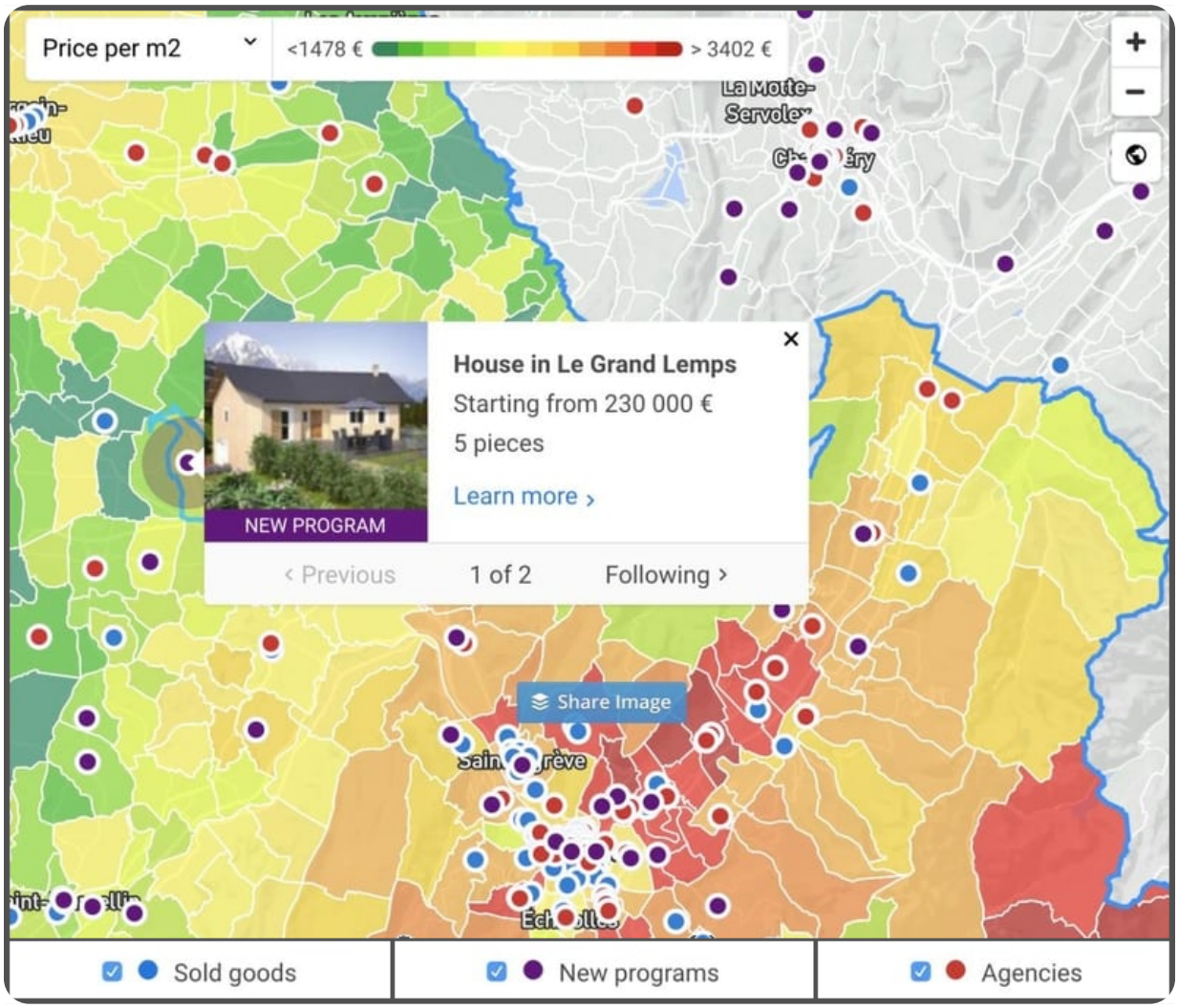
{EPITECH}

HOMEPEDIA

EXPLORING HOUSING INSIGHTS

HOMEPEDIA

Your objective is to develop an innovative app that provides users with comprehensive information and analysis on the housing market in France.



Through data collection, processing, and analysis; you will create a platform which offers a user-friendly and interactive experience, empowering users to explore and understand the intricate dynamics of the french housing landscape.

EPITECH

Whether it's examining price trends, exploring regional variations, or delving into demographic factors, your app will serve as a tool for users to access the statistics and insights they desire…

…and even more: your app will provide so much value and functionality that it will significantly change the real estate industry!

For this project, the following steps are mandatory:

- ✓ Data gathering
  Collect **extensive** data on french housing at various levels (state, region, department, city). Supplement this data with various metrics and indicators (economy, education, energy, environment, infrastructure, population, …).
- ✓ Database organization
  Structure the data into suitable databases, employing **efficient indexing and optimization techniques**.
- ✓ Big data analysis
  Make use of **advanced tools and methods** in order to extract valuable insights from the huge amount of data.
- ✓ Interactive visualizations
  Present the results through an **interactive** app, using visualizations to provide an **intuitive** and **comprehensive** understanding of housing trends.

mapbox.com is used by many real estate firms. You should have a closer look at it.

Organizing data

Your data MUST be organized in specific databases.

You have to create relational **and** non-relational database in order to proficiently classify your tabular and non-tabular data.

Since it comes from different sources, **standardization** will be necessary.

Processing Data

To tackle the immense volume of data involved in this project, you HAVE TO use technologies for **fast and efficient data processing**, such as *Hadoop* and *Spark*.

By creating a **cluster of machine**, you will distribute the workload across multiple nodes, significantly reducing processing time and enabling parallel data processing.

Look at cloud solutions, such as the tool Data Bricks from Microsoft.

Analyzing and visualizing

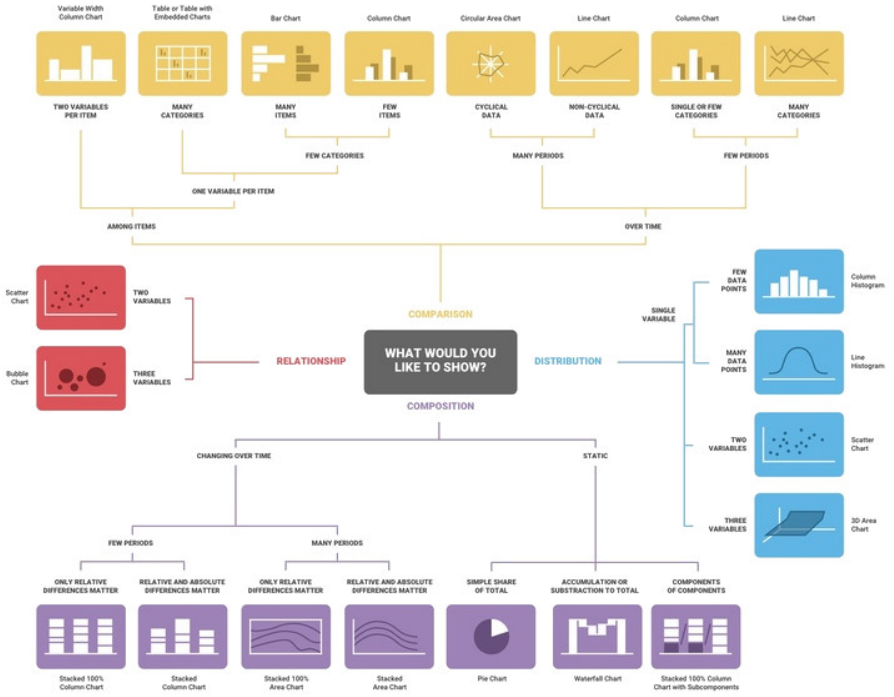
These steps are fundamental: your app effectively **investigates** and **represents** the data.
Your outputs encompass traditional tabular presentations, showcasing statistical insights. Additionally, your app also incorporates cartographic analysis, allowing users to visualize data on [bubble | isoline | choropleth | heat | route | connection | …] maps.

You have the freedom to design the app according to your preferences, but it MUST be **highly interactive and customizable**: your final users are able to navigate and select what they want to explore (areas, analysis results, global indicators, …).

The analysis MUST span various levels, including city, department and region.

Websites like zillow, meilleursagents or petitlopin can provide you some inspiration. Do not copy them, but take a look at them.

One of the trickiest parts of the analysis process is choosing the right way to represent your data, and to avoid any chartjunk.
Websites like anychart, datavizcatalogue, from data to viz or datavizproject may help you.



Tools like leaflet allow you to build interactive maps and integrate them in your app.

Furthermore, text analysis should be employed to extract valuable information from textual data. A word cloud, for instance, can be generated to represent opinions regarding the safety of a specific town, providing users with a quick visual summary.

While the primary focus lies in collecting and analyzing vast amounts of data, there is a crucial role for artificial intelligence to play. Textual data, such as comments describing the quality or shortcomings of a city, can be efficiently processed and analyzed using AI techniques, to extract valuable information such as sentiment analysis.

Deliveries

You are expected to deliver a fully interactive app with **tabular** data, **cartographic** data, and **textual** analysis.

The app integrates with your database(s) and leverages the **cluster of machines** employed for data analysis.

To provide a comprehensive understanding of your project's foundation, a well-defined schema of your database(s), along with a meticulous description of your data cleaning methodology, must be included.

In addition, if AI algorithms are utilized within the project, it is essential to provide a detailed account of their implementation and functionality.

Try using tools such as streamlit to create your app.

Bonuses

You can improve this project in many ways, including:

- ✓ including other countries housing markets ;
- ✓ deploying your app online ;
- ✓ adding an authentication protocol and accounts ;
- ✓ increasing your application's security ;
- ✓ building an admin view for the server ;
- ✓ implementing real time updates ;
- ✓ adding a guided tour ;
- ✓ …

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