

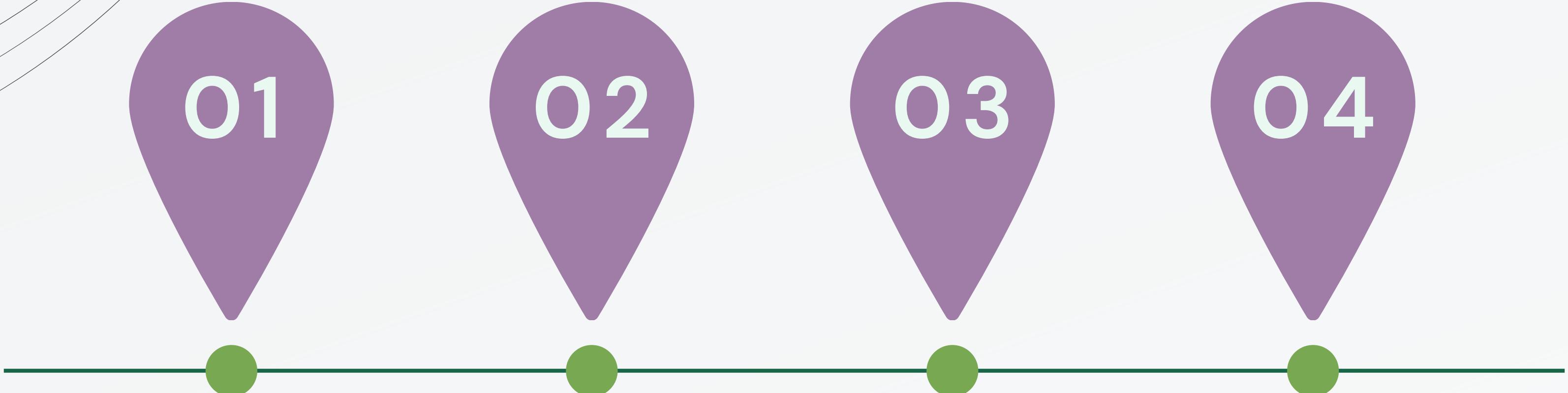
THE IMPACT OF CDBG FUNDS IN PUERTO RICO

By Natalie Lewis & Samiel Zengotita

PURPOSE

We chose to study the impact that the Community Development Block Grant funds has had on mortgage loan amounts in Puerto Rico. The CDBG funds started as a \$25,000 to \$55,000 in down payment or overall financing for first-time homebuyers. In the beginning of the distribution, the full amount was given exclusively to first responders. At the moment, it's open anyone who is buying their first home and fits into the income limits established by HUD. We initially believed that the grant was contributing to home price inflation.

Let's find out if our hypothesis is true>>>



01

02

03

04

INCOME LEVELS

We analyzed the datasets for income limits per county. Puerto Rico has a total of 78 counties but we grouped them into 26 to match the information from the CDBG grant dataset.

INTEREST RATES

We analyzed an FHA dataset and used the average of interest rates per year from 2018 – 2022. We used FHA because it is the most common mortgage in Puerto Rico and it's the best for first-time home buyers.

AFFORDABILITY ANALYSIS

On the FHA dataset, we focused on interest rates and mortgage amounts to understand how much people can afford.

GOVERNMENT POLICIES

Finally, we analyzed the total of CDBG funds granted to each county group.

STRATEGIES



Our CDBG datasets were accessed through web scrapping for all 78 counties. Afterwards, we created functions to automate the normalization process.

WEB SCRAPPING



Our income limits per county were accessed through an API. Afterwards, we created dictionaries to group the counties and created data frames with the information given.

API



Altogether, we worked on functions to automate the process, melt and pivot tables for better analysis. Finally, created plots to visualize our findings.

DATA WRANGLING

ISSUES ENCOUNTERED

Committing changes to Github because our files were too heavy. We had to upload a Google Drive link with all the files for the project.

GITHUB

API county names were long and confusing. Our functions had simpler names. We created a dictionary for the data wrangling process.

COUNTY NAMES

The year 2022 was an int, while 2018-2021 were string values. This made the data wrangling more time consuming.

DATA TYPES

For simplicity, we had many functions labeled 'df1','df2'... Causing confusion when calling on the data to create pivot tables. We had to rename these in a more specific and descriptive way.

NAMING CONVENTIONS

EXPECTED OUTCOME

CDBG SUCCESS

Identification of areas where CDBG funds have been most successful in improving affordability.

AFFORDABILITY

Insights into the correlation between mortgage rates, loan amounts, and the success of affordable housing initiatives.

LOOKING FORWARD

Recommendations for real estate agencies to strategically allocate resources to maximize the impact of CDBG funds on community development.



CDBG SUCCESS!

Most Benefited



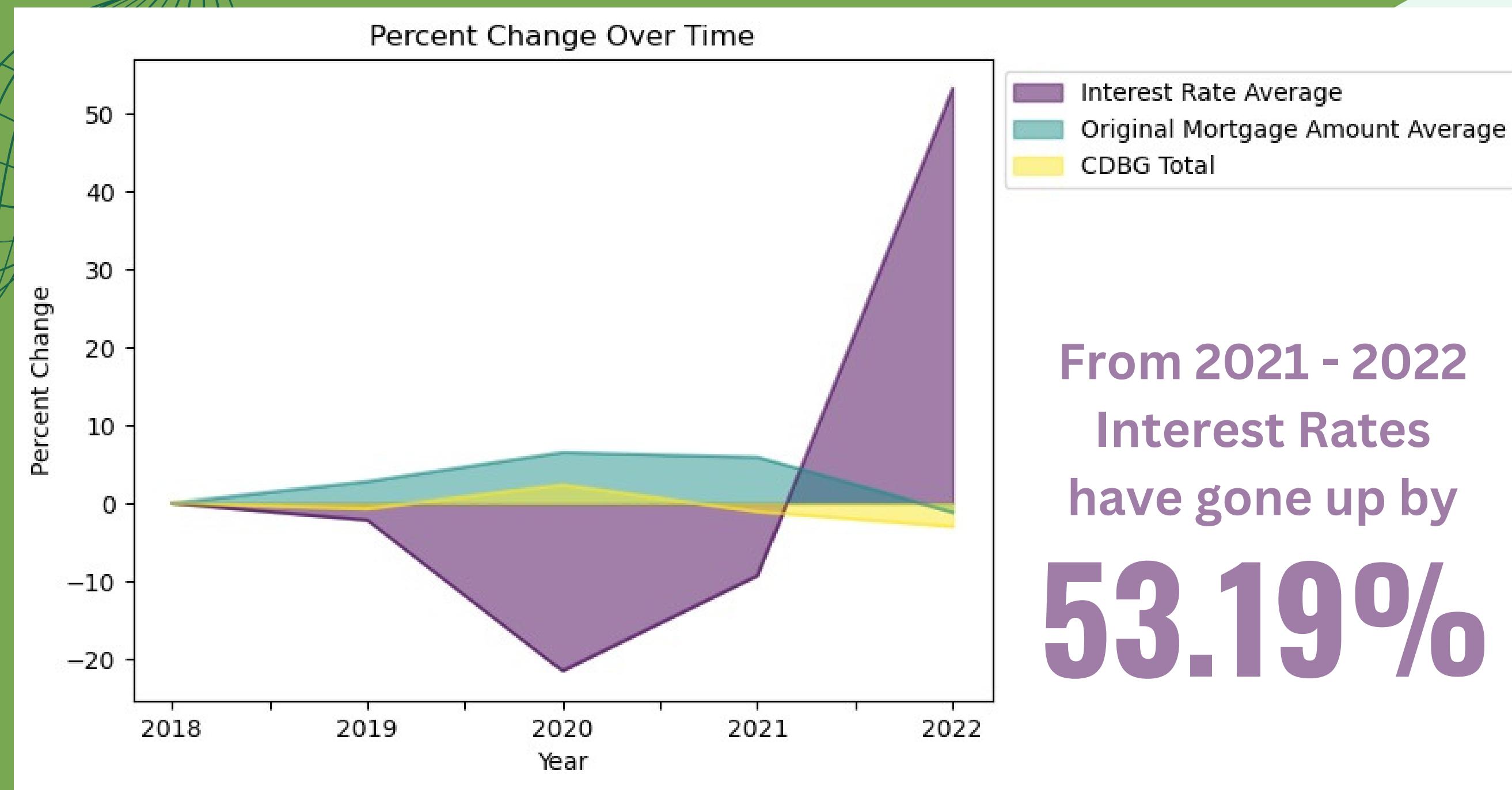
Municipality	Year	2018	2019	2020	2021	2022	Total
San Juan Municipio, PR	6993886	7055896	7375269	7363131	6969795	35757977	
Ponce Municipio, PR	2483950	2396777	2483341	2444414	2351583	12160065	
Bayamón Municipio, PR	2294269	2220066	2227107	2214251	2149057	11104750	
Carolina Municipio, PR	1866124	1802252	1753063	1758787	1757420	8937646	
Caguas Municipio, PR	1739589	1705935	1763496	1708674	1706443	8624137	

Municipality	Year	2018	2019	2020	2021	2022	Total
San Sebastián Municipio, PR	674443	663425	664429	652730	630781	3285808	
Cayey Municipio, PR	659697	654943	656552	641484	603629	3216305	
Cidra Municipio, PR	576143	578677	598170	571772	575730	2900492	
San Germán Municipio, PR	550256	557490	564905	556410	535073	2764134	
Fajardo Municipio, PR	541810	527987	531217	520693	489153	2610860	

Least Benefited



AFFORDABILITY



The rise in interest rates have triggered the mortgage amounts to lower causing a domino effect on overall affordability.

However, CDBG funds have expanded their range by reducing their requirements since 2023.

AFFORDABILITY DECREASE

11%

Results

You can afford a house up to **\$111,278** with an FHA loan, within which \$107,383 is the loan and \$3,895 is the down payment.

You can borrow	\$107,383
Total price of the house	\$111,278
Down payment	\$3,895
FHA upfront insurance premium (1.75%)	\$1,879
Estimated closing cost (one time, assume 3%)	\$3,338
Front-end debt-to-income (DTI) ratio	31%
Back-end debt-to-income (DTI) ratio	31%
Total one-time payment at closing	\$9,112
Monthly mortgage payment	\$561
Monthly MIP payment (0.55%)	\$49
Annual property tax	\$0
Annual HOA or co-op fee	\$0
Annual insurance cost	\$556
Estimated annual maintenance cost (repair, utility etc., assume 1.5%)	\$1,669
Total monthly cost on the house	\$796

Annual household income ⓘ \$25,371 salary + other incomes (before tax)

Mortgage loan term 30 years

Interest rate 4.77 %

Monthly debt payback ⓘ \$0 long-term debts, car, student loan, etc

Down payment 3.5 % % ▾

Property tax 0 % % ▾ per year

HOA or co-op fee 0 % % ▾ per year

Insurance 0.5 % % ▾ per year

Debt-to-income (DTI) ratio FHA loan (31% front-end, 43% back-end) ▾

Calculate **Clear**

Results

You can afford a house up to **\$98,714** with an FHA loan, within which \$95,259 is the loan and \$3,455 is the down payment.

You can borrow	\$95,259
Total price of the house	\$98,714
Down payment	\$3,455
FHA upfront insurance premium (1.75%)	\$1,667
Estimated closing cost (one time, assume 3%)	\$2,961
Front-end debt-to-income (DTI) ratio	31%
Back-end debt-to-income (DTI) ratio	31%
Total one-time payment at closing	\$8,083
Monthly mortgage payment	\$583
Monthly MIP payment (0.55%)	\$44
Annual property tax	\$0
Annual HOA or co-op fee	\$0
Annual insurance cost	\$494
Estimated annual maintenance cost (repair, utility etc., assume 1.5%)	\$1,481
Total monthly cost on the house	\$792

Annual household income ⓘ \$25,811 salary + other incomes (before tax)

Mortgage loan term 30 years

Interest rate 6.2 %

Monthly debt payback ⓘ \$0 long-term debts, car, student loan, etc

Down payment 3.5 % % ▾

Property tax 0 % % ▾ per year

HOA or co-op fee 0 % % ▾ per year

Insurance 0.5 % % ▾ per year

Debt-to-income (DTI) ratio FHA loan (31% front-end, 43% back-end) ▾

Calculate **Clear**

Year	Interest Rate Average	Original Mortgage Amount Average
2022	4.765068	140124.195267
2023	6.196389	140340.583901

2022

2023

LOOKING FORWARD



San Juan, Carolina, Bayamon & Caguas are among the top counties who have received the greater amount of CDBG funds and they are also **the most competitive** with home prices, confirming a relationship between the grants and home price inflation.



Our recommendation to real estate agencies is to focus on the surrounding counties because they have also received a greater amount of the CDBG funds but the prices can be more fair to first-time homebuyers.



PROJECT MANAGEMENT



Natalie
Lewis
Product Owner



Sámiel
Zengotita
Dev Team

Real Estate Analysis Project

Kanban boards are helpful for showing items in a database moving through stages of a process. They provide an easy way to stay on top of progress and keep tasks on track.

Daily Stand Up

- what did you do so far,
- do you feel on the track, behind or ahead,
- what's your plan for today and
- do you think you'll have any blockers.

↓ Click through the different database tabs to see other views.

kanban board detailed kanban board table view +

To-do 1 In progress 2 ... + Complete 6

Design 5 ... +

README

+ New

Wrap it up

+ New

Analysis 4 ... +

Expected Outcomes

+ New

First Steps of the project

Extract FHA / CDBG & Income Limits

Data Wrangling

+ New

Create Comprehensive FHA & CDBG dataset

Affordability Analysis

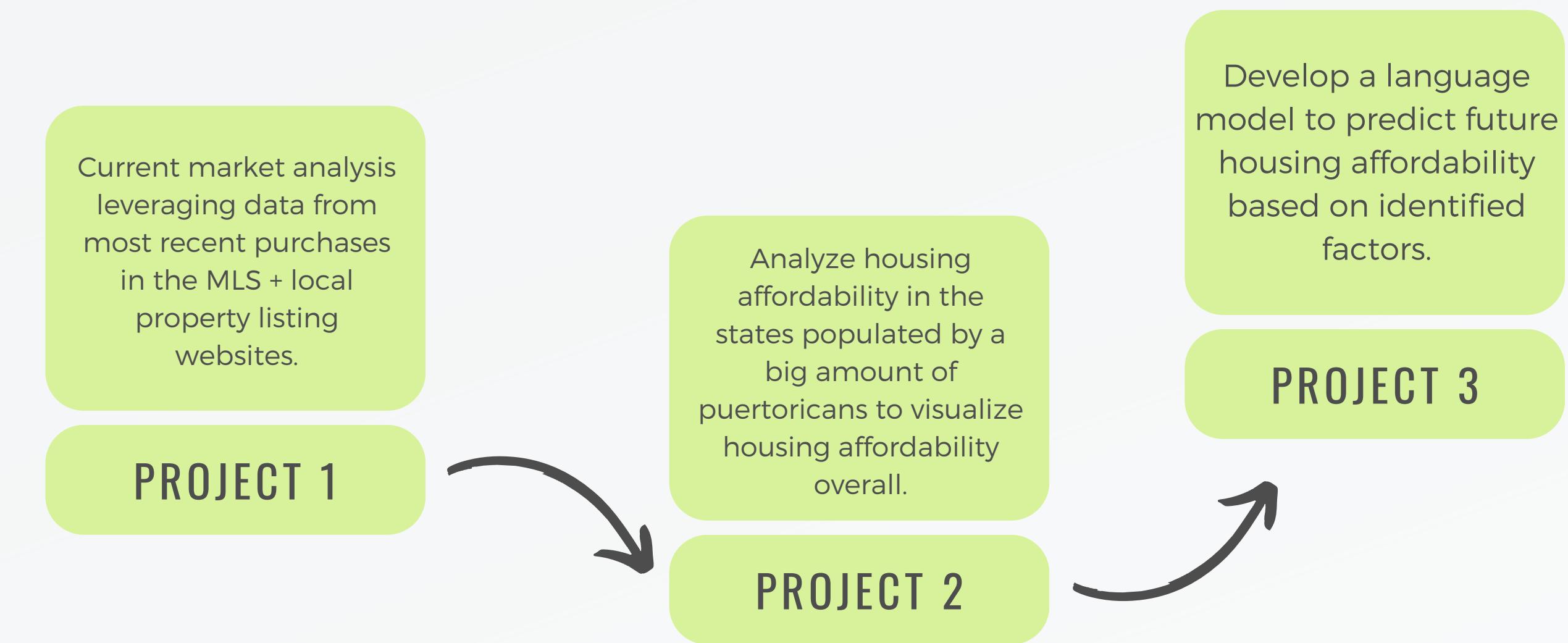
Business Problem:

Sámiel Zengotita Natalie Lewis

+ New

DATA-DRIVEN PREDICTIONS

Next Projects:



THANK YOU FOR WATCHING

*Let us know if you have any
questions or if you would like to see
similar real estate analysis from us!*

