



Help Missing Kids! Challenge



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The UGAHacks9 Challenge!

Help Missing Kids!

On average, 1000 children go missing every day in the United States. According to the National Center for Missing and Exploited Children (NCMEC), 1 in 6 missing children who run away become victims of human trafficking. HPCC Systems has partnered with NCMEC to help notify first responders, law enforcement, and the community when a child is reported missing.

What can *we* do as developers to help understand this problem, and what can we do to help?

This year's challenge will analyze different social factors such as poverty, unemployment, and other areas to develop possible insights as to *why* so many are missing *and* to provide additional first responders and other resource information to the requestor.

The goal of the challenge is to answer two questions:

1. Is there a correlation between the locations that kids are reported missing and other social factors in that area (unemployment, education, poverty, and population).
2. Can we provide additional information to the NCMEC feed to help find the missing children? (fire and police stations, hospitals, churches, food banks, etc.)

Join in the effort to help find missing children

- The ADAM Program was launched in November 2000 and donated by LexisNexis® Risk Solutions to the **National Center for Missing & Exploited Children**, (NCMEC) to assist law enforcement in the recovery efforts of missing children.
- **Time is of the essence** when a child is missing, and photos play a critical role in the recovery efforts. NCMEC uses the ADAM Program to **quickly distribute a poster** of a missing child, targeting a specific search area.
- NCMEC can leverage the ADAM Program to distribute alerts on all missing child cases **including endangered runaways** and other missing child cases that do not meet AMBER Alert criteria.
- **The community can help** in the recovery of missing children by signing up for free to receive missing child alerts in their area at adamprogram.com
- Help **spread awareness** about The ADAM Program and encourage your network of contacts to also signup to receive missing child alerts.
- **Thank you for your interest and support** in this important cause.
- **Questions?**

Trish McCall
The ADAM Program, Co-Founder
Sr Director, Program Management
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For more information

▶ Watch the ADAM Program overview video

📄 Download the postcard

❓ Learn more at adamprogram.com



The Data!

NCMEC Data has been collected from all 50 states and organized into a simple dataset to use as your central source. In addition, many public datasets have also been gathered and cleaned to help get you started.

These datasets include:

Education

Unemployment

Poverty

Population

Police

Fire Stations

Hospitals

Places of Worship

Food Banks

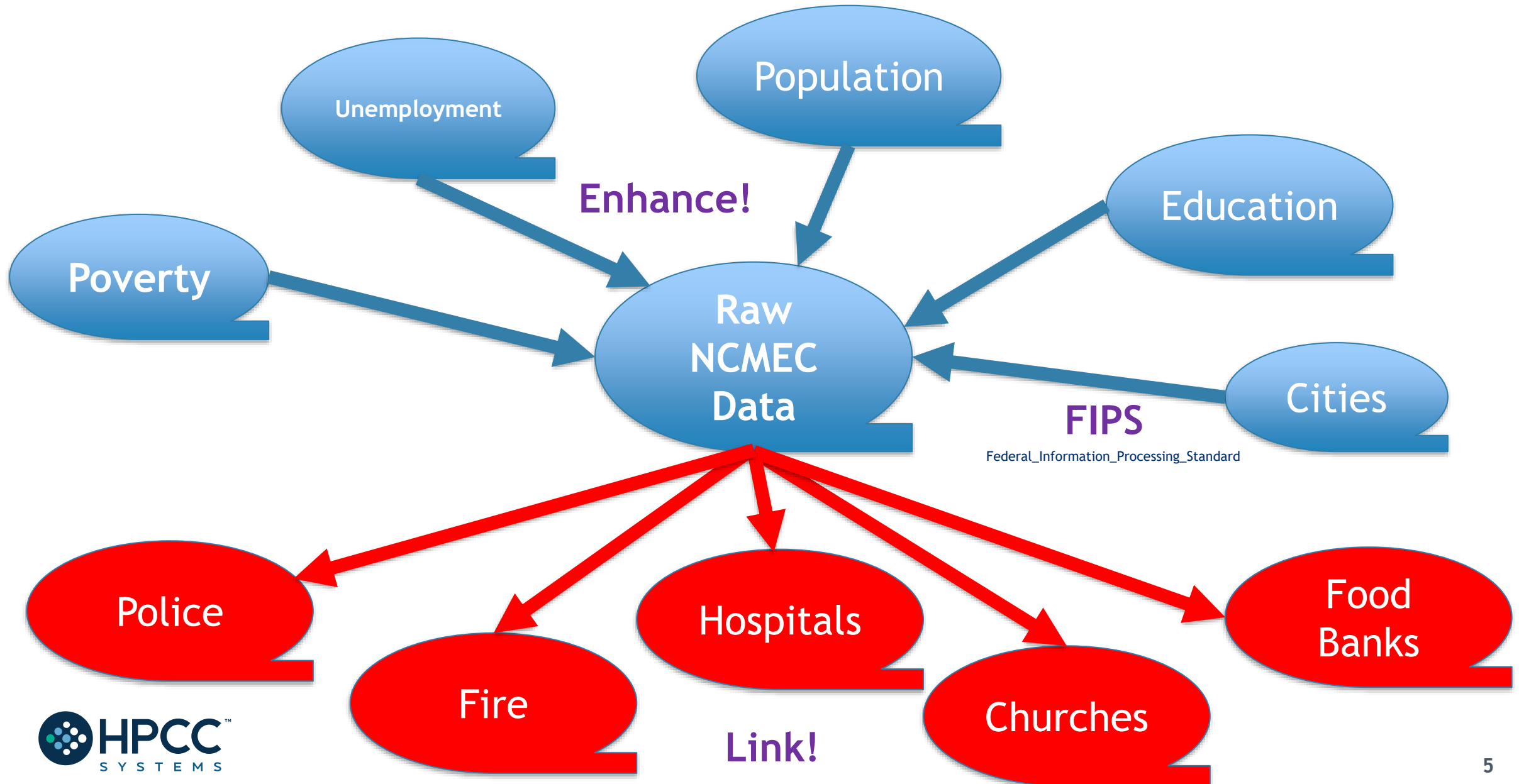
Auxiliary Datasets:

A **Cities** dataset with related FIPS and Zip Codes (used for linking the above datasets to the NCMEC data)

Unemployment Rates (Not really used in this challenge but interesting data!)

You are not limited to using these datasets! Extra credit will be rewarded by linking in other pertinent data!

Data Flow



The Playing Field!

HPCC Cluster ECL Watch:

<http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/>

```
"configurations": [  
  {  
    "name": "External",  
    "type": "ecl",  
    "request": "launch",  
    "protocol": "http",  
    "serverAddress": "training.us-hpccsystems-dev.azure.lnrsg.io",  
    "port": 8010,  
    "path": "",  
    "targetCluster": "thor",  
    "rejectUnauthorized": true,  
    "resultLimit": 100,  
    "timeoutSecs": 60,  
    "user": "YourNameHere",  
    "password": ""  
  },  
]
```

Preferences

Configurations: ExternalCluster

Locate New... Delete

Server Editor Colors Results Compiler Other

Server IP: training.us-hpccsystems-dev.azure.lnrsg.io ☐ SSL ☒ Advanced

Topology Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/WsTop

Workunit Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/WsWo

Attribute Server:

Account Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/Ws_Ac

SMC Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/WsSMC

Spray Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/FileSpr

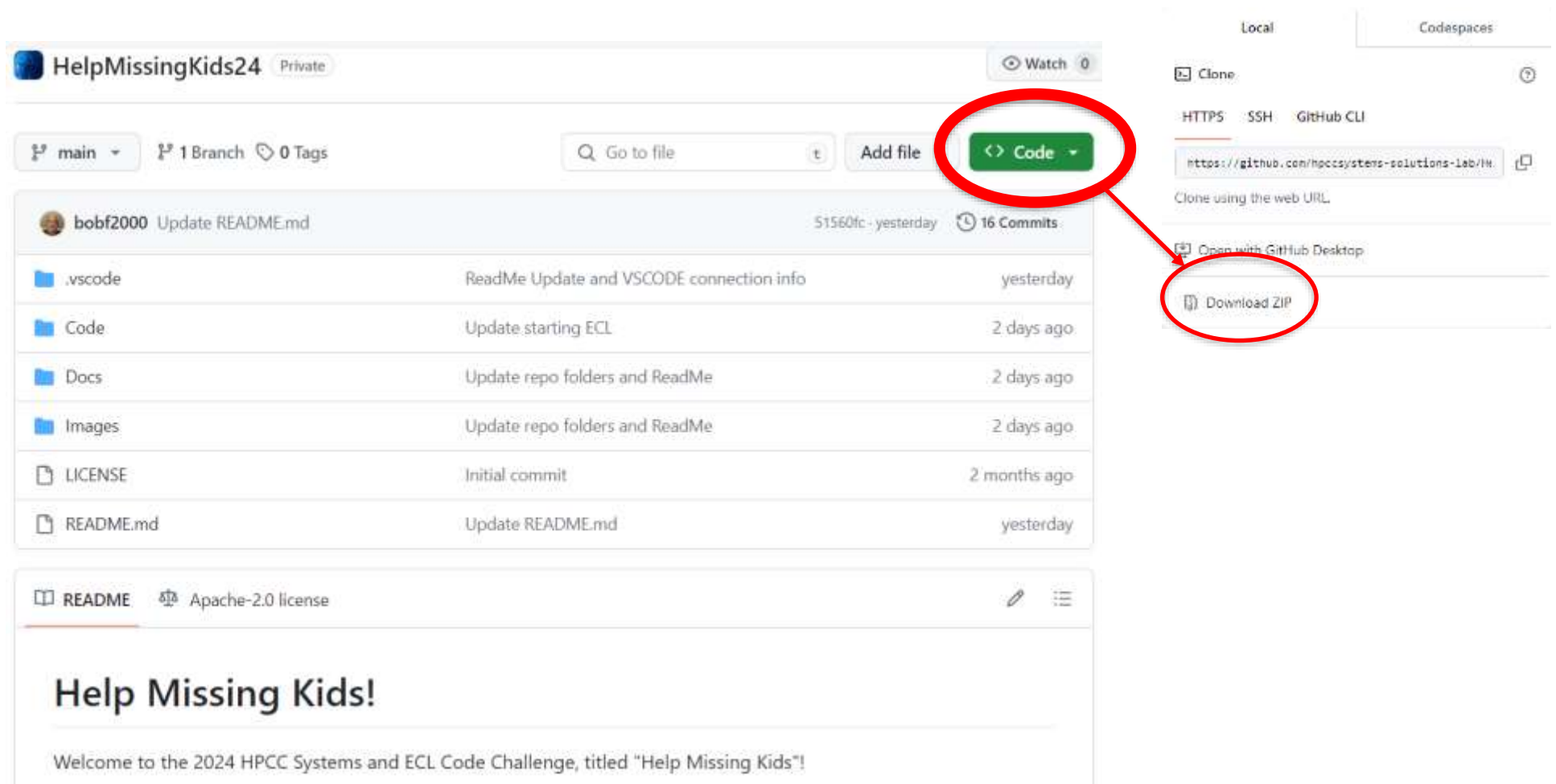
DFU Server: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/WsDfu

ECL Watch URL: http://training.us-hpccsystems-dev.azure.lnrsg.io:8010/esp/fil

Ok Cancel Apply

The Repo!

<https://github.com/hpccsystems-solutions-lab/HelpMissingKids24>



The screenshot shows the GitHub repository page for **HelpMissingKids24**, which is a private repository. The repository has 1 branch (main) and 0 tags. The 'Code' button is circled in red, and a red arrow points from it to the 'Download ZIP' button, which is also circled in red.

The repository contains the following files and folders:

File/Folder	Description	Last Commit
.vscode	ReadMe Update and VSCODE connection info	yesterday
Code	Update starting ECL	2 days ago
Docs	Update repo folders and ReadMe	2 days ago
Images	Update repo folders and ReadMe	2 days ago
LICENSE	Initial commit	2 months ago
README.md	Update README.md	yesterday

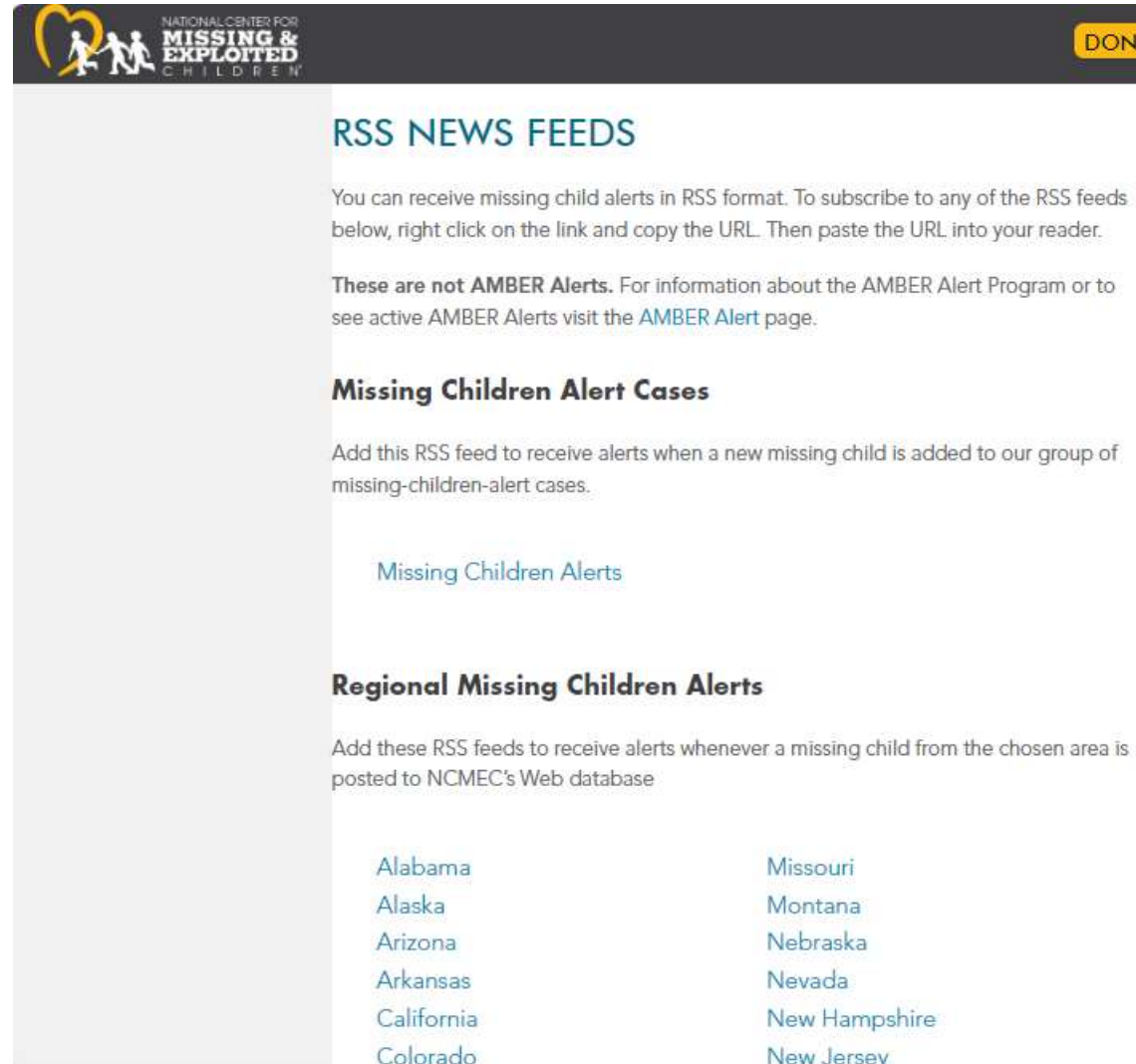
The repository is licensed under the Apache-2.0 license. The README file is titled **Help Missing Kids!** and contains the text: "Welcome to the 2024 HPCC Systems and ECL Code Challenge, titled "Help Missing Kids!"



Examples and Tips

NCMEC Data

<https://www.missingkids.org/gethelpnow/search/rss>



The screenshot shows the NCMEC website header with the logo and a 'DONATE' button. The main content area is titled 'RSS NEWS FEEDS' and explains how to subscribe to RSS feeds for missing child alerts. It includes a section for 'Missing Children Alert Cases' with a link to 'Missing Children Alerts'. Below this is a section for 'Regional Missing Children Alerts' with a list of states: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Missouri, Montana, Nebraska, Nevada, New Hampshire, and New Jersey.

NATIONAL CENTER FOR MISSING & EXPLOITED CHILDREN DONATE

RSS NEWS FEEDS

You can receive missing child alerts in RSS format. To subscribe to any of the RSS feeds below, right click on the link and copy the URL. Then paste the URL into your reader.

These are not AMBER Alerts. For information about the AMBER Alert Program or to see active AMBER Alerts visit the [AMBER Alert](#) page.

Missing Children Alert Cases

Add this RSS feed to receive alerts when a new missing child is added to our group of missing-children-alert cases.

[Missing Children Alerts](#)

Regional Missing Children Alerts

Add these RSS feeds to receive alerts whenever a missing child from the chosen area is posted to NCMEC's Web database

Alabama	Missouri
Alaska	Montana
Arizona	Nebraska
Arkansas	Nevada
California	New Hampshire
Colorado	New Jersey

NCMEC Data

CSV format:

##	recid	dateposted	firstname	lastname	currentage	datemissing	missingcity	missingstate	contact	photolink
1	1311686	12/11/2018	Melvin	Horst	99	19281227	ORRVILLE	OH	Orrville Police Department (Ohio) 1-330-684-5025	http://www.missingkids.org/poster/NCMC/
2	1176415	8/10/2012	Marjorie	West	90	19380508	HAMILTON TOWNSHIP	PA	Pennsylvania State Police (Pennsylvania) 1-814-938-0510	http://www.missingkids.org/poster/NCMC/
3	1148707	12/20/2021	Beverly	Sharpman	93	19470911	PHILADELPHIA	PA	Philadelphia Police Department (Pennsylvania) 1-215-685-3252	http://www.missingkids.org/poster/NCMC/
4	1007456	8/23/2021	Ricky	Bryant	78	19491219	MAUSTON	WI	Juneau County Sheriff's Department (Wisconsin) 1-608-847-5649	http://www.missingkids.org/poster/NCMC/
5	1154349	7/26/2018	Connie	Smith	81	19520716	LAKEVILLE	CT	Connecticut State Police (Connecticut) 1-860-626-7975	http://www.missingkids.org/poster/NCMC/

Step 1: Enhance this data by adding data points from Unemployment, Poverty, Population, Education, or any other datasets you can think of!

NCMEC Data

Cleaned and Enhanced NCMEC data:

recid	dateposted	firstname	lastname	currentage	datemissing	missingcity	primaryfips	missingstate	ump_rate	pov_pct	popest	edu_high	contact	photolink
1475911	20230823	AXEL	GOMEZ HERNANDEZ	9	20180227		0		5.87	16.9	332276874	25.17	NCMEC MISSING CHILDREN'S DIVISION - 333 JOH...	http://www.missingkids.org
601773	20161219	TYLER	INMAN	44	19821221	ABERDEEN	53027	WA	9.14	20.8	76560	24.84	ABERDEEN POLICE DEPARTMENT (WASHINGTON) 1-3...	http://www.missingkids.org
603596	20200514	DEAN	PYLE PETERS	57	19810205	ADA	0	MI	5.87	16.9	332276874	25.17	KENT COUNTY SHERIFF'S OFFICE (MICHIGAN) - M...	http://www.missingkids.org
1481918	20230615	JACINTO	BRITO-RAMIREZ	17	20230530	ADDISON	17043	IL	5.38	7.5	926198	13.48	ADDISON POLICE DEPARTMENT (ILLINOIS) 1-63...	http://www.missingkids.org
830487	20210714	SUSAN	SMALLEY	54	19880319	ADDISON	48113	TX	5.77	20.3	2599587	27.07	CARROLLTON POLICE DEPARTMENT (TEXAS) - MISS...	http://www.missingkids.org
707842	20210714	STACIE	MADISON	53	19880319	ADDISON	48113	TX	5.77	20.3	2599587	27.07	CARROLLTON POLICE DEPARTMENT (TEXAS) 1-972-...	http://www.missingkids.org
1330863	20180618	EVA	BARRIOS-TORNEZ	22	20180528	ADELANTO	6071	CA	7.3	17.1	2189926	27.26	SAN BERNARDINO COUNTY SHERIFF'S OFFICE (CAL...	http://www.missingkids.org
1456392	20220727	NAYELI	RODRIGUEZ GONZALEZ	18	20220724	ADELPHI	24033	MD	5.34	15.7	956172	19.1	PRINCE GEORGE'S COUNTY POLICE DEPARTMENT (...)	http://www.missingkids.org
941306	20220831	ANGEL	TORRES-IRIZARRY	49	19760706	ADJUNTAS	72001	PR	15.75	0	17980	53.39	DEPARTMENT OF JUSTICIA (PUERTO RICO) 1-787...	http://www.missingkids.org
803713	20160421	OMAR	VARGAS	32	19950422	AGUA PRIETA	0		5.87	16.9	332276874	25.17	COCHISE COUNTY SHERIFF'S OFFICE (ARIZONA) -...	http://www.missingkids.org

NCMEC Data

```
1  IMPORT STD,$;
2
3  NCMEC_Rec := $.File_AllData.mc_byState;
4  NCMEC_DS  := $.File_AllData.mc_byStateDS;
5  Cities    := $.File_AllData.City_DS;
6  UNEMP     := $.File_AllData.unemp_byCountyDS;
7  EDU       := $.File_AllData.EducationDS;
8  POVTY     := $.File_AllData.pov_estimatesDS;
9  POP       := $.File_AllData.pop_estimatesDS;
```

```
6  EXPORT NCMECPlusLayout := RECORD
7      UNSIGNED3 recid;
8      UNSIGNED4 dateposted;
9      STRING18  FirstName;
10     STRING24   LastName;
11     UNSIGNED1  currentage;
12     UNSIGNED4  datemissing;
13     STRING23   missingcity;
14     UNSIGNED3  PrimaryFIPS;
15     STRING2    missingstate;
16     DECIMAL5_2 ump_rate; //New field
17     DECIMAL5_2 pov_pct;  //New Poverty percent for children 0-17
18     UNSIGNED4  PopEst;   //Population Estimate from 2020-2022
19     DECIMAL5_2 edu_High; //less than a high school diploma (percent)
20     STRING131  contact;
21     STRING96   photolink;
22 END;
```

```
19  NewNCMECLayout CleanNCMEC(NCMEC_DS Le, UNSIGNED2 CNT) := TRANSFORM
20      // SELF.RecID      := CNT; //Now uses Case Number
21      SELF.DatePosted   := STD.Date.FromStringToDate(Le.DatePosted, '%m/%d/%Y');
22      SELF.FirstName    := STD.Str.ToUpperCase(Le.FirstName);
23      SELF.LastName     := STD.Str.ToUpperCase(Le.LastName);
24      // SELF.DateMissing := STD.Date.FromStringToDate(Le.DateMissing, '%m/%d/%Y'); //Processed earlier
25      SELF.Contact      := STD.Str.ToUpperCase(Le.Contact);
26      SELF.PrimaryFIPS  := 0;
27      SELF.ump_rate     := 0;
28      SELF.pov_pct      := 0;
29      SELF.PopEst       := 0;
30      SELF.edu_High     := 0;
31      SELF              := Le;
32  END;
33  //Step 1: Make room for new metrics, standardize dates, names, contact and sequence records
34  Clean_NCMEC_DS := PROJECT(NCMEC_DS, CleanNCMEC(LEFT, COUNTER));
```

NCMEC Data

Adding the FIPS code:

```
37  NewNCMECLayout GetFIPS(Clean_NCMEC_DS Le,Cities Ri) := TRANSFORM
38  SELF.PrimaryFIPS := (UNSIGNED3)Ri.county_fips;
39  SELF              := Le;
40  END;
41
42  AddFIPS := JOIN(Clean_NCMEC_DS,Cities,
43                  LEFT.missingcity = STD.STR.ToUpperCase(RIGHT.city) AND
44                  LEFT.missingstate = RIGHT.state_id,
45                  GetFIPS(LEFT,RIGHT),LEFT OUTER);
```


NCMEC Data

Analyzing and Visualizing!

```
51 //Cross-Tab by City:
52
53 CT_City := TABLE(AddFIPS,{missingcity,missingstate,cnt := COUNT(GROUP)},missingstate,missingcity);
54 Out_CT_City := OUTPUT(SORT(CT_City,-cnt),NAMED('MissByCity'));
55
56 //Cross-Tab by State:
57
58 CT_ST := TABLE(AddFIPS,{missingstate,cnt := COUNT(GROUP)},missingstate);
59 Out_CT_ST := OUTPUT(SORT(CT_ST,-cnt),NAMED('MissByState'));
60 Visualizer.Choropleth.USStates('MissingByState', , 'MissByState', , , DATASET(['paletteID', 'PuBuGn']), Visualizer.KeyValueDef));
61
62 //Cross-Tab by Date Missing:
63
64 CT_date := TABLE(AddFIPS,{DateMissing,cnt := COUNT(GROUP)},DateMissing);
65 Out_CTdate := OUTPUT(SORT(CT_date,-cnt),NAMED('MissByDate'));
66
67 //Cross-Tab by Primary FIPS:
68
69 CT_FIPS := TABLE(AddFIPS,{PrimaryFIPS,cnt := COUNT(GROUP)},PrimaryFIPS);
70 Out_CT_FIPS := OUTPUT(SORT(CT_FIPS,-cnt),NAMED('MissByFIPS'));
```

I

NCMEC Data

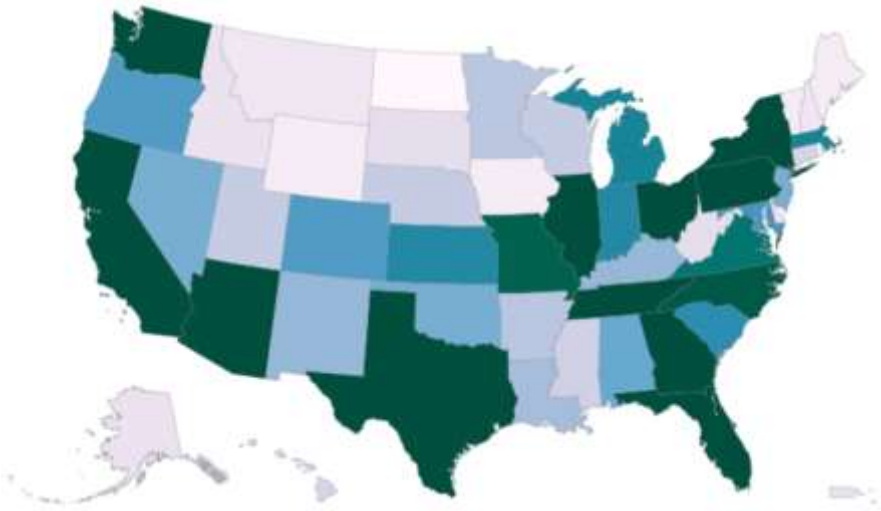
Analyzing and Visualizing!

##	missingcity	missingstate	cnt
1	LOS ANGELES	CA	52
2	PHOENIX	AZ	48
3	CHICAGO	IL	33
4	PHILADELPHIA	PA	33
5	HOUSTON	TX	26
6	MEMPHIS	TN	21
7	PORTLAND	OR	19
8	TUCSON	AZ	19
9	LAS VEGAS	NV	19
10	MIAMI	FL	19

##	primaryfips	cnt
1	0	870
2	6037	135
3	4013	91
4	48201	42
5	17031	39
6	12011	37
7	6065	35
8	42101	33
9	6071	30
10	6059	29

##	datemissing	cnt
1	20240105	16
2	20240108	13
3	20231223	13
4	20231206	12
5	20230911	11
6	20231106	11
7	20240109	11
8	20240112	11
9	20231231	11
10	20240111	11

##	missingstate	cnt
1	CA	541
2	FL	278
3	TX	250
4	AZ	173
5	OH	127
6	NY	124
7	PA	118
8	GA	106
9	TN	105
10	WA	100



NCMEC Data

Adding additional data points:

```
72 //Add Unemployment Rate for area:
73 CT_UNEMP := TABLE(UNEMP((STD.Str.Find(attribute, 'Unemployment_rate',1) <> 0)),
74                     {Fips_Code,cnt := ROUND(AVE(GROUP,value),2)},Fips_Code);
75 // OUTPUT(SORT(CT_UNEMP,-cnt),NAMED('UNEMP_Rate'));
76
77 ADDUMP := JOIN(AddFIPS,CT_UNEMP,LEFT.PrimaryFIPS=RIGHT.Fips_Code,
78               TRANSFORM(NewNCMECLayout,
79                           SELF.ump_rate := RIGHT.cnt,
80                           SELF := LEFT),LEFT OUTER,LOOKUP);
81
```

```
84 //Add Poverty Percentage ages 0-17 for FIPS area:
85 POVTBL := TABLE(POVTY((STD.Str.Find(attribute, 'PCTPOV017_2021',1) <> 0)),
86                 {Fips_Code,attribute,value});
87 // OUTPUT(SORT(POVTBL,-value),NAMED('PovertyPct0to17'));
88
89 ADDPOV := JOIN(AddUMP,POVTBL,LEFT.PrimaryFIPS=RIGHT.Fips_Code,
90               TRANSFORM(NewNCMECLayout,|
91                           SELF.pov_pct := RIGHT.value,
92                           SELF := LEFT),LEFT OUTER,LOOKUP);
93
```




Data Delivery (Roxie and Visualization)

Delivering your Results!

Step 1 - Clean, Declare and Build your Indexes (Fire):

```
11  SHARED CleanFireRec := RECORD
12      STRING100 name;
13      STRING60  addressbuildingname;
14      STRING65  address;
15      UNSIGNED3 PrimaryFIPS := 0; //New - Added from Cities DS
16      STRING35  city;
17      STRING2   state;
18      STRING10  zipcode;
19  END;
20  EXPORT CleanFire := PROJECT(Fire, TRANSFORM(CleanFireRec,
21      SELF.name                := STD.STR.ToUpperCase(LEFT.name),
22      SELF.addressbuildingname := STD.STR.ToUpperCase(LEFT.addressbuildingname),
23      SELF.address              := STD.STR.ToUpperCase(LEFT.address),
24      SELF.city                 := STD.STR.ToUpperCase(LEFT.city),
25      SELF.State                := STD.STR.ToUpperCase(LEFT.state),
26      SELF.zipcode              := STD.STR.ToUpperCase(LEFT.zipcode)));
27  EXPORT CleanFireFIPS := JOIN(CleanFire, Cities,
28      LEFT.city = STD.STR.ToUpperCase(RIGHT.city) AND
29      LEFT.state = RIGHT.state_id,
30      TRANSFORM(CleanFireRec,
31          SELF.PrimaryFIPS := (UNSIGNED3)RIGHT.county_fips,
32          SELF              := LEFT), LEFT OUTER, LOOKUP);
33
34  EXPORT CleanFireDS      := DATASET('~HMK::OUT::Fire', CleanFireRec, FLAT);
35  EXPORT CleanFireIDX     := INDEX(CleanFireDS, {city, state}, {CleanFireDS}, '~HMK::IDX::Fire::CityPay');
36  EXPORT CleanFireFIPSIDX := INDEX(CleanFireDS, {PrimaryFIPS}, {CleanFireDS}, '~HMK::IDX::Fire::FIPSPay');
37  EXPORT BuildFireIDX     := BUILD(CleanFireIDX, OVERWRITE);
38  EXPORT BuildFireFIPSIDX := BUILD(CleanFireFIPSIDX, OVERWRITE);
```


Delivering your Results!

Step 1 - Clean, Declare and Build your Indexes (Police):

```
40 //Police
41 SHARED CleanPoliceRec := RECORD
42     STRING135 name;
43     STRING80  address;
44     STRING30  city;
45     STRING2   state;
46     STRING5   zip;
47     STRING15  zip4;
48     STRING15  telephone;
49     STRING25  type;
50     STRING15  status;
51     INTEGER3  population;
52     STRING25  county;
53     UNSIGNED3 countyfips;
54     STRING3   country;
55     REAL8     latitude;
56     REAL8     longitude;
57 END;
58
59 EXPORT CleanPolice := PROJECT(Police, TRANSFORM(CleanPoliceRec, SELF.countyfips := (UNSIGNED3)LEFT.countyfips, SELF := LEFT));
60 // EXPORT CleanPoliceFIPS := JOIN(CleanPolice, Cities,
61 //     LEFT.city = STD.STR.ToUpperCase(RIGHT.city) AND
62 //     LEFT.state = RIGHT.state_id,
63 //     TRANSFORM(CleanPoliceRec,
64 //         SELF.countyFIPS := (UNSIGNED3)RIGHT.county_fips,
65 //         SELF := LEFT), LEFT OUTER, LOOKUP);
66 EXPORT CleanPoliceDS := DATASET('~HMK::OUT::Police', CleanPoliceRec, FLAT);
67 EXPORT CleanPoliceIDX := INDEX(CleanPoliceDS, {countyfips, City, State}, {CleanPoliceDS}, '~HMK::IDX::Police::CityPay');
68 EXPORT BuildPoliceIDX := BUILD(CleanPoliceIDX, OVERWRITE);
```

Delivering your Results!

Step 1 - Clean, Declare and Build your Indexes (Hospitals and NCMEC):

```
23 //Dataset Generated in BWR_STD_NCMEC:
24 EXPORT NCMECPlusDS      := DATASET('~HMK::OUT::NECMCPlus',NCMECPlusLayout,FLAT);
25 EXPORT NCMECPlusIDXPAY  := INDEX(NCMECPlusDS,{PrimaryFIPS,missingstate,missingcity},{NCMECPlusDS},'~HMK::IDX::NECMC::FIPStCity');
26 EXPORT BuildNewNCMECIDX := BUILD(NCMECPlusIDXPAY,OVERWRITE);

70 //Hospital
71 SHARED CleanHospitalRec := RECORD
72     STRING95 name;
73     STRING80 address;
74     STRING35 city;
75     STRING2  state;
76     STRING5  zip;
77     STRING15 zip4;
78     STRING15 telephone;
79     STRING20 type;
80     STRING6  status;
81     INTEGER2 population;
82     STRING20 county;
83     UNSIGNED3 countyfips;
84     STRING3  country;
85     REAL8    latitude;
86     REAL8    longitude;
87 END;
88
89 EXPORT CleanHospital      := PROJECT(Hospital,TRANSFORM(CleanHospitalRec,SELF.countyfips := (UNSIGNED3)LEFT.countyfips,SELF := LEFT));
90 EXPORT CleanHospitalDS   := DATASET('~HMK::OUT::Hospital',CleanHospitalRec,FLAT);
91 EXPORT CleanHospitalIDX  := INDEX(CleanHospitalDS,{countyfips,City,state},{CleanHospitalDS},'~HMK::IDX::Hospital::CityPay');
92 EXPORT BuildHospitalIDX  := BUILD(CleanHospitalIDX,OVERWRITE);
```


Delivering your Results!

Step 2 - The Build Action:

```

1  IMPORT $;
2  //Indexes used for ROXIE demo
3
4  $.File_CleanResponders.BuildFireIDX;
5  $.File_CleanResponders.BuildFireFIPSIDX;
6  $.File_CleanResponders.BuildPoliceIDX;
7  $.File_CleanResponders.BuildHospitalIDX;
8
9  $.File_EnhanceNCMEC.BuildNewNCMECIDX;

```

36	ABBEVILLE	SC	ABBEVILLE COUNTY FIRE DEPARTMENT LONG CANE		5 DURHAM ROAD	45001	29620
37	ABBEVILLE	SC	ABBEVILLE COUNTY FIRE DEPARTMENT MONTEREY		1970 MONTEREY ROAD	45001	29620
38	ABBOTSFORD	WI	ABBOTSFORD FIRE DEPARTMENT AND AMBULANCE SERVICE		203 BIRCH STREET	55073	54405
39	ABBOTTSTOWN	PA	UNITED HOOK AND LADDER ABBOTTSTOWN STATION 33		38 EAST KING STREET	42001	17301
40	ABBYVILLE	KS	RENO COUNTY FIRE DISTRICT 4 STATION 2		100 EAST AVENUE F STREET	20155	67510
41	ABERCROMBIE	ND	ABERCROMBIE FIRE DEPARTMENT		606 BROADWAY	38077	58001
42	ABERDEEN	ID	ABERDEEN - SPRINGFIELD FIRE DEPARTMENT		51 NORTH MAIN STREET	16011	83210
43	ABERDEEN	MD	ABERDEEN FIRE DEPARTMENT HOUSE 1		21 NORTH ROGERS STREET	24025	210...

6	1003	BAY MINETTE	AL	BAY MINETTE POLICE DEPARTMENT	300 NORTH HOYLE AVENUE	36507	4525	(251) 580-1682	LOCAL POLICE DEPARTMENT	OPEN	28
7	1003	BAY MINETTE	AL	JAMES H FAULKNER STATE COMMUNITY COLLEGE CAMPUS P...	1900 SOUTH UNITED STATES HIGHWAY 31	36507	NOT AVAILABLE	(251) 580-2222	SPECIAL JURISDICTION	OPEN	4
8	1003	DAPHNE	AL	DAPHNE POLICE DEPARTMENT / DAPHNE CITY JAIL	1502 UNITED STATES HIGHWAY 98	36526	NOT AVAILABLE	(251) 621-2834	LOCAL POLICE DEPARTMENT	OPEN	75
9	1003	ELBERTA	AL	ELBERTA POLICE DEPARTMENT	1362 MAIN STREET	36530	NOT AVAILABLE	(251) 986-5300	LOCAL POLICE DEPARTMENT	OPEN	6
10	1003	FAIRHOPE	AL	FAIRHOPE POLICE DEPARTMENT	107 NORTH SECTION STREET	36532	2430	(251) 928-2385	LOCAL POLICE DEPARTMENT	OPEN	54
11	1003	FOLEY	AL	FOLEY POLICE DEPARTMENT	200 EAST SECTION AVENUE	36535	2703	(251) 952-4010	LOCAL POLICE DEPARTMENT	OPEN	86
12	1003	GULF SHORES	AL	GULF SHORES POLICE DEPARTMENT	220 CLUBHOUSE DRIVE	36542	NOT AVAILABLE	(251) 968-2431	LOCAL POLICE DEPARTMENT	OPEN	54
13	1003	GULF SHORES	AL	GULF STATE PARK RANGER STATION	20115 STATE HIGHWAY 135	36542	4501	(251) 948-7275	LOCAL POLICE DEPARTMENT	OPEN	-999
14	1003	LOXLEY	AL	LOXLEY POLICE DEPARTMENT	2131 EAST RELHAM DRIVE	36551	2401	(251) 964-6000	LOCAL POLICE DEPARTMENT	OPEN	17

1151	12011	FL	FORT LAUDERDALE	2010176	20240118	JUAN	CASTRO-ARIAS	14	20240108	5.3	16.5	1942007	22.97	FORT LAUDERDALE POLI
1152	12011	FL	HALLANDALE BEACH	1185285	20111209	BRIANA	CONKLIN	15	20111203	5.3	16.5	1942007	22.97	FAIRFAX COUNTY POLIC
1153	12011	FL	HALLANDALE BEACH	1185285	20111209	SEBAS...	CONKLIN	17	20111203	5.3	16.5	1942007	22.97	FAIRFAX COUNTY POLIC
1154	12011	FL	HOLLYWOOD	1297203	20191015	YESENIA	DUVAL DEL ROSARIO	33	20101014	5.3	16.5	1942007	22.97	HOLLYWOOD POLICE DEP
1155	12011	FL	HOLLYWOOD	1321877	20210427	YUSUF	SHIKDER	13	20150315	5.3	16.5	1942007	22.97	CONTACT THE NEAREST
1156	12011	FL	HOLLYWOOD	1321877	20210427	ZAHRA	SHIKDER	9	20150315	5.3	16.5	1942007	22.97	CONTACT THE NEAREST
1157	12011	FL	LAUDERHILL	601922	20110112	JASON	TOWNSEND	47	19800520	5.3	16.5	1942007	22.97	BROWARD COUNTY SHERI
1158	12011	FL	PEMBROKE PINES	961542	20220624	ANAST...	ARGENTOVA-STEVEN	26	20030423	5.3	16.5	1942007	22.97	PEMBROKE PINES POLIC
1159	12011	FL	PLANTATION	915648	20120809	LEAH	VAN SCHOICK	58	19820815	5.3	16.5	1942007	22.97	BROWARD COUNTY SHERI

Delivering your Results!

Step 3 - Design and Write Your Query:

```
1  IMPORT $,STD;
2  UpperIt(STRING txt) := Std.Str.ToUpperCase(txt);
3
4  EXPORT fn_FindKids := MODULE
5      SHARED NCMECKey      := $.File_EnhanceNCMEC.NCMECPlusIDXPAY;
6
7      //PrimaryFIPS,missingstate
8      EXPORT By_CityST(STRING23 city_in,STRING2 st_in)      := FUNCTION
9          RETURN IF(st_in = '',
10                  NCMECKey(KEYED(missingcity=UpperIt(city_in)),WILD(PrimaryFIPS),WILD(missingstate)),
11                  NCMECKey(KEYED(missingcity=UpperIt(city_in)),KEYED(missingstate=UpperIt(st_in)),WILD(PrimaryFIPS)));
12      END;
13
14      EXPORT By_FIPS(UNSIGNED3 fips_in) := FUNCTION
15          RETURN NCMECKey(primaryFIPS=fips_in);
16      END;
17  END;
```

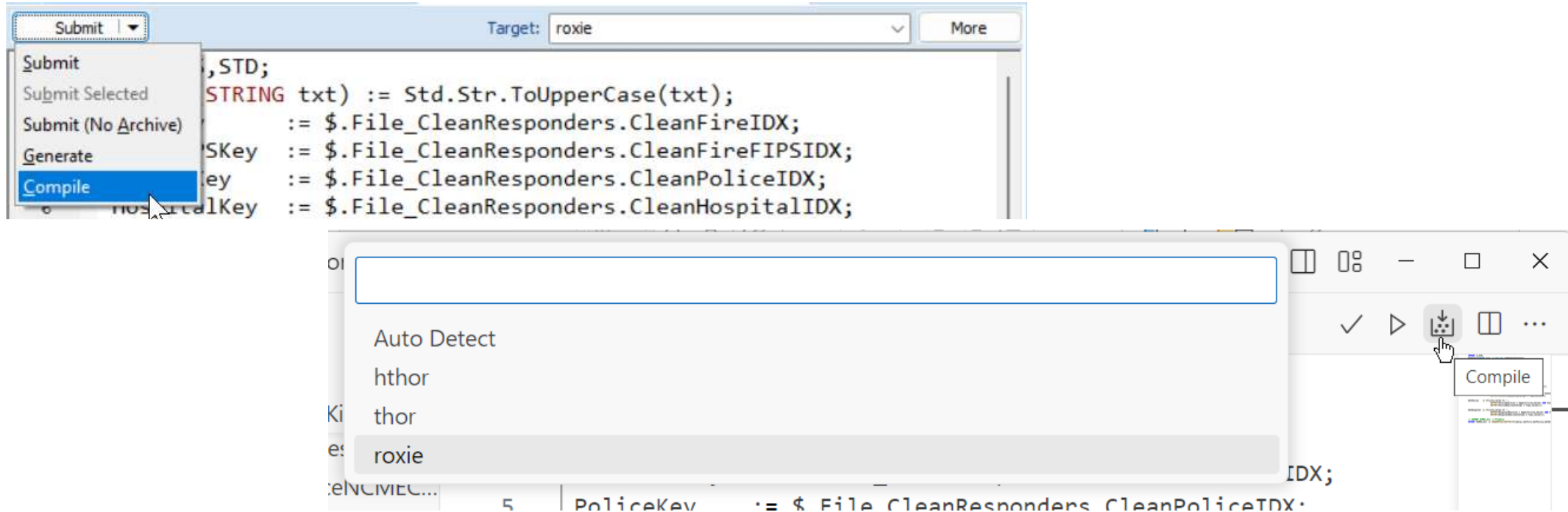
Delivering your Results!

Step 3 - Design and Write Your Query:

```
1  IMPORT $,STD;
2  UpperIt(STRING txt) := Std.Str.ToUpperCase(txt);
3  FireKey      := $.File_CleanResponders.CleanFireIDX;
4  FireFIPSKey  := $.File_CleanResponders.CleanFireFIPSIDX;
5  PoliceKey    := $.File_CleanResponders.CleanPoliceIDX;
6  HospitalKey  := $.File_CleanResponders.CleanHospitalIDX;
7  UNSIGNED3 fips_value := 0 : STORED('FIPS');
8  STRING23 city_value := '' : STORED('City');
9  STRING2 state_value := '' : STORED('State');
10
11
12 Primary      := IF(fips_value <> 0,
13                   $.FN_FindKids.By_FIPS(fips_value),
14                   $.FN_FindKids.By_CityST(city_value,state_value));
15
16 GetFire      := IF(city_value <> '',
17                   OUTPUT(FireKey(City = UpperIt(city_Value) AND State = UpperIt(state_Value))),
18                   OUTPUT(FireFIPSKey(primaryfips = fips_value)));
19
20 GetPolice    := IF(city_value <> '',
21                   OUTPUT(PoliceKey(City = UpperIt(city_Value) AND State = UpperIt(state_Value) AND WILD(countyfips))),
22                   OUTPUT(PoliceKey(countyfips = fips_value)));
23
24 GetHospital  := IF(city_value <> '',
25                   OUTPUT(HospitalKey(City = UpperIt(city_Value) AND State = UpperIt(state_Value) AND WILD(countyfips))),
26                   OUTPUT(HospitalKey(countyfips = fips_value)));
27
28 // EXPORT NCMEC_Svc := Primary;
29 EXPORT NCMEC_Svc := SEQUENTIAL(OUTPUT(Primary),GetFire,GetPolice,GetHospital);
```


Delivering your Results!

Step 4 - Deploy(Publish) and then Test Your Query:



Delivering your Results!

Step 4 - Deploy(Publish) and then Test Your Query:

W20240205-141019

Variables (14) Outputs (7) Inputs Timers (14)

Refresh | Save | Delete | Restore | Reschedule | Deschedule | Set To Failed | Abort

Recover | Resubmit | Clone | Publish | Z.A.P | Worker Logs

W20240205-1

Action: compile

State: compiled

Owner: Bob

Clear | Copy | Download

Severity | Source

Job Name:

Remote Dali:

Source Process:

Comment:

Priority: None

Allow Foreign Files: ☒

Update Super Files: ☐

Submit

Delivering your Results!

Step 4 - Deploy(Publish) and then Test Your Query:

Queries

bob.ncmec_svc.T

Summary

Errors/Status (1)

Logical Files (5)

Super Files

Libraries Used (0)

Summary Statistics

Graphs (7)

Resources

Test Pages

W20240205-141019

SOAP

JSON

WSDL

Request Schema

Response Schema

Sample Request

Sample Response

Parameter XML

Legacy Form

Links

Reset

bob.ncmec_svc.1 Response

Dataset: Result 1

	primarytype	missingstate	missingcity	recid	dataposted	firstname	lastname	currentage	datemissing	ump rate	pov pct	popeat	edu high	contact	photolink	internal tpoe
1	12021	FL	NAPLES	857694	20200819	WENDY	HUDAKOC	39	19961115	5.39	17.3	387509	22.51	COLLIER COUNTY SHERIFFS OFFICE (FLORIDA) 1-239-793-9300	http://www.missingkids.org/poster/NCMC/857694/1	0
2	12021	FL	NAPLES	1216222	20140106	BRENDA	OVALLE	37	20040203	5.39	17.3	387509	22.51	COLLIER COUNTY SHERIFFS OFFICE (FLORIDA) 1-239-252-9300	http://www.missingkids.org/poster/NCMC/1216222/1	0
3	12021	FL	NAPLES	1232511	20200824	GABRIELA	MEDINA	34	20080611	5.39	17.3	387509	22.51	COLLIER COUNTY SHERIFFS OFFICE (FLORIDA) 1-239-774-4434	http://www.missingkids.org/poster/NCMC/1232511/1	0
4	12021	FL	NAPLES	2005754	20240103	BRIDGET	ALVARADO	15	20231110	5.39	17.3	387509	22.51	COLLIER COUNTY SHERIFFS OFFICE (FLORIDA) 1-239-252-9300	http://www.missingkids.org/poster/NCMC/2005754/1	0

Dataset: Result 2

	city	state	name	addressbuildingname	address	primarytype	zipcode	internal tpoe
1	NAPLES	FL	BIG CORKSCREW ISLAND FIRE CONTROL AND RESCUE DISTRICT STATION 10		13240 IMMOKALEE ROAD	12021	34120	0
2	NAPLES	FL	BIG CORKSCREW ISLAND FIRE CONTROL AND RESCUE DISTRICT STATION 12		21520 IMMOKALEE ROAD	12021	34120	0
3	NAPLES	FL	CITY OF NAPLES FIRE DEPARTMENT STATION 2		977 26TH AVENUE NORTH	12021	34103	0
4	NAPLES	FL	CITY OF NAPLES FIRE DEPARTMENT STATION 3		300 CITATION POINT	12021	34104	0
5	NAPLES	FL	EAST NAPLES FIRE CONTROL AND RESCUE DISTRICT STATION 21		11121 EAST TAMiami TRAIL	12021	34113	0
6	NAPLES	FL	EAST NAPLES FIRE CONTROL AND RESCUE DISTRICT STATION 23		6055 COLLIER BOULEVARD	12021	34114	0
7	NAPLES	FL	EAST NAPLES FIRE DEPARTMENT CONTROL AND RESCUE DISTRICT STATION 20 HEADQUARTERS		4798 DAVIS BOULEVARD	12021	34104	0
8	NAPLES	FL	EAST NAPLES FIRE DEPARTMENT CONTROL AND RESCUE DISTRICT STATION 22		4375 BAYSHORE DRIVE	12021	34112	0
9	NAPLES	FL	GOLDEN GATE FIRE CONTROL AND RESCUE DISTRICT STATION 70		4741 GOLDEN GATE PARKWAY	12021	34116	0
10	NAPLES	FL	GOLDEN GATE FIRE CONTROL AND RESCUE DISTRICT STATION 72		3620 BECK BOULEVARD	12021	34114	0
11	NAPLES	FL	GOLDEN GATE FIRE DEPARTMENT CONTROL AND RESCUE DISTRICT STATION 71		100 13TH STREET SOUTH WEST	12021	34117	0
12	NAPLES	FL	GOLDEN GATE FIRE DEPARTMENT CONTROL AND RESCUE DISTRICT STATION 73		14575 COLLIER BOULEVARD	12021	34119	0
13	NAPLES	FL	GREATER NAPLES FIRE AND RESCUE STATION 50		175 CAPRI BOULEVARD	12021	34113	0
14	NAPLES	FL	GREATER NAPLES FIRE RESCUE STATION 24		2795 AIRPORT PULLING ROAD NORTH	12021	34105	0
15	NAPLES	FL	GREATER NAPLES FIRE RESCUE STATION 61		525 NEWPORT DRIVE	12021	34114	0
16	NAPLES	FL	NAPLES FIRE DEPARTMENT STATION 1		835 8TH AVENUE SOUTH	12021	34102	0
17	NAPLES	FL	NORTH COLLIER FIRE CONTROL AND RESCUE DISTRICT STATION 47		2795 AIRPORT PULLING ROAD NORTH	12021	34105	0
18	NAPLES	FL	NORTH COLLIER FIRE DEPARTMENT CONTROL AND RESCUE DISTRICT STATION 45		1885 VETERANS PARK DRIVE	12021	34109	0
19	NAPLES	FL	NORTH COLLIER FIRE RESCUE DISTRICT - STATION NUMBER 48		16280 LIVINGSTON ROAD	12021	34110	0
20	NAPLES	FL	NORTH NAPLES FIRE CONTROL AND RESCUE DISTRICT STATION 40		1441 PINE RIDGE ROAD	12021	34109	0
21	NAPLES	FL	NORTH NAPLES FIRE CONTROL AND RESCUE DISTRICT STATION 42		7010 IMMOKALEE ROAD	12021	34119	0
22	NAPLES	FL	NORTH NAPLES FIRE CONTROL AND RESCUE DISTRICT STATION 46		3410 PINE RIDGE ROAD	12021	34109	0
23	NAPLES	FL	NORTH NAPLES FIRE CONTROL DISTRICT STATION 44		8970 HAMMOCK OAK DRIVE	12021	34108	0

Dataset: Result 4

	countytype	city	state	name	address	zip	zip4	telephone	type	status	population	county	country	latitude	longitude	internal tpoe
1	12021	NAPLES	FL	COLLIER COUNTY SHERIFF / COLLIER COUNTY JAIL	3301 EAST TAMiami TRAIL BUILDING J	34112	4902	(239) 793-9352	SHERIFF'S OFFICE	OPEN	1285	COLLIER	USA	26.1270613	-81.7656812	0
2	12021	NAPLES	FL	COLLIER COUNTY SHERIFFS OFFICE - DISTRICT 1 - NORTH NAPLES SUBSTATION	776 VANDERBILT BEACH ROAD	34108	8707	(239) 597-1607	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.2506766000001	-81.80599819999999	0
3	12021	NAPLES	FL	COLLIER COUNTY SHERIFFS OFFICE - DISTRICT 2 - GOLDEN GATE SUBSTATION	4707 GOLDEN GATE PARKWAY	34118	6901	(239) 455-3121	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.1831239000001	-81.70356259999999	0
4	12021	NAPLES	FL	COLLIER COUNTY SHERIFFS OFFICE - DISTRICT 3 - EAST NAPLES SUBSTATION	11121 TAMiami TRAIL EAST	34113	7753	(239) 793-9328	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.0907545000001	-81.7321469	0
5	12021	NAPLES	FL	COLLIER COUNTY SHERIFFS OFFICE - DISTRICT 4 - GOLDEN GATE ESTATES SUBSTATION	1195 COUNTY ROAD 858	34120	4482	(239) 304-3520	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.2800783	-81.58386419999999	0
6	12021	NAPLES	FL	COLLIER COUNTY SHERIFFS OFFICE - SPECIAL OPERATIONS CENTER - AVIATION	250 PATRIOT WAY	34104	3526	(239) 252-0301	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.1581269420001	-81.77833939	0
7	12021	NAPLES	FL	FLORIDA HIGHWAY PATROL TROOP F - NAPLES	3205 BECK BOULEVARD	34114	1201	(239) 354-2377	PRIMARY STATE AGENCY	OPEN	999	COLLIER	USA	26.1552853150001	-81.671261548	0
8	12021	NAPLES	FL	NAPLES POLICE DEPARTMENT	355 RIVERSIDE CIRCLE	34102	1404	(239) 213-4844	LOCAL POLICE DEPARTMENT	OPEN	176	COLLIER	USA	26.1518282000001	-81.7901421	0
9	12021	NAPLES	FL	SHERIFFS OFFICE-CRIME PREVENTION	2373 NORTH HORSESHOE DRIVE	34104	NOT AVAILABLE	(239) 793-9391	SHERIFF'S OFFICE	OPEN	999	COLLIER	USA	26.1634116000001	-81.77511889999999	0

Dataset: Result 6

	countytype	city	state	name	address	zip	zip4	telephone	type	status	population	county	country	latitude	longitude	internal tpoe
1	12021	NAPLES	FL	LANDMARK HOSPITAL OF SOUTH WEST FLORIDA	1285 CREEKSIDE BLVD E	34109	0590	(239) 529-1800	GENERAL ACUTE CARE	OPEN	50	COLLIER	USA	26.270174	-81.786584	0
2	12021	NAPLES	FL	NAPLES COMMUNITY HOSPITAL	350 7TH ST N	34102	5754	(239) 624-4000	GENERAL ACUTE CARE	OPEN	391	COLLIER	USA	26.15064499	-81.79674297000001	0
3	12021	NAPLES	FL	NCH HEALTHCARE SYSTEM NORTH NAPLES HOSPITAL CAMPUS	11190 HEALTH PARK BLVD	34110	NOT AVAILABLE	(239) 624-9000	GENERAL ACUTE CARE	OPEN	322	COLLIER	USA	26.2743089	-81.78874501	0
4	12021	NAPLES	FL	PHYSICIANS REGIONAL MEDICAL CENTER - COLLIER	8300 COLLIER BLVD	34114	NOT AVAILABLE	(239) 354-6001	GENERAL ACUTE CARE	OPEN	100	COLLIER	USA	26.10553542	-81.68486477	0
5	12021	NAPLES	FL	PHYSICIANS REGIONAL MEDICAL CENTER - PINE RIDGE	6101 PINE RIDGE RD	34119	NOT AVAILABLE	(239) 304-5145	GENERAL ACUTE CARE	OPEN	109	COLLIER	USA	26.21395287	-81.73286379	0
6	12021	NAPLES	FL	THE WILLOUGH AT NAPLES	9001 TAMiami TRIL E	34113	NOT AVAILABLE	(239) 775-4500	PSYCHIATRIC	OPEN	87	COLLIER	USA	26.09602651	-81.73633976	0

Alternate Delivery: Visualization

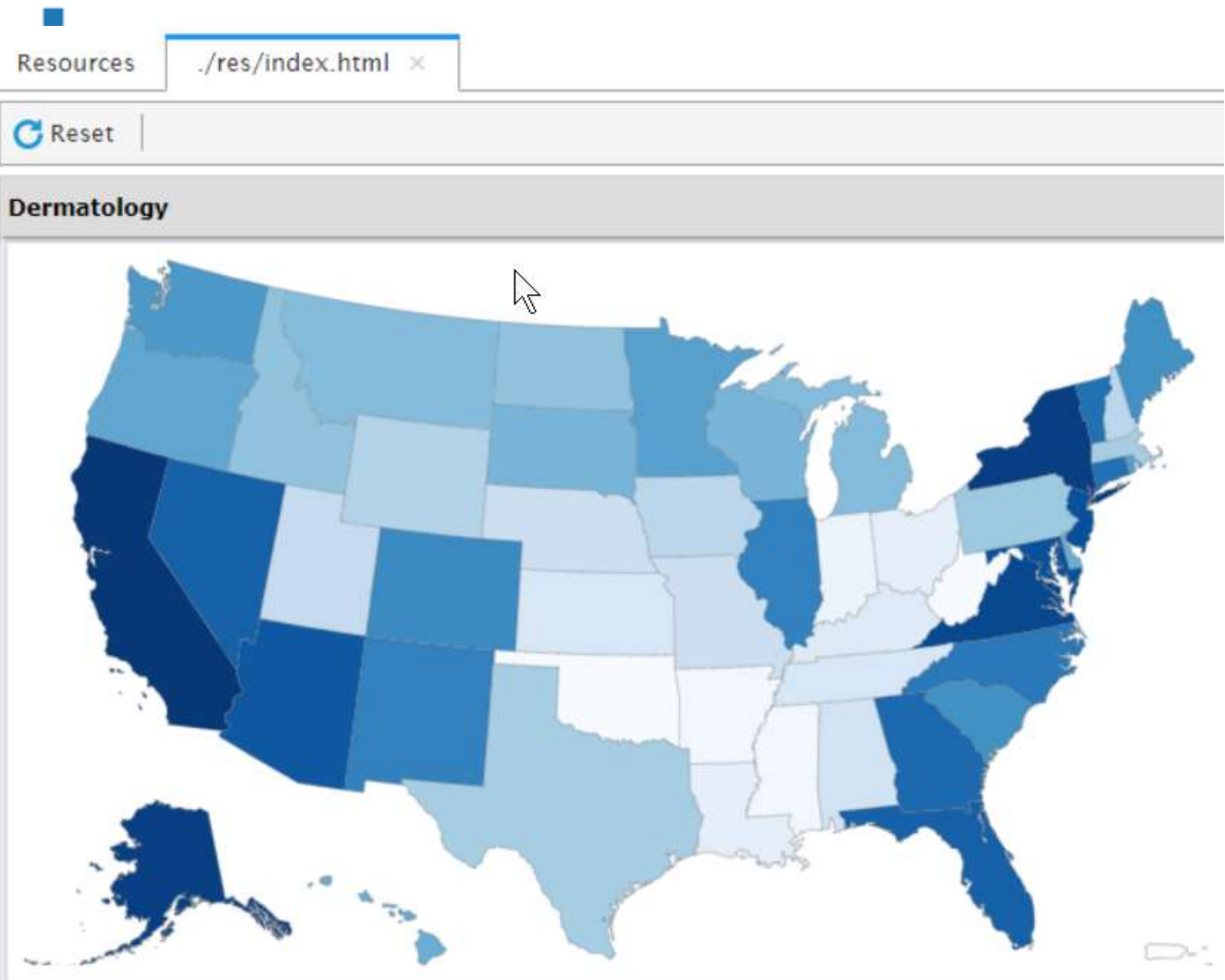
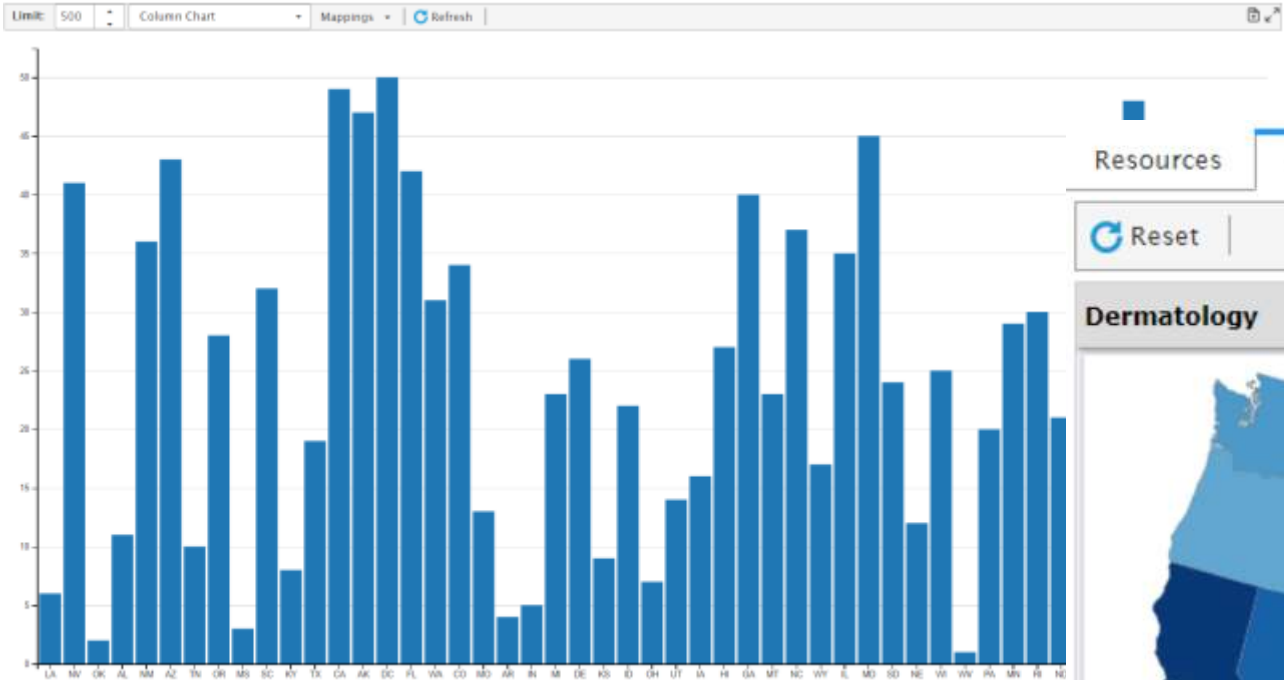
HPCC Systems provides built-in Visualization of your output data in a variety of charts and graphs. You can visualize your data in three ways:

- Using the Chart Tool in the ECL Playground.
- Accessing the Visualize tab in all ECL workunits
- Using the Resources tab in conjunction with the ECL Visualizer bundle.

Installing:

```
ecl bundle install https://github.com/hpcc-systems/Visualizer.git
```

Visualization Examples:



Final Thoughts

- ✓ Since your solution is the key part to this challenge you can use `#OPTION('obfuscateOutput', TRUE);` at the start of your code to hide it from being viewed on ECL Watchpage. If you decide to use `#OPTION` make sure to remove it from the WUID that you shared with the judges. When `obfuscateOutput` set to true, details are removed from the generated workunit, including ECL code, estimates of record size, and number of records.
- ✓ If you want to write the result to a file, make sure the file name starts with your team's name for uniqueness purpose.
- ✓ Make sure the query names are unique and easy to identify. Do not use generic names like test, mentors, or roxie. We suggest adding your team's name as well. General names will result in other teams overwriting your files, queries, and results
- ✓ We encourage team play so teams that help answer questions in Slack will be considered favorably in judging.
- ✓ Direct emails and direct messages to judges asking for support will be *ignored* and it won't work in team's favor
- ✓ We also encourage students to leverage our community forum and/or StackOverflow for ECL coding related questions. Please make sure to tag your questions with *hpcc-ecl*.

The Resources!

UGAHacks9 Wiki Page:

<https://wiki.hpccsystems.com/display/hpcc/University+of+Georgia+UGAHacks9+2024>

Learn ECL Academy

<https://hpccsystems-solutions-lab.github.io>

ECL Training containing six short videos

https://www.youtube.com/watch?time_continue=192&v=Lk78BCCtM-0

ECL Documentation

http://cdn.hpccsystems.com/releases/CE-Candidate-9.4.30/docs/EN_US/ECLLanguageReference_EN_US-9.4.30-1.pdf

Visualization Document

https://cdn.hpccsystems.com/releases/CE-Candidate-9.4.30/docs/EN_US/VisualizingECL_EN_US-9.4.30-1.pdf

Standard Library

https://cdn.hpccsystems.com/releases/CE-Candidate-9.4.30/docs/EN_US/ECLStandardLibraryReference_EN_US-9.4.30-1.pdf

Machine Learning

<https://hpccsystems.com/download/free-modules/machine-learning-library>

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