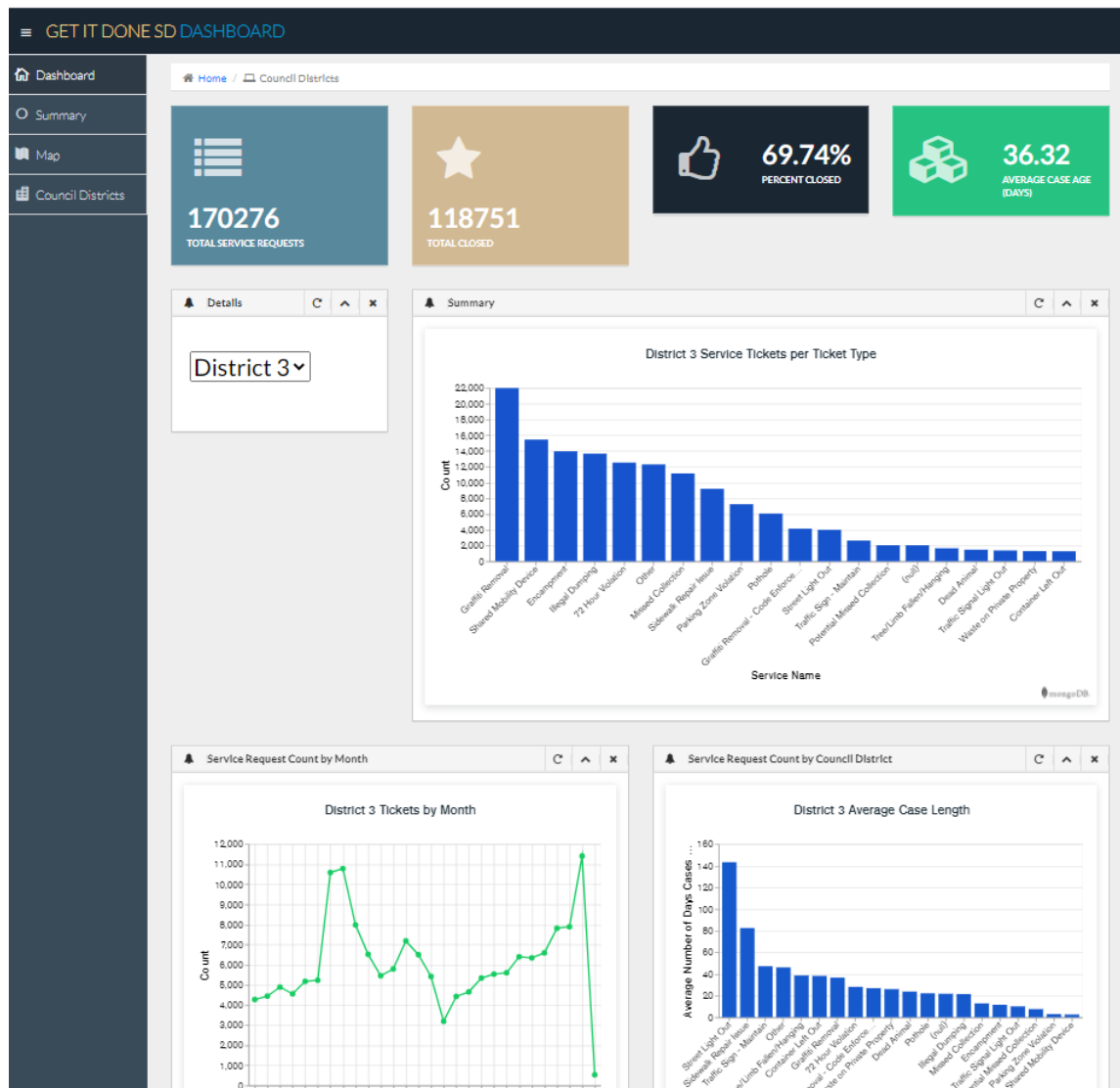
## FEATURES

- ✓ Year selector
- ✓ Summary Status at a glance
- ✓ Service requests by service type
- ✓ Leaflet mapbox with popup tool tip and filter (service type, limit)
- ✓ Service request count by month
- ✓ Top 20 service requests by type
- ✓ Service requests by council district
- ✓ Average case length by council district
- ✓ COVID-19 heatmap

# MAIN PAGE

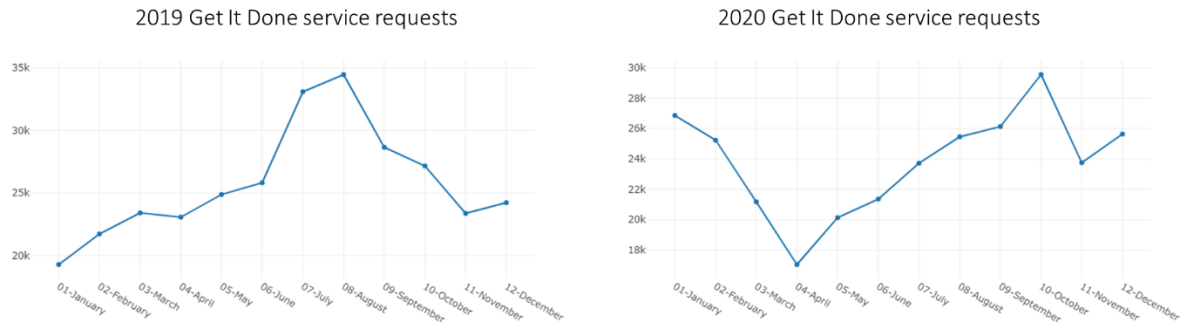


# COUNCIL DISTRICT PAGE



# CONCLUSION

## NUMBER OF SERVICE REQUESTS BY YEAR – PLOTLY



In 2019, service requests peaked in July and August. District data should be verified to see if spikes could possibly occur in more popular tourist areas.

In 2020, service requests dipped significantly in April which correlates with the start of COVID-19 restrictions, and peaked in October.

## COUNCIL DISTRICTS PERFORMANCE

Council Districts	2019	2020	2021 to date
Most service requests	District 3 (75K)	District 3 (66K)	District 3 (25K)
Fewest service requests	District 5 (10K)	District 5 (10K)	District 5 (3K)
Average case length across districts	46-60 days	20-35 days	10-16 days
Longest average case length	District 5 (70 days+)	District 5 (40 days+)	District 5 (21 days+)

The data shows that the Council District 5 has the fewest service requests and the longest average case length. Further review disclosed that District 5 has several long-duration service request types that possibly skew the average case length:

- Evaluate for resurfacing: 280 cases at 400 days to close
- Sidewalk repair issues: 750 cases at 200 days to close

It is recommended to remove the above two items from the data and reevaluate the average case length of District 5. If the data still shows a significant higher average case length, possible culprits such as high volume service requests should be reviewed to determine if there are training or resource issues.

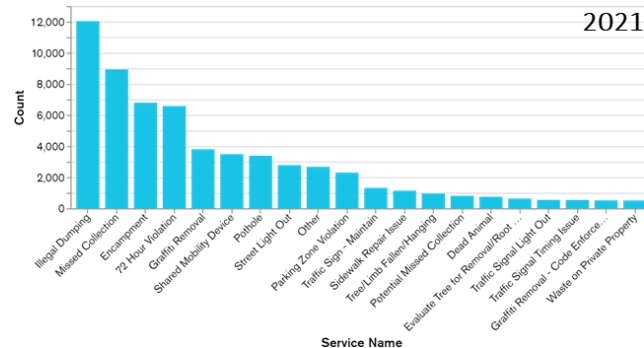
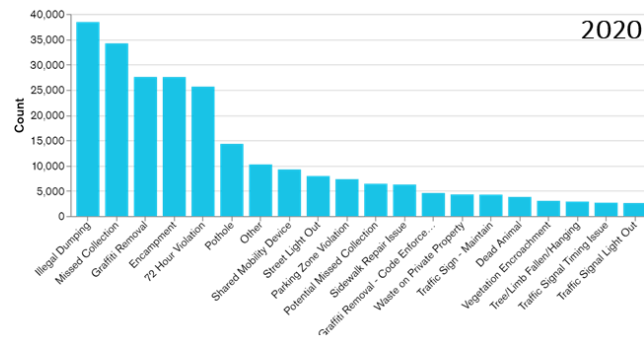
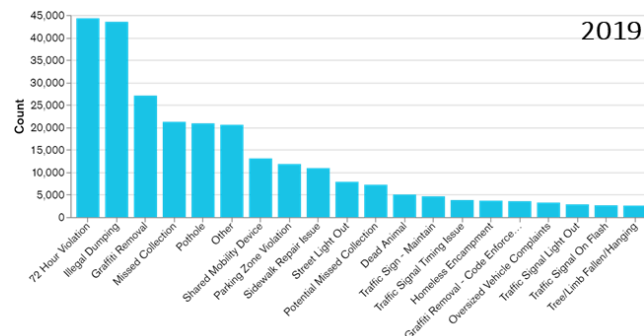
## SERVICE TYPES

When looking at the annual summary statistics, the following is noted:

Service Type	2019	2020	2021	Trend
Illegal Dumping	44K	38K	12K	↑
Missed Collection	21K	34K	9K	↑
Encampment	4K	27K	7K	↔

Since 2019, illegal dumping has been the most popular service request in the City of San Diego. Further analysis is required to see if locations of the occurrences are repetitive or clustered.

Missed collections is experiencing a significant increase since 2019 and is still trending upwards. Council district data should be reviewed to determine if this is a city-wide trend or if this is occurring in specific areas. Causes could be things such as an aging vehicle fleet or area population growth. Possible remedies could be additional training if the issue is area-specific, additional resources if the issue is city-wide.



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## GOING FORWARD

The dashboard could be expanded with the following data:

- Are dips/spikes occurring during certain times of the year? Certain districts?
  - Average days from open to close, grouped by category, by council district compared to overall
  - Is average time to resolve a service request same across categories? Across districts?
  - Dips/spikes? Certain areas? Certain times of year?
- Group the data by major categories (less than 20) instead of every category



# CODE

## FLASK SETUP

```
# Flask Setup
#####
app = Flask(__name__)
CORS(app)

#####
# Database Setup
#####
mongo = pymongo.MongoClient(config.mongo_conn, maxPoolSize=50, connect=False)
db = pymongo.database.Database(mongo, config.db_name)
col = pymongo.collection.Collection(db, 'sandiego')
collection_summary = pymongo.collection.Collection(db, 'summary_counts')

# create route that renders index.html template
@app.route("/")
def home():
    return render_template("index.html")

@app.route("/councildistricts")
def councildistricts():
    return render_template("councildistricts.html")

@app.route("/api/data")
def data():
    results = json.loads(dumps(col.find().limit(500).sort("time", -1)))
    return jsonify(results)

@app.route("/api/daterequested/<year>!<name>!<limit>")
def daterequested(year, name, limit):
    year_int = 2021
    limit_int = 1000
    try:
        year_int = int(year)
        limit_int = int(limit)
    except ValueError:
        # Handle the exception
        "Invalid Year"

    local = pytz.timezone("America/Los_Angeles")
    dt_start = datetime.strptime(str(year_int) + "-1-1 00:00:00", "%Y-%m-%d %H:%M:%S")
    dt_start_local = local.localize(dt_start, is_dst=None)
    dt_start_utc = dt_start_local.astimezone(pytz.utc)

    dt_end = datetime.strptime(str(year_int + 1) + "-1-1 00:00:00", "%Y-%m-%d %H:%M:%S")
    dt_end_local = local.localize(dt_end, is_dst=None)
```

```

dt_end_utc = dt_end_local.astimezone(pytz.utc)

print(dt_start_utc, dt_end_utc)
if name != "All":
    filter={
        'date_requested': {
            '$gte': dt_start_utc,
            '$lt': dt_end_utc
        },
        'service_name':name
    }
else:
    filter={
        'date_requested': {
            '$gte': dt_start_utc,
            '$lt': dt_end_utc
        }
    }
results = json.loads(dumps(col.find(filter=filter).limit(limit_int).sort("time", -
1)))

return jsonify(results)

@app.route("/api/summary/<year>")
def summary(year):
    filter= {"year":int(year)}

    results = json.loads(dumps(collection_summary.find(filter=filter)))

    return jsonify(results)

@app.route("/api/cdSummary/<district>")
def cdSummary(district):
    filter= {"district":int(district)}

    results = json.loads(dumps(collection_summary.find(filter=filter)))

    return jsonify(results)

@app.route("/api/servicenames")
def servicenames():

    results = json.loads(dumps(col.distinct("service_name")))

    return jsonify(results)

if __name__ == '__main__':
    app.run(debug=True, port=5104)

```

## MAIN\_MBM.JPYNB TO PROCESS THE DATA

```
In [ ]: # Initialize PyMongo to work with MongoDBs
client = pymongo.MongoClient(config.mongo_conn)

In [ ]: # Define database and collection
db = client.getitdone_db
SR_collection = db.sandiego
summary_collection = db.summary_counts

In [ ]: for SR in SR_collection.find():
        print(SR['service_request_id'])
        break

In [ ]: summary_collection.count_documents({'year':2021})

In [ ]: summary_collection.count_documents({'year':2021})

In [ ]: for summary_obj in summary_collection.find():
        print(summary_obj)
        break

In [ ]: currentMonth = datetime.now().month
print(currentMonth)
type(currentMonth)

In [ ]: local = pytz.timezone("America/Los_Angeles")
dt_start = datetime.strptime("2021-" + str(currentMonth) + "-1 00:00:00", "%Y-%m-%d %H:%M:%S")
dt_start_local = local.localize(dt_start, is_dst=None)
dt_start_utc = dt_start_local.astimezone(pytz.utc)

dt_end = datetime.strptime("2021-" + str(currentMonth + 1) + "-1 00:00:00", "%Y-%m-%d %H:%M:%S")
dt_end_local = local.localize(dt_end, is_dst=None)
dt_end_utc = dt_end_local.astimezone(pytz.utc)

print(dt_start_utc, dt_end_utc)
```

```
In [ ]: year = 2020
local = pytz.timezone("America/Los_Angeles")
dt_start = datetime.strptime(str(year) + "-1-1 00:00:00", "%Y-%m-%d %H:%M:%S")
dt_start_local = local.localize(dt_start, is_dst=None)
dt_start_utc = dt_start_local.astimezone(pytz.utc)

dt_end = datetime.strptime(str(year + 1) + "-1-1 00:00:00", "%Y-%m-%d %H:%M:%S")
dt_end_local = local.localize(dt_end, is_dst=None)
dt_end_utc = dt_end_local.astimezone(pytz.utc)

filter_requested = {
    'date_requested': {
        '$gte': dt_start_utc,
        '$lt': dt_end_utc
    }
}

filter_closed = {
    'date_requested': {
        '$gte': dt_start_utc,
        '$lt': dt_end_utc
    }, 'status': "Closed"
}

total_requested = SR_collection.count_documents(filter=filter_requested)

sum_case_age_days = 0
for SR in SR_collection.find(filter=filter_requested):
    if 'case_age_days' in SR:
        sum_case_age_days += int(SR["case_age_days"])

total_closed = SR_collection.count_documents(filter=filter_closed)
```

```
In [ ]: print(dt_start_utc, dt_end_utc)
print(total_requested, total_closed)
print(sum_case_age_days)
```

```
In [ ]: update_doc = summary_collection.find_one_and_update(
    { 'year': year },
    { '$set':
        {
            "total_requested": int(total_requested),
            "total_closed": int(total_closed),
            "percent_closed": float(total_closed/total_requested),
            "average_case_age_days": float(sum_case_age_days/total_requested)
        }
    }, upsert=True
)
```

```
In [ ]: def updateDistricts(district):
    filter_requested = {'council_district': district}
    filter_closed = {'council_district': district, 'status': "Closed"}

    total_requested = SR_collection.count_documents(filter=filter_requested)

    sum_case_age_days = 0
    for SR in SR_collection.find(filter=filter_requested):
        if 'case_age_days' in SR:
            sum_case_age_days += int(SR["case_age_days"])

    total_closed = SR_collection.count_documents(filter=filter_closed)

    update_doc = summary_collection.find_one_and_update(
        { 'district': district },
        { '$set':
            {
                "total_requested": int(total_requested),
                "total_closed": int(total_closed),
                "percent_closed": float(total_closed/total_requested),
                "average_case_age_days": float(sum_case_age_days/total_requested)
            }
        }, upsert=True
    )

districts = [1,2,3,4,5,6,7,8,9]
for district in districts:
    updateDistricts(district)
```

```
In [ ]: filter = {
    'date_requested': {
        '$gte': dt_start_utc,
        '$lt': dt_end_utc
    }
}

result = client['getitdone_db']['sandiego'].find(filter=filter)
```

```

In [ ]: i = 0
        date_requested_count = {}
        date_closed_count = {}

        for SR in result:
            if 'date_requested' in SR:
                date_requested_month = SR['date_requested'].month
                if (date_requested_month in date_requested_count):
                    date_requested_count[date_requested_month] += 1
                else:
                    date_requested_count[date_requested_month] = 1
            if 'date_closed' in SR:
                date_closed_month = SR['date_closed'].month
                if (date_closed_month in date_closed_count):
                    date_closed_count[date_closed_month] += 1
                else:
                    date_closed_count[date_closed_month] = 1

            # SR['case_age_days']
            # SR['service_name']
            # SR['case_record_type']
            # SR['status']
            # SR['lat']
            # SR['lng']
            # SR['street_address']
            # SR['council_district']
            # SR['comm_plan_code']
            # SR['comm_plan_name']
            # SR['case_origin']
            # SR['public_description']

            # i += 1
            # if i > 5:
            #     break

```

```

In [ ]: date_requested_count

```

```

In [ ]: date_closed_count

```

```

In [ ]: def get_sd_api_data(sd_api_url):
    print("import SR from get it done api")
    response = requests.get(sd_api_url)
    response_json = response.json()

    count_insert_SR = 0
    count_update_SR = 0

    for SR in response_json:
        public_description = ""
        media_url = ""

        # Get the data from the results
        service_request_id = int(SR["service_request_id"])
        date_requested_string = SR["requested_datetime"] # or any date sting of differing formats.
        date_requested = parser.parse(date_requested_string)
        updated_datetime_string = SR["updated_datetime"] # or any date sting of differing formats.
        updated_datetime = parser.parse(updated_datetime_string)

        if "description" in SR:
            public_description = SR["description"]
        if 'media_url' in SR:
            media_url = SR["media_url"]

        if SR_collection.count_documents({'service_request_id': service_request_id}) == 0:
            print("Insert new Service request! ")
            insert_doc = {
                "service_request_id": service_request_id,
                "date_requested": date_requested,
                "date_updated": updated_datetime,
                "status": SR["status"],
                "service_code": SR["service_code"],
                "service_name": SR["service_name"],
                "public_description": public_description,
                "street_address": SR["address"],
                "lat": float(SR["lat"]),
                "lng": float(SR["long"]),
                "media_url": media_url
            }
            doc = SR_collection.insert_one(insert_doc)
            count_insert_SR += 1
            # if config.debug:
            #     print(doc)

        else:
            print(f"SR {service_request_id} already exists, update existing service request!")
            update_doc = SR_collection.find_one_and_update(
                {'service_request_id': service_request_id},
                {'$set':
                    {
                        "date_requested": date_requested,
                        "date_updated": updated_datetime,
                        "status": SR["status"],
                        "service_code": SR["service_code"],
                        "service_name": SR["service_name"],
                        "public_description": public_description,
                        "street_address": SR["address"],
                        "lat": float(SR["lat"]),
                        "lng": float(SR["long"]),
                        "media_url": media_url
                    }
                }, upsert=True
            )
            count_update_SR += 1
            # if Config.debug:
            #     print(update_doc)

    return f"{str(count_insert_SR)} SR created. {str(count_update_SR)} SR updated."

```

```

In [ ]: summary = get_sd_api_data("http://san-diego.spotreporters.com/open311/v2/requests.json")

```

## VISUALIZATION.PY FOR THE SUMMARY STATISTICS

```
In [ ]: from matplotlib import pyplot as plt
import numpy as np
import scipy.stats as stats
import pandas as pd

# Project defined modules
import config
import visualization as viz

In [ ]: # Create visualization object
visuals = viz.Visualizer()
base_df = visuals.get_clean_data()
base_df.head(5)

In [ ]: grouped_service_name_df = base_df.groupby(["service_name"])
grouped_service_name_df.head()

In [ ]: SR_count = grouped_service_name_df["service_name"].count()

In [ ]: # Assemble the resulting series into a single summary dataframe.
summary_stats_df = pd.DataFrame({
    "Service Name": grouped_service_name_df["service_name"].unique(),
    "Count": SR_count
})
summary_stats_df

In [ ]: summary_stats_sorted_df = summary_stats_df.sort_values(['Count'], ascending=False)

In [ ]: summary_stats_sorted_df.head()

In [ ]:
```

## APP.PY TO POPULATE MAIN DASHBOARD

```
d3.selectAll("body").on("change", populateDashboard);

function populateServicesNames() {
    url_servicenames = "api/servicenames";
    d3.json(url_servicenames).then(function(response) {
        console.log(response)
        var serviceNameArr = response
        // select inputs
        var inputElementDate = d3.select("#selServiceName");

        // auto populate available filter days and add blank option to search without date filter
        serviceNameArr.forEach(servicename => {
            inputElementDate.append('option').text(servicename);
        });
    });
}

function populateDashboard() {
    console.log("loading summary data...")
}
```

```

// Use D3 to select the dropdown menu
var CB_Year = d3.select("#selYear");
// Assign the value of the dropdown menu option to a variable
var year = CB_Year.node().value;

console.log(year);

/* data route */
const url = "api/summary" + "/" + year;
d3.json(url).then(function(response) {
    // Multiline Plot SR over time
    console.log(year);
    const data = response[0].summary;
    //console.log(data);

    month = []
    count = []
    for (const [key, value] of Object.entries(data)) {
        // console.log(`${key}: ${value}`);
        month.push(key);
        count.push(value);
    }

    countbymonth = [{
        x: month,
        y: count }];

    var lineplot = d3.selectAll("#line-plot").node();

    Plotly.newPlot(lineplot, countbymonth);
    console.log("Summary data loaded.")

    // bar chart count by service request type
    var chart_url = response[0].chart_url;
    chart_html = "<iframe id='bar-count' style='background: #FFFFFF;border: none;border-
radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url + "'>
</iframe>"
    d3.select("#bar-plot").html(chart_html)

    // bar chart count by council district
    var chart_url_council_dist = response[0].chart_url_council_dist
    chart_council_dist_html = "<iframe id='bar-
count' style='background: #FFFFFF;border: none;border-radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url_counc
il_dist + "'></iframe>"
    d3.select("#bar-plot-council-dist").html(chart_council_dist_html)

    var sr_name = "All"
    var limit = 1000

    // Use D3 to select the dropdown menu

```



```

var CB_SRName = d3.select("#selServiceName");
// Assign the value of the dropdown menu option to a variable
sr_name = CB_SRName.node().value;
// Use D3 to select the dropdown menu
var CB_Limit = d3.select("#selMapLimit");
// Assign the value of the dropdown menu option to a variable
limit = CB_Limit.node().value;
console.log(year, sr_name, limit);

map_html = "<iframe src='http://127.0.0.1:5500/pages/index.html?year=" + year + "&name=" +
sr_name + "&limit=" + limit + "' height='600px' width='100%' title='Service Request Cluster M
ap'></iframe>";
d3.select("#map").html(map_html)

d3.select("#total_requested").html("<span>" + response[0].total_requested + "</span>")
d3.select("#total_closed").html("<span>" + response[0].total_closed + "</span>")
d3.select("#percent_closed").html("<span>" + (parseFloat(response[0].percent_closed)*100).
toFixed(2).toString() + "%</span>")
d3.select("#average_case_age").html("<span>" + parseFloat(response[0].average_case_age_day
s).toFixed(2).toString() + "</span>")

});
}

function populateDistricts() {
  console.log("loading summary data...")

  // Use D3 to select the dropdown menu
  var CB_District = d3.select("#selDistrict");
  // Assign the value of the dropdown menu option to a variable
  var district = CB_District.node().value;

  console.log(district);

  /* data route */
  const cdurl = "api/summary" + "/" + district;
  d3.json(cdurl).then(function(response) {

    console.log(district);
    var line_url = response[0].chart_url_cd_tickets_over_time;
    line_html = "<iframe id='bar-count' style='background: #FFFFFF;border: none;border-
radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + line_url + "'><
/iframe>"
    d3.select("#cd-line-plot").html(line_html)

    // bar chart count by service request type
    var chart_url = response[0].chart_url;
    chart_html = "<iframe id='bar-count' style='background: #FFFFFF;border: none;border-
radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url + "'>
</iframe>"

```

```

d3.select("#cd-bar-plot").html(chart_html)

// bar chart count by council district
var chart_url_council_dist = response[0].chart_url_council_dist
chart_council_dist_html = "<iframe id='bar-
count' style='background: #FFFFFF;border: none;border-radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url_counc
il_dist + "'></iframe>"
d3.select("#bar-plot-council-dist").html(chart_council_dist_html)

d3.select("#total_requested").html("<span>" + response[0].total_requested + "</span>")
d3.select("#total_closed").html("<span>" + response[0].total_closed + "</span>")
d3.select("#percent_closed").html("<span>" + (parseFloat(response[0].percent_closed)*100).
toFixed(2).toString() + "%</span>")
d3.select("#average_case_age").html("<span>" + parseFloat(response[0].average_case_age_day
s).toFixed(2).toString() + "</span>")

});
}

function init() {
  populateServicesNames();
  populateDashboard();
  populateDistricts();
};

init();

```

## CDAPP.JS TO POPULATE COUNCIL DISTRICTS DASHBOARD

```

d3.selectAll("body").on("change", populateDistricts);

function populateDistricts() {
  console.log("loading summary data...")

  // Use D3 to select the dropdown menu
  var CB_District = d3.select("#selDistrict");
  // Assign the value of the dropdown menu option to a variable
  var district = CB_District.node().value;

  console.log(district);

  /* data route */
  const cdurl = "api/cdSummary" + "/" + district;
  d3.json(cdurl).then(function(response) {

    console.log(district);
    var line_url = response[0].chart_url_cd_tickets_over_time;
    line_html = "<iframe id='bar-count' style='background: #FFFFFF;border: none;border-
radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + line_url + "'><
/iframe>"

```

```

d3.select("#cd-line-plot").html(line_html)

// bar chart count by service request type
var chart_url = response[0].chart_url;
chart_html = "<iframe id='bar-count' style='background: #FFFFFF;border: none;border-
radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url + "'>
</iframe>"
d3.select("#cd-bar-plot").html(chart_html)

// bar chart count by council district
var chart_url_council_dist = response[0].chart_url_cd_average_case_length;
chart_council_dist_html = "<iframe id='bar-
count' style='background: #FFFFFF;border: none;border-radius: 2px;box-
shadow: 0 2px 10px 0 rgba(70, 76, 79, .2);' width='100%' height='480' src='" + chart_url_counc
il_dist + "'></iframe>"
d3.select("#bar-plot-council-dist").html(chart_council_dist_html)

d3.select("#total_requested").html("<span>" + response[0].total_requested + "</span>")
d3.select("#total_closed").html("<span>" + response[0].total_closed + "</span>")
d3.select("#percent_closed").html("<span>" + (parseFloat(response[0].percent_closed)*100).
toFixed(2).toString() + "%</span>")
d3.select("#average_case_age").html("<span>" + parseFloat(response[0].average_case_age_day
s).toFixed(2).toString() + "</span>")

});
}

function init() {
  populateDistricts();
};

init();

```

## LOGIC.JS TO CREATE MAP

```

// Creating map object
var myMap = L.map("map", {
  center: [32.7157, -117.1611],
  zoom: 11
});

// Adding tile layer to the map
L.tileLayer("https://api.mapbox.com/styles/v1/{id}/tiles/{z}/{x}/{y}?access_token={accessToken}", {
  attribution: "© <a href='https://www.mapbox.com/about/maps/'>Mapbox</a> © <a href='http://ww
w.openstreetmap.org/copyright'>OpenStreetMap</a> <strong><a href='https://www.mapbox.com/map-
feedback/' target='_blank'>Improve this map</a></strong>",
  tileSize: 512,
  maxZoom: 18,
  zoomOffset: -1,
  id: "mapbox/streets-v11",
  accessToken: API_KEY

```

```

}).addTo(myMap);

const urlParams = new URLSearchParams(window.location.search);

// Store API query variables
var baseURL = "http://127.0.0.1:5104/api/daterequested/";
var year = urlParams.get('year');
var sr_name = "!" + urlParams.get('name');
var limit = "!" + urlParams.get('limit');

console.log(year);

// Assemble API query URL
var url = baseURL + year + sr_name + limit
console.log(url);
// Grab the data with d3
d3.json(url, function(response) {

    // Create a new marker cluster group
    var markers = L.markerClusterGroup();

    // Loop through data
    for (var i = 0; i < response.length; i++) {
        lat = response[i]["lat"]
        lng = response[i]["lng"]

        var details = "service_request_id: " + response[i]["service_request_id"];

        if (response[i]["date_requested"]) {
            details += "<br>date_requested: " + response[i]["date_requested"]
            console.log(response[i]["date_requested"]);
        } if (response[i]["case_age_days"]) {
            details += "<br>case_age_days: " + response[i]["case_age_days"]
        } if (response[i]["service_name"]) {
            details += "<br>service_name: " + response[i]["service_name"]
        } if (response[i]["case_record_type"]) {
            details += "<br>case_record_type: " + response[i]["case_record_type"]
        } if (response[i]["date_closed"]) {
            details += "<br>date_closed: " + response[i]["date_closed"]
            console.log(response[i]["date_closed"]);
        } if (response[i]["status"]) {
            details += "<br>status: " + response[i]["status"]
        } if (response[i]["street_address"]) {
            details += "<br>street_address: " + response[i]["street_address"]
        } if (response[i]["council_district"]) {
            details += "<br>council_district: " + response[i]["council_district"]
        } if (response[i]["comm_plan_code"]) {
            details += "<br>comm_plan_code: " + response[i]["comm_plan_code"]
        } if (response[i]["comm_plan_name"]) {
            details += "<br>comm_plan_name: " + response[i]["comm_plan_name"]
        } if (response[i]["case_origin"]) {
            details += "<br>case_origin: " + response[i]["case_origin"]
        } if (response[i]["public_description"]) {
            details += "<br>public_description: " + response[i]["public_description"]

```

```

    } if (response[i]["media_url"]) {
      details += "<img src='" + response[i]["media_url"] + "' style='height:200px;float:right' />";
    }

    // Check for location property
    if ((lat) && (lng)) {
      // Add a new marker to the cluster group and bind a pop-up
      markers.addLayer(L.marker([lat, lng])
        .bindPopup(details));
    }
  }

  // // Add our marker cluster layer to the map
  myMap.addLayer(markers);
});

```

## CHARTS

Charts were created in MondoDB charts. The links were stored in a MongoDB collection and pulled into the dashboard from there.