Problems we are trying to solve

“Improve access and usability of Census data”

“Bridge the federal and local data gap.”

“Enable value creation with government data assets.”

“Build apps in hours instead of days or weeks.”
What is the CitySDK

1. Set of javascript tools, guides, and examples on Github to build web applications
2. Enhances usability and access to Census data through public APIs
3. Streamline how open data is used to build apps for cities through open-source tools
4. Support rural communities through USDA integration
5. Foster an ecosystem to improve interoperability across data silos at federal and local level
http://uscensusbureau.github.io/citysdk/
Build – Measure - Learn

Test Event at 18F

- 15 Partner organizations including cities
- 60 Data experts in attendance
- 5 CitySDK demos built including modules from HUD and USDA
- 24 New issues submitted to Github to improve CitySDK
How it Works: Technical Capabilities
Before: Washington DC Population Example (Census ACS API)

1. Get Washington, D.C.’s FIPS code by co-ordinates using the GeoCoder API
2. Determine the appropriate variable (ex: B06011_001E) from a list of every variable in the ACS
3. Request the data for that specific variable and FIPS combination.
4. Extract the data from the response.

After: CitySDK

1. Build your request in a JSON object
2. Issue the request to the SDK
3. Handle the response object

Benefits to user when using CitySDK:
- Abstracts multi-API requests into a single call.
- Allows for the aliasing of common variables.
- Modular architecture supports integrating other APIs
Getting Started with CitySDK

Let's try getting some data

You can request data from the Census's API by specifying variables in your request. You can find more details about variable names and codes on our github examples.

Try it out with the code on the right!

Try tinkering with the example to add sublevels, or query by a city, to see what happens.

You can use the same "variables" format tags when requesting geography data. Doing this will request the data for each geographical feature, and attach the data to the "properties" tag of that feature.

```javascript
var request = {
  "lat": 40.7127,
  "lng": -74.0059,
  "level": "state",
  "variables": [
    "income",
    "population",
    "median_male_age"
  ]
};

var callback = function(response) {
  if(response.error){
    console.error(response.error.message);
  }
  else{
    console.log(response.data);
  }
};

Census.search(request, callback);
```

Run This »

Unifying multiple APIs

Let's try out another API - the USDA's Farmer's Market API. We've already imported the module, so all you need to do is put your zip code in the request below to find Farmer's markets near you!

```javascript
var request = {
  "zip": "10012"
};

var callback = function(response) {
  $('#exampleoutput').empty();
  $('#exampleoutput').append(JSON.stringify(response, null, 4));
};

farmersMarket.search(request, callback);
```

Run This »

http://uscensusbureau.github.io/citysdk/gettingstarted.html
Acquiring Census Data

Example of simple request for State of Maryland geography

```javascript
var request = {
    "state": "MD",
    "level": "state"
};

var callback = function(response) {
    map.data.addGeoJson(response);
};

census.GEORequest(request, callback);
```
Interactive Docs and Partner Integrations

**US Census Bureau**
The Census Bureau's mission is to serve as the leading source of quality data about the nation's people and economy.

- **Guide to the Census CitySDK Module**
- **Demo: Interactive Query Builder**

**Leaflet**
Leaflet is an Open-Source JavaScript library for web and mobile friendly interactive maps. It uses the GeoJSON format which is supported by the GeoJSON format.

- **Demo: Leaflet NYC Boroughs**

**Housing and Urban Development**
Access data on FHA Loans, HUD Insured Properties, Fair Market Rents and dozens of other datasets related to national housing and property issues.

- **CitySDK HUD Module**
- **Demo: Housing Loans in Pittsburgh**

**US Department of Agriculture**
Discover fresh food near you with the National Farmer's Market directory module.

- **CitySDK Farmer's Market Module**
- **Demo: Farmer's Markets in California**

**ESRI**
Governments, industry leaders, academics, and nongovernmental organizations (NGOs) use ESRI to connect with analytic knowledge they need.

- **ESRI ArcGIS Module**
- **Demo: Chart Showing DC School Enrollment**

**Socrata**
The Socrata platform is commonly used by municipal, state, and federal agencies to use to distribute their data.

- **CitySDK Socrata Module**
- **Demo: Chicago Payroll Query**
- **Demo: Baltimore Crime and Demographics**

**Google Maps**
There are several CitySDK examples that utilize Google Maps to create interactive web apps.

- **Demo: Farmer's Markets in California**
- **Demo: Housing Loans in Pittsburgh**

**Public Spaces for Innovation**
The Data Science for Social Good Fellows at the University of Chicago have created datasets and a tool for community organizers using the CitySDK.

- **Demo: Innovation Ecosystems**

**Bing Maps**
CitySDK apps can be built with Microsoft Bing's mapping technology.

- **Demo: Using Bing Maps with the CitySDK**
Architecture

User's Application

JSON Request

JSON data, GeoJSON geography

CitySDK Modules

Census
  - American Community Survey
  - Geocoder API
  - TIGERweb

USDA
  - Farmer's Market

DOE
  - Energy Information Agency

HUD
  - HUD APIs

ESRI
  - ArcGIS Open Data

Socrata
  - Socrata Open Data Portal

Farmer's Market
Energy Information Agency
HUD APIs
ArcGIS Open Data
Socrata Open Data Portal
Combining Federal and Local Data

Uses Census ACS data with Crime data from the City of Chicago
Case Studies
Case Study: Purshable

Economic Sustainability

Grocery stores waste $15 billion worth of unsold fruits and vegetables each year.\(^1\)

Average supermarket loses $2,300 in revenue daily.\(^2\)

There are 506 grocery stores in the Chicago area.\(^3\)

\[506 \times 2,300 = \$1,163,800\] estimated lost revenue/day

Business Plan

Tiered Subscription Services

Tax incentives for grocery stores

Free for shoppers

Subscription Pricing

- Snack: $5/MO
- Meal: $100/MO
- Feast: $125/MO
Case Study: Purshable

Available Items
- Apples, 1lb
- Oranges, 1lb
- Grapes, 1lb
- Pineapple, 1lb
- Grapes
- Apples
Case Study: Housing Accessibility

MOBILITY SCORE

Mobility Score combines walk score and metro mobility availability. Walk score measures how friendly an area is to walking, in terms of quality of footpaths and distance to nearby amenities. Metro mobility is a public transportation service that is especially provided for people with disabilities.
Housing Accessibility (continued)
Case Study: “AirBNB for Tech Spaces”
Case Study: “AirBNB for Tech Spaces”
Where to go for more information

Census Developer Portal:
http://www.census.gov/developers/

CitySDK Project Page:
http://uscensusbureau.github.io/citysdk/

Submit a Github issue:
https://github.com/uscensusbureau/citysdk/issues