

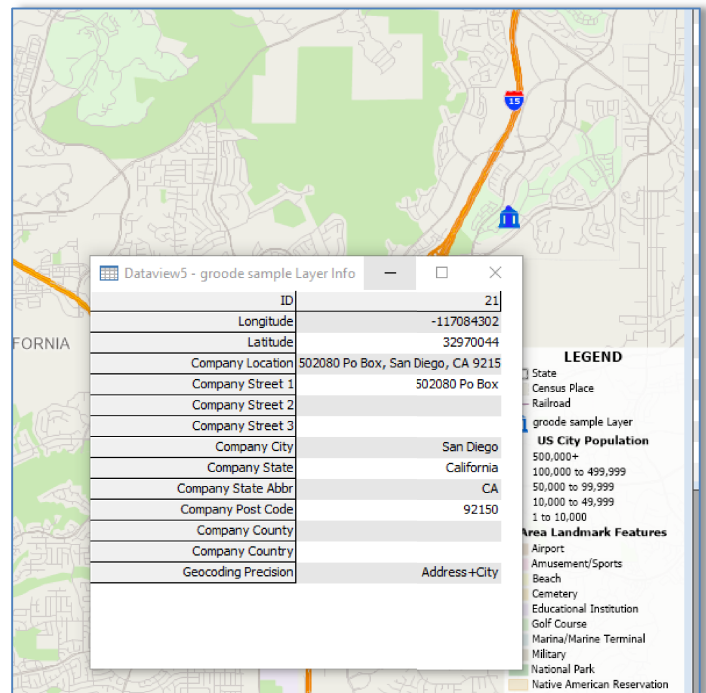
Successful businesses of the future will have data and analytics as their core. One way to make your data actionable is to geocode it.

In the future, successful businesses will focus on data and analytics. In today's world, we have more data than ever before. We collect it from our users, third-party data providers, and our company, but what do you do with it? How to make it actionable? One way to make your data actionable is by geocoding it.

Geocoding Definition

Geocoding is the process of converting a description of a location, such as an address, into geographic coordinates you can use to place a marker on a map or position the map.

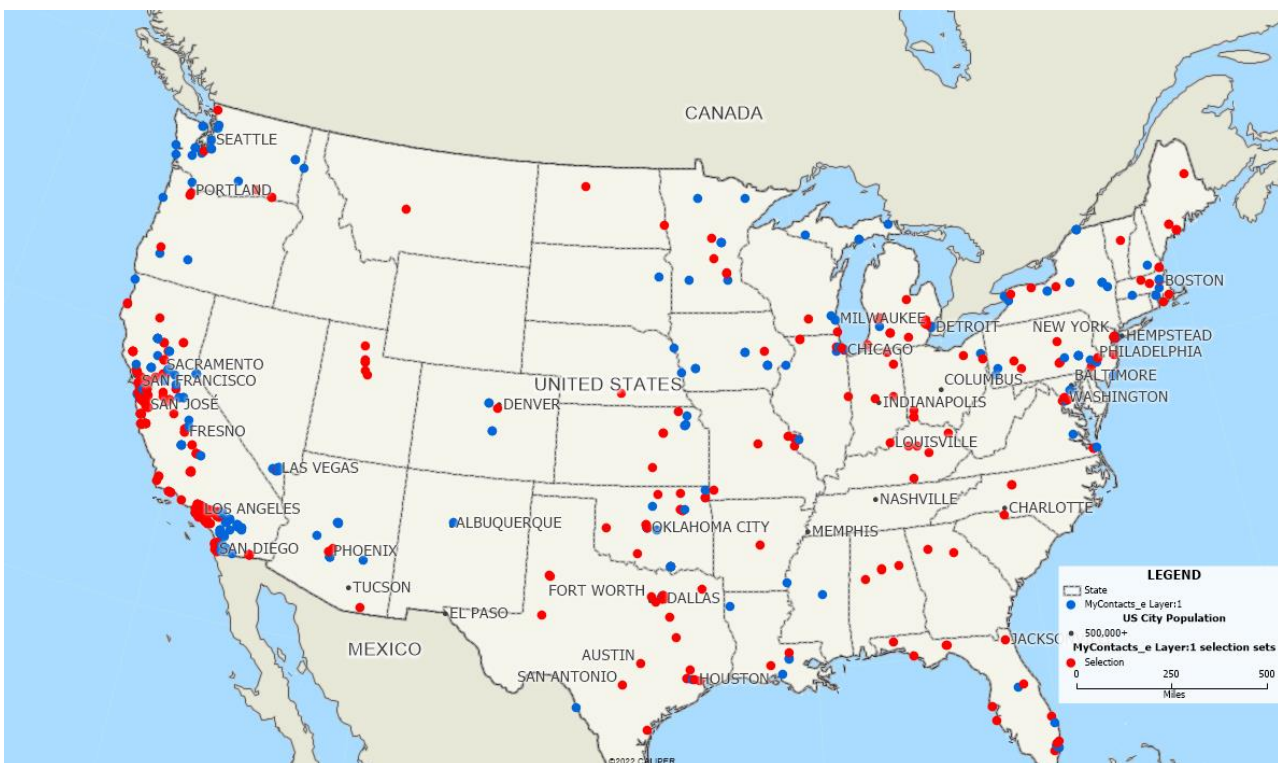
You can geocode by entering one location description at a time or by providing many of them at once in a table. The resulting locations are output as geographic features with attributes, which can be used for mapping or spatial analysis. Spatial analysis is a subset of Geographic Information Systems (GIS). Spatial analysis is the process of measuring distances, shapes, and the relationships between objects, events, and places by referring their locations to geographical positions (both live and historical). The process can be used to establish correlations between objects, events, and places by referring their locations to geographical positions (both live and historical).



You can quickly find various kinds of locations through geocoding. The types of locations that you can search for include points of interest or names from a gazetteer (a geographical index or dictionary) like mountains, bridges, and stores; coordinates based on latitude and longitude or other reference systems, such as the Military Grid Reference System (MGRS) or the U.S. National Grid system.

Geocoding your data can help you find links between you and your customers

Geocoding is a data-driven process, which I used to identify the location of my LinkedIn Network connections, based on their profile information. The results of this analysis are represented by points on a map that correspond to the connections' location, together with the classification of their company information. The red points represent members of my network who are classified as bankers, and the blue dots represent credit unions or casinos. There were a total of 2,400 LinkedIn network connections:



What Can Geocoding be Used For?

Businesses can use the data to improve strategic marketing campaigns and develop the location, demographic, and spatial insights. In addition, you might find the need to geocode for compliance with federal regulations, site analysis, marketing, sales management, and more.

Geocoding combined with Spatial analysis will improve your marketing process by empowering your understanding of your customers and your primary service area

Businesses can target consumers within specific market segments with greater accuracy and efficiency.

We use Maptitude GIS. Maptitude GIS allows us to geocode address data and apply various analytical functions, including distance calculations and visualizations. For example, you can display how far your customers live from each other and then use this information to compare various characteristics (such as purchase patterns) across distances. In addition, Maptitude GIS includes a plethora of data in the GIS package. For more information on Maptitude visit:

<https://www.caliper.com/maptitude/mapping-software.htm>

Address Data Analysis

Address data analysis has applications in a wide range of situations, including simple and complex distribution techniques.

Maptitude GIS allows us to use geocoded addresses to display location information, which can then be analyzed for patterns in the US and Internationally.

Benefit if Geocoding is in Customer Data Management

Have you ever wondered how to make your customer data more useful? One way is to geocode it. By geocoding your customer information, you can

take the names and addresses of your customers, and produce maps and analyses based on their locations. Once you have these locations, there are many ways that you can use them: from targeting specific clusters of customers to producing route maps and directions, aggregating geo-demographic information, defining your primary service area, and more!

First Step in the Geocoding Process

One of the first steps in the geocoding process is the parsing of the address, dividing a street address into individual or grouped components.

This step is part of the geocoding process which helps to find the address on a map. If an address cannot be parsed by the geocoder, it will not be possible to find its coordinates. The geocoding process can start with the form of an address.

Company Location	Company Street 1	Company Street 2	Company Street 3	Company City	Company State	Company St#	Company Post Co
390 Westwood Boulevard Ste 120, Los Angeles, CA 90025, United States	390 Westwood Boulevard	Ste 120		Los Angeles	California	CA	90025
2016 Main St, Berrys, VT 05641, United States	2016 Main St			Berry	Vermont	VT	05641
1845 Woodall Rodgers Freeway Suite 1300, Dallas, TX, United States	1845 Woodall Rodgers Freeway	Suite 1300		Dallas	Texas	TX	75244
3313 Almaden Expy, San Jose, CA, United States	3313 Almaden Expy			San Jose	California	CA	95128
8401 Quaker Avenue, Lubbock, TX 79424, United States	8401 Quaker Avenue			Lubbock	Texas	TX	79424
570 Casanova Avenue, Monterey, CA 93940, United States	570 Casanova Avenue			Monterey	California	CA	93940
1425 West Lugoña Avenue, Redlands, CA 92374, United States	1425 West Lugoña Avenue			Redlands	California	CA	92374
1425 West Lugoña Avenue, Redlands, CA 92374, United States	1425 West Lugoña Avenue			Redlands	California	CA	92374
2847 Campus Parkway, Riverside, CA, United States	2847 Campus Parkway			Riverside	California	CA	92506
2847 Campus Parkway, Riverside, CA, United States	2847 Campus Parkway			Riverside	California	CA	92506
2060 Red Lion Road, Philadelphia, PA, United States	2060 Red Lion Road			Philadelphia	Pennsylvania	PA	19103
2060 Red Lion Road, Philadelphia, PA, United States	2060 Red Lion Road			Philadelphia	Pennsylvania	PA	19103
9711 Alentown Rd, Sulfard, MD, United States	9711 Alentown Rd			Sulfard	Maryland	MD	21150
3780 Vogel Road, Arnold, MO, United States	3780 Vogel Road			Arnold	Missouri	MO	63010
865 Anena Ct, Chula Vista, CA, United States	865 Anena Ct			Chula Vista	California	CA	92010
3333 Clares Street, Capitola, CA 95010, United States	3333 Clares Street			Capitola	California	CA	95010
10075 Carril Canyon Road Suite 200, San Diego, CA, United States	10075 Carril Canyon Road	Suite 200		San Diego	California	CA	92120
10075 Carril Canyon Road Suite 200, San Diego, CA, United States	10075 Carril Canyon Road	Suite 200		San Diego	California	CA	92120
2445 Maronade Avenue, Los Angeles, CA 90032, United States	2445 Maronade Avenue			Los Angeles	California	CA	90032
502080 Po Box, San Diego, CA 92150, United States	502080 Po Box			San Diego	California	CA	92150
502080 Po Box, San Diego, CA 92150, United States	502080 Po Box			San Diego	California	CA	92150
502080 Po Box, San Diego, CA 92150, United States	502080 Po Box			San Diego	California	CA	92150
502080 Po Box, San Diego, CA 92150, United States	502080 Po Box			San Diego	California	CA	92150

The screenshot shows a software interface for geocoding. On the left, there are controls for 'Dataset - geocode sample table', including a search bar, a 'Create Layer' section with a name field, and a 'Using' section with dropdown menus for 'ID Field', 'Address Line 1', 'Address Line 2 (Optional)', 'City', 'State', and 'ZIP Code'. Below these are checkboxes for 'Methods to Locate Your Records'. On the right, a table displays the same data as the previous table, with columns for 'Company Location', 'Company Street 1', 'Company Street 2', 'Company Street 3', 'Company City', 'Company State', 'Company St#', and 'Company Post Code'. At the bottom right, a map shows the San Diego region with a red pin indicating a location.

The geocoder dissects the address into its address elements based on the style of the geocoder. For example, in the address 123 Main Street, 123 is the house number, Main is the street name, and Street is the street type.

The results

If your input addresses are in a different language than the street address, the geocoder will check for matching results. The geocoder performs a best-fit translation of the language of your input address and then finds a match for it. Using language-specific rules, if no match can be found, the

geocoder uses standard methods to find potential location candidates for you.

The geocoder scores each piece of the potential match by looking at the address elements and determining how accurate each part is.

It also looks at other factors, such as whether a street number is misspelled or an abbreviation was spelled incorrectly. The geocoder describes

ID	Longitude	Latitude	Company Street 1	Company City	Company State	Company State Abbr	Company Post Code	Company Country	Geocoding Precision
3	-96803645	32788316	1845 Woodall Rodgers Freeway	Dallas	Texas	TX		United States	ExactAddress+City
4	-121878801	37271795	3315 Almaden Expy	San Jose	California	CA		United States	ExactAddress+City
10	-117281119	33937493	2847 Campus Parkway	Riverside	California	CA		United States	ExactAddress+City
11	-117281119	33937493	2847 Campus Parkway	Riverside	California	CA		United States	ExactAddress+City
12	-75020868	40099253	2060 Red Lion Road	Philadelphia	Pennsylvania	PA		United States	ExactAddress+City
13	-75020868	40099253	2060 Red Lion Road	Philadelphia	Pennsylvania	PA		United States	ExactAddress+City
14	-76896040	38811113	5711 Allentown Rd	Suitland	Maryland	MD		United States	Address+City
15	-90399751	38414161	3780 Vogel Road	Arnold	Missouri	MO		United States	ExactAddress+City
16	-117018844	32637111	865 Amena Ct	Chula Vista	California	CA		United States	ExactAddress+City
18	-117110271	32903525	10075 Carroll Canyon Road	San Diego	California	CA			ExactAddress+City
19	-117110271	32903525	10075 Carroll Canyon Road	San Diego	California	CA			ExactAddress+City
2	-72499999	44182986	265s Main St	Barre	Vermont	VT	5641	United States	Address+ZIP Code
5	-101904958	33517048	8401 Quaker Avenue	Lubbock	Texas	TX	79424	United States	Address+ZIP Code
1	-118434267	34046948	1990 Westwood Boulevard	Los Angeles	California	CA	90025	United States	Address+ZIP Code
20	-118165135	34074216	2445 Mariondale Avenue	Los Angeles	California	CA	90032		Address+ZIP Code
21	-117084302	32970044	502080 Po Box	San Diego	California	CA	92150		Address+City
22	-117084302	32970044	502080 Po Box	San Diego	California	CA	92150		Address+City
23	-117084302	32970044	502080 Po Box	San Diego	California	CA	92150		Address+City
24	-117084302	32970044	502080 Po Box	San Diego	California	CA	92150		Address+City
7	-117202090	34070152	1425 West Lugonia Avenue	Redlands	California	CA	92374	United States	Address+ZIP Code
8	-117202090	34070152	1425 West Lugonia Avenue	Redlands	California	CA	92374	United States	Address+ZIP Code
9	-117202090	34070152	1425 West Lugonia Avenue	Redlands	California	CA	92374	United States	Address+ZIP Code
6	-121854052	36598258	570 Casanova Avenue	Monterey	California	CA	93940	United States	Address+ZIP Code
17	-121969759	36976627	3333 Clares Street	Capitola	California	CA	95010		Address+ZIP Code
25	-121377305	38552136	8815 Folsom Blvd	Sacramento	California	CA	95826		Address+ZIP Code

how it matched each address element using this information.

Spatial Data Analysis

Geocoding is the process of identifying geographic coordinates (latitude and longitude) with a real-world location.

The coordinates are used by GIS applications to model and explore measuring distances, shapes, and the relationships between objects, events, and places by referring their locations to geographical positions (both live and historical). This can be used to establish correlations between

objects such as building footprint

locations in an earthquake, events such as routes of vehicles on a road network, and places, such as hospitals or buildings in the aftermath of disease interventions.

Use spatial analysis to identify Gaps

The market is full of large and small applications for mapping. The question is, “do you have the subject matter expertise to build algorithms to model these relationships?”

An example of this can be seen in the casino industry. The spatial analysis, combined with player data enhancement, will improve your marketing process by empowering your understanding of:

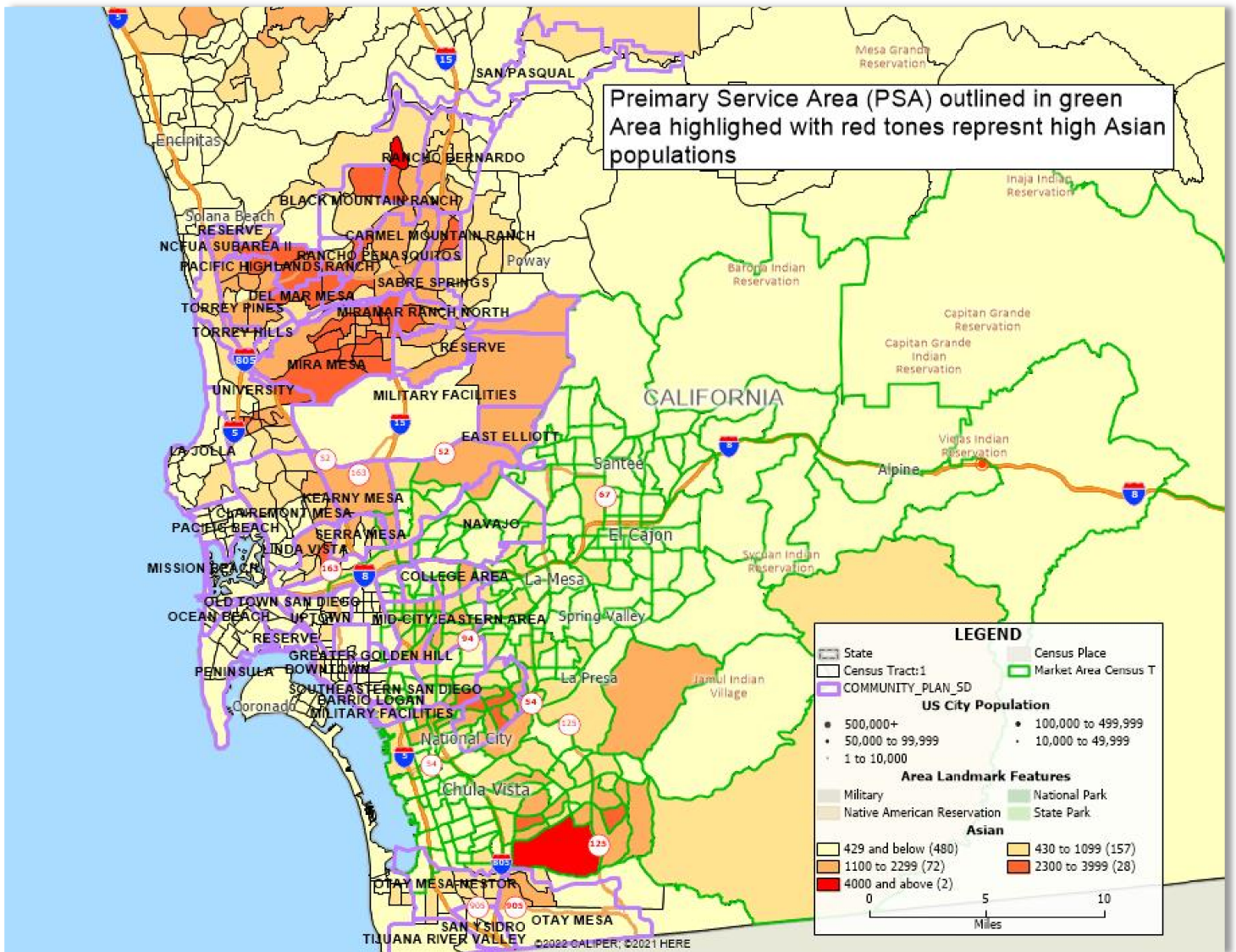
- Customer locational information
- Life cycle,
- Ethnic concentrations
- Enhanced geographic data
- Economic Cohorts

To start, we need to define our Primary Service Area and work from there. To learn more about how we utilize drive time analysis visit our website at <https://www.gisbanker.com/drivetime.html>. We can start by geocoding the player data or the customer data and comparing drive time and player aggregation across markets. In addition, we can analyze GAPS in coverage to identify specific demographic reports to identify specific characteristics and make direct comparisons.

We've found that marketing dollars can be most effective when they're targeted at specific areas.

The map shows GAP in the county where marketing investment could be the most effective, based on their analysis of a player's data. We found the areas with the highest concentrations of Asian population to offer the greatest return on their investment in marketing Dollars, which are shown in the following map:

*Spatial analysis
combined with player
data enhancement will
improve you marketing
and player development
process*



All of this started with geocoding the player database for the casino.

Bottom-line Benefits of Geocoded Data

Geocoding your customer and prospect data is a great way to make your data more useful, and there are many benefits to doing so!

Geocoding helps you:

- Understand how people move in and out of your target areas

-Analyze demographic shifts for your different audience segments over time

-Identify clusters of interest within a region or market, which can help you better target your messaging

In addition: Geocoding turns location information into a format that can be easily integrated into business systems and made available for mapping and spatial analysis.

Businesses can use the data to improve strategic marketing campaigns and develop the location, demographic, and spatial insights.

Businesses can target consumers within specific market segments with greater accuracy and efficiency. The accuracy and reliability of this geocoded data, along with additional attributes such as consumer data and demographics, facilitates targeted marketing to potential customers in designated geographical areas.

Understanding your customer and prospect data can help you:

- Increase revenue
- Lower costs
- Improve internal operations
- and more

WE CAN HELP

By leveraging our services, we can provide you with solutions that can simultaneously increase your reach into your target markets while saving you time and money, all grounded on data. Using GIS technology, combined with years of experience, we help you develop a focused view of your markets based on the most current data. From geospatial mapping to heat-mapping and analysis capabilities, we have the solutions you need – no matter what stage of business you are at.

Call GISBanker (619)917-7596 for more information.