

2017 Rental Information for Students in Texas Dashboard Report

Based on Data from Zillow

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Executive Summary

This report introduces an information dashboard developed for Zillow, a big real estate and rental marketplace company. The dashboard is based on the needs of Zillow, which include utilizing the data available on its website and demonstrating the 2017 rental information for students in Texas. I first explore the overall rental information in Texas and then focus on specific regions. 5 home types and 4 local cities are selected based on the data Zillow provides. I implement bar charts, line charts, distribution charts and filters to display the rent tendency, the rent changes, and the rent distribution. These graphs can help students in Texas make informed predictions for the future rent or make decisions about the time to move in and the cities to study or work.

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Description of the organization

Zillow is a real estate and rental marketplace company. It launched in 2006 and its headquarters are in Seattle. The official website of Zillow provides data about the whole process of buying, selling, or renting houses, apartments and other buildings. Customers can find prices of homes with different types, locations, sizes, build times, and other information. Customers can also find professional local agents, property managers, inspectors and builders to meet their needs.

Zillow has data about more than 110 million homes in the United States. On its website, one can find articles, news, and policy related to the real estate and rental market. Tables, charts and graphs about the local market overview are also available. In the Zillow Research page, data such as home values, rental values, and forecasts are free for download. Zillow Research provides transparent data and unbiased analysis to help consumers have a better understanding of the housing market.

The organization's dashboard needs

I contacted Zillow Research through its online contact form. The contact email is econcontact@zillow.com and the contact name is Zillow Research. They invited me to look over the data readily available to download directly from their webpage and create a dashboard to display 2017 rental information for students in Texas. They hope to share the information dashboard on their website.

How do the needs shape the dashboard design?

I display 2017 rental information for students in Texas from two aspects: One is the overall rental information in 2017, and the other focuses on the specific regions in Texas. The statewide rental information can give students a big picture, and at the same time students can get more detailed information about the places they live in.

Median monthly rent

I use the median monthly rent Zillow provides to make the dashboard because from a statistical sense, median is more robust than mean, and median is less affected by outliers, so the median monthly rent is a good statistic to reflect the real rental market.

Home types

I display the overall rent for the 5 home types: studios, one-bedroom apartments, two-bedroom apartments, three-bedroom apartments and four-bedroom apartments.

Rent Changes

It is important to show the changes of rent. Because the changes can indicate in which month the rent increases or decreases the most. Such information can help students make predictions about future rent. I apply month-to-month growth and year-to-year growth to show how the rent is raised or lowered compared to the previous month and the same month in previous year.

Regions

The four largest cities – Houston, San Antonio, Dallas and Austin are selected based on a city size rank provided by Zillow. I display the rental information about each home type in each city and make comparisons among the cities as well.

What information does the dashboard display?

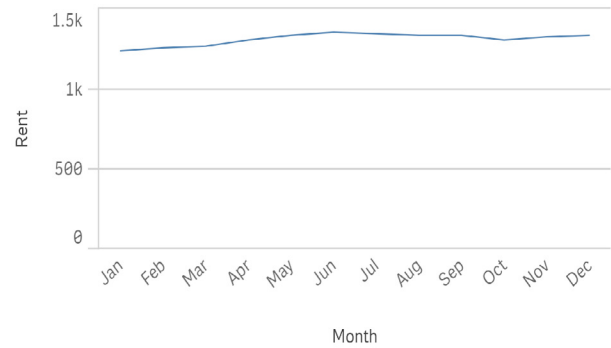
The dashboard represents the 2017 overall monthly rent in Texas and the changes of the rent. It also gives more detailed information for the four largest cities in Texas. As shown in Figure 1, the dashboard includes: month-to-month growth rate, year-to-year growth rate, rent distribution by region, monthly rent by region. Additionally, two filters provide the 5 home types for the overall rent and the region rent respectively. One home type can be selected at a time. If the home type changes, these charts change accordingly.

Line Chart: 2017 Texas Monthly Rent

This line chart shows the monthly rent in 2017. It also can display the rent change across the year. For example in Figure 2, the monthly rent for 2-bedroom apartments in Texas does not

change much. We can see a slight increase and then a slight decrease, and the monthly rent is above \$1200.

Figure 2: Texas Monthly Rent for 2-Bedroom Apartments



Bar Chart: 2017 Month-to-Month Growth Rate

This bar chart exhibits how the rent changes compared to the rent in the previous month.

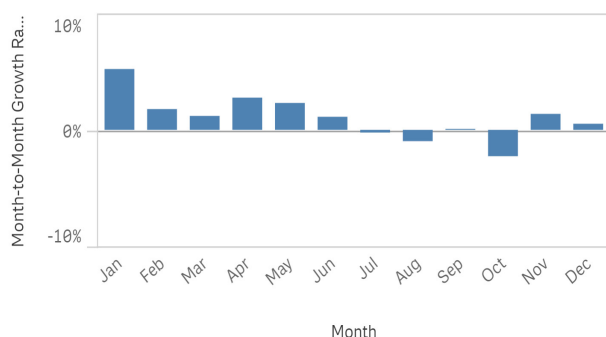
Figure 1: The Dashboard

2017 Rental Information for Students in Texas



The chart is also helpful when the rent change in the line chart above is not obvious. For example in Figure 3, from January to June, the rent keeps increasing. January has the highest growth rate. From July to October, the rent remains the same or decreases. We can infer that two-bedroom apartments are popular during the first half year of 2017. Students who move in to a two-bedroom apartment in the second half year may get the best price.

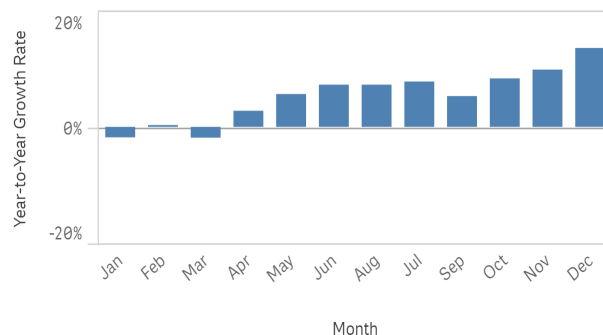
Figure 3: Month-to-Month Growth Rate for 2-Bedroom Apartments



Bar Chart: 2017 Year-to-Year Growth Rate

This bar chart displays how the rent changes compared to the rent in the same month in the previous year. We can see the rent changes from year to year and make informed predictions about the future. For example, Figure 4 indicates that except the first three months, the rents in other months all increase compared to 2016. December has the highest growth rate, almost 15%. This change is substantial. We can infer that maybe the rent in the second half of 2018 will increase on the base of the rent in 2017.

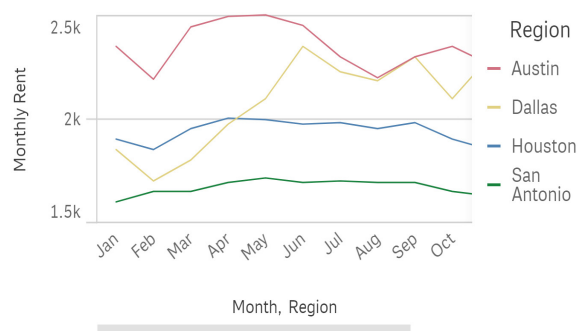
Figure 4: Year-to Year Growth Rate for 2-Bedroom Apartments



Line Chart: 2017 Region Monthly Rent

This chart shows the 2017 monthly rent in the four largest cities. We also can compare the rent in these cities. For example, Figure 5 displays that the rents for 4-bedroom apartments in Austin and Dallas change greatly. The rents in Houston and San Antonio are relatively stable. Austin has the highest rent and San Antonio has the lowest rent. Maybe Austin is developing, many people move into this city to study or work, so the rent is higher. Students can choose which city to live in or study based on the information the chart provides.

Figure 5: Region Monthly Rent for 4-Bedroom Apartments

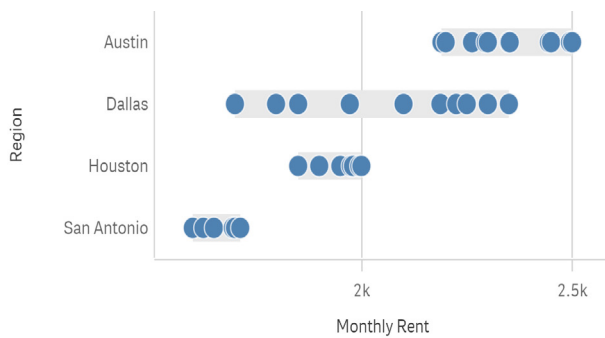


Distribution Chart: 2017 Rent Distribution by Region

The first distribution chart shows how stable the rent is. For example, Figure 6 indicates the rent for

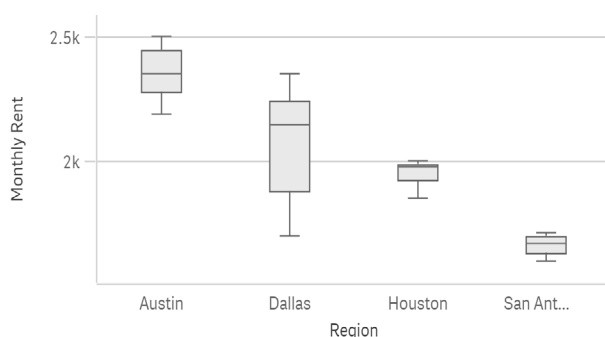
4-bedroom apartments in San Antonio is more stable, but the rent for 4-bedroom in Dallas fluctuates more. Combined with the previous region monthly rent line chart, we can analyze that maybe the demand for 4-bedroom apartments is largely increased, which causes the substantial increase in rent.

Figure 6: Rent Distribution by Region I



The second distribution chart shows the range of the rent precisely. For example, Figure 7 indicates the rent for 4-bedroom apartments in Austin is from \$2190 to \$2500. A price that is largely higher or lower than this range may not be reliable.

Figure 7: Rent Distribution by Region II



Why does the dashboard display the information the way it does?

In this information dashboard, I use line charts, bar charts, distribution charts and filters to display the rental information. The two line charts have month as dimension and monthly rent as measure. 12 dots that represent 12 monthly rents are linked by a line. A line chart can show the trend of the rent in a year. The two bar charts have month as dimension, month-to-month growth rate or year-to-year growth rate as measure. They display how the rent changes clearly. The two distribution charts exhibit the range of rent, the lowest or highest rent, and the median rent. Two filters are available to select one home type at once, which allows the dashboard to display the rental information for different home types.

Why does the dashboard include the information that it does?

The data used to make the dashboard includes 2017 median monthly rent in Texas and 2017 median monthly rent in 4 largest cities in Texas. 5 popular home types are selected. The rent in different months, the rent in different locations, and the rent for different home types are all available. Besides, month-to-month growth rate and year-to-year growth rate are calculated and presented in bar charts, so the changes of the rent are included. By changing filters, the charts can display the rental information from different perspectives.

Information considered but not included

I considered showing the rent change by calculating the difference of the rent of December and the rent of January. But later I found, in many cases, the rent of December equals the rent of January. The rent does not increase all the time. So the difference of the

rent at the start of the year and at the end of the year does not provide much information.

Conclusion

The dashboard presents the rental information for students in Texas from both statewide and local aspects. The analysis and insights covered in this report will help students to understand what they can infer from the rent or the change of the rent. Although the dashboard does not capture the rental information in the past years, it will significantly aid students who want to rent apartments in Texas.

Reference:

The three pictures on the cover are from:
<https://www.facebook.com/Zillow/>