

Final Report

Subject: Real Estate Sales Records of State of Connecticut

Data From:

<https://www.kaggle.com/datasets/anoopjohny/real-estate-sales-2001-2020-state-of-connecticut>

For the Source Code, please refer to GitHub Link:

https://github.com/CzXiong1024/INFSCI_2415_Final_Project/tree/main

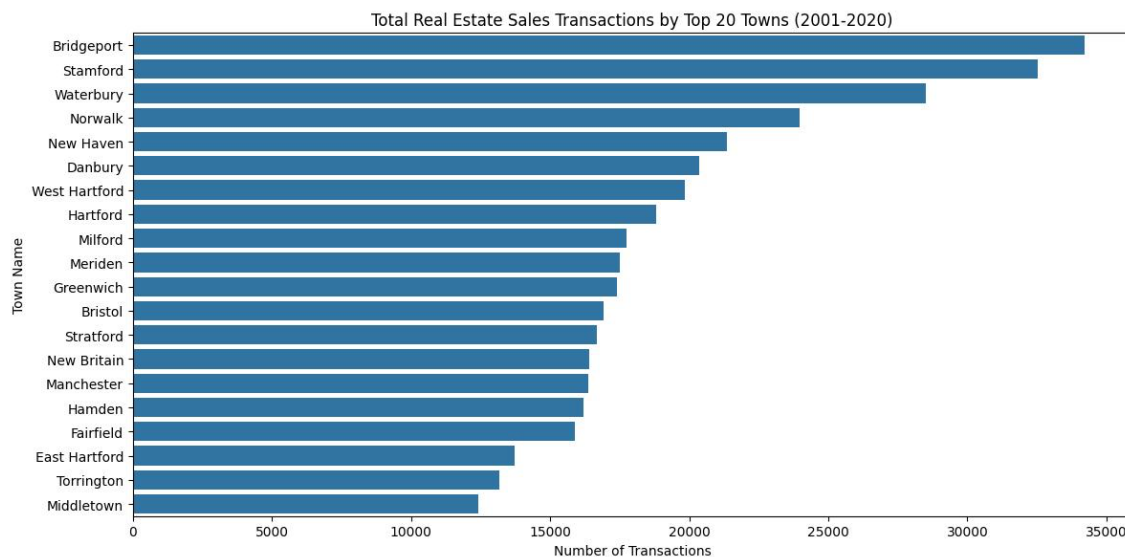
Data and method text describing the data and method used in this process:

- Data sourced from **Real Estate Sales Records of State of Connecticut** spanning 2001-2020.
- Data Consists of: Serial Number, List Year, Date Recorded, Town, Address, Assessed Value, Sale Amount, Sales Ratio, Property Type, Residential Type, Non-Use Code, Assessor Remarks, OPM remarks, Location.
- Utilized Python with libraries: Pandas for data manipulation, Matplotlib and Seaborn for visualization, and NumPy for numerical operations.

Significance statement on why the presented figures are important:

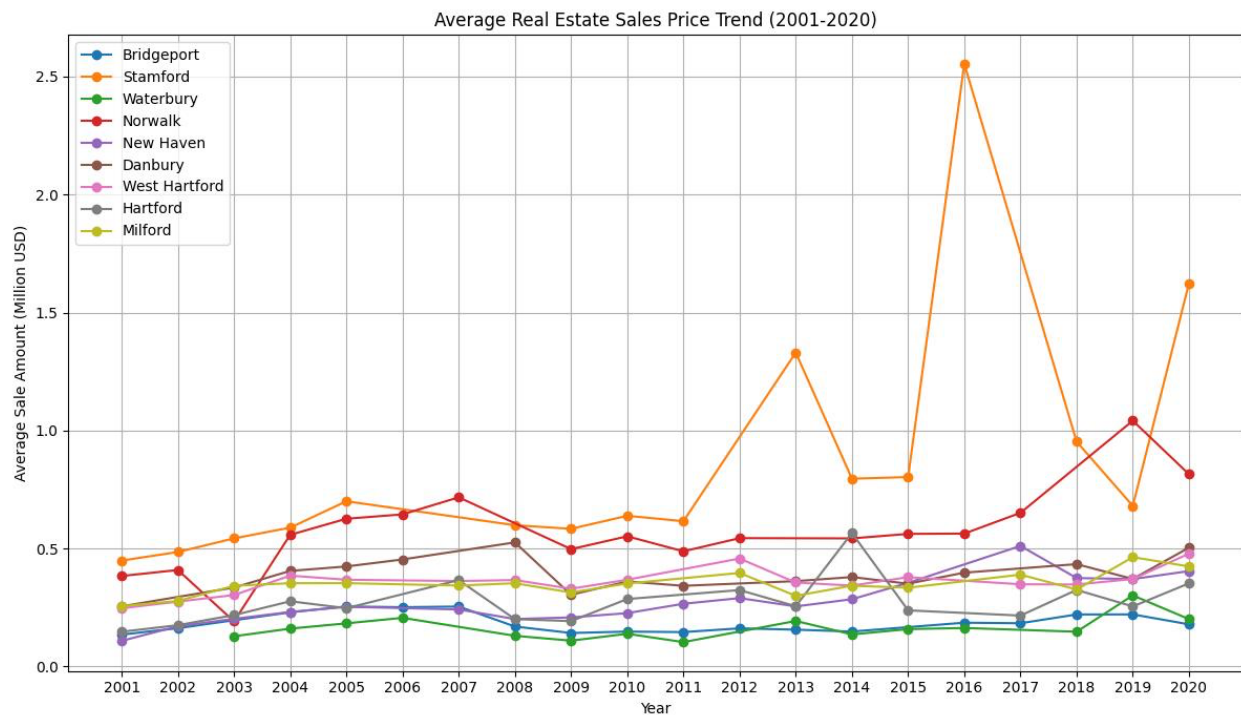
- Provides a comprehensive historical perspective on real estate trends over two decades, serving as a foundation for predictive analytics.
- Enables stakeholders in the real estate industry to understand town-specific market dynamics and shifts.
- Assists industry professionals in anticipating future demand by revealing long-term preferences in residential types.
- Empowers investors and developers with data-driven insights to make informed decisions for future projects and investments.

Figure 1: Total Real Estate Sales Transactions by Top 20 Towns (2001-2020) (Bar Chart)



- **Real Estate Sales Transactions by Top 20 Towns:**
 - Bridgeport has the highest number of real estate sales transactions, close to 35000.
 - Middletown has the lowest among the top 20 towns.
 - The majority of towns have transactions between 10,000 and 20,000.

Figure 2: Average Real Estate Sales Price Trend (2001-2020) (Line Plot)



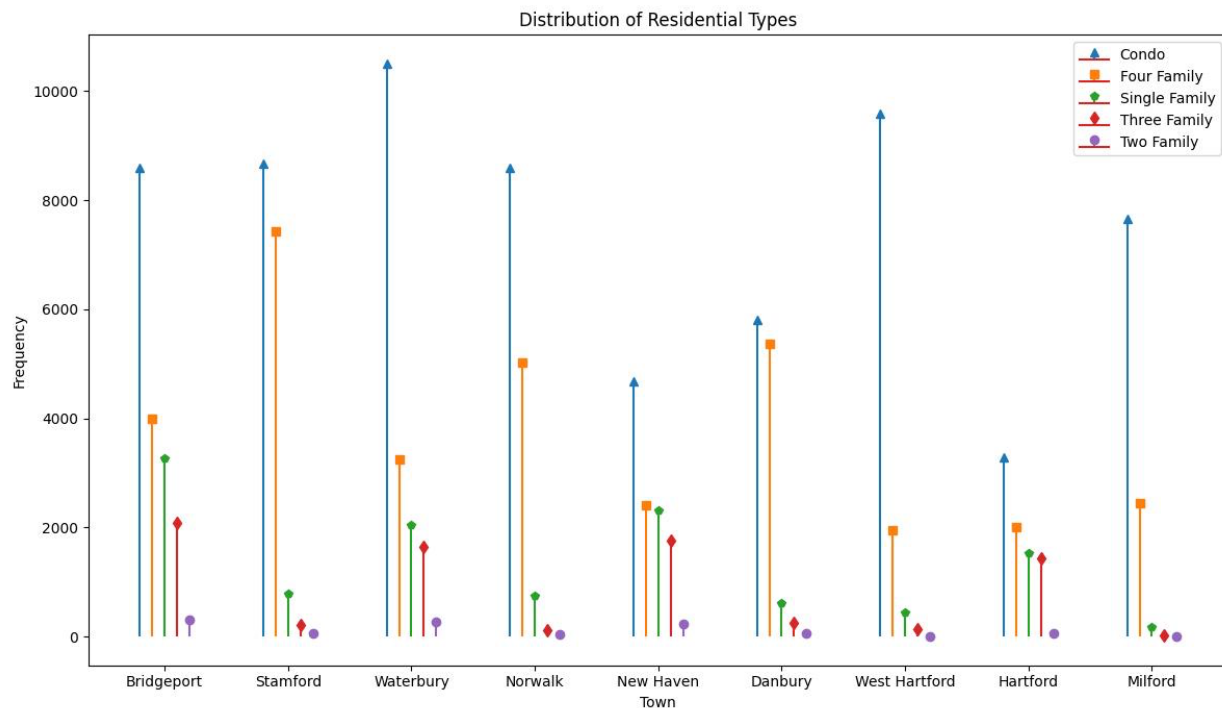
• **Legend description:**

- **Bridgeport (Blue Line):** Average sales price trend for Bridgeport from 2001-2020.
- **Stamford (Orange Line):** Average sales price trend for Stamford from 2001-2020.
- **Waterbury (Green Line):** Average sales price trend for Waterbury from 2001-2020.
- **Norwalk (Red Line):** Average sales price trend for Norwalk from 2001-2020.
- **New Haven (Purple Line):** Average sales price trend for New Haven from 2001-2020.
- **Danbury (Brown Line):** Average sales price trend for Danbury from 2001-2020.
- **West Hartford (Light Purple Line):** Average sales price trend for West Hartford from 2001-2020.
- **Hartford (Grey Line):** Average sales price trend for Hartford from 2001-2020.
- **Milford (Light Green Line):** Average sales price trend for Milford from 2001-2020.

• **Average Real Estate Sales Price Trend (2001-2020):**

- Stamford has the highest average sale price for most of the years during 2001 to 2020.
- Waterbury consistently has the lowest average sale price among the highlighted towns.
- There's a noticeable dip in average sales prices around 2009 for all towns, likely indicative of the **global financial crisis**.
- Sale prices generally started to recover post-2011, with a notable increase in 2016-2018.
- There's a decline in average sale prices for all highlighted towns in 2020.

Figure 3: Distribution of Residential Type (Stem Plot)



- **Legend description:**

- **Condominium:** Color-coded with light blue and shaped in an upward-pointing triangle.
- **Four Family:** Color-coded with orange and shaped in a rectangle.
- **Single Family:** Color-coded with green and shaped in a pentagon.
- **Three Family:** Color-coded with red and shaped in a diamond.
- **Two Family:** Color-coded with purple and shaped in an oval.

- **Distribution of Residential Type:**

- **Condominiums (Condo)** are the most popular residential type across all the selected towns, with the highest frequency observed in towns like Stamford, Norwalk, and Milford.
- The town of **Waterbury** has the highest frequency of Condos, reaching over 10,000.
- **Four Family** homes, represented by the orange square, also have a significant presence in many towns but are generally less frequent than Condos.
- **Three Family** and **Two Family** homes have varying distributions across towns but are typically less frequent than Condos and Single Family homes.
- The town of **New Heaven** has a noticeable diversity in its residential types, with a balanced distribution between Four Family, Single Family, Three Family.
- **Milford** shows a distinct spike in Condos, surpassing all other residential types by a significant margin.