City of Austin Community Perception and Satisfaction Analysis

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ABSTRACT

Austin, Texas is often quoted as one of the best cities to live in within the United States. It is important that the city focuses on key issues to continue to be progressive. The City of Austin performs an annual community survey to assess the residents' satisfaction level with the city. The objective of this paper is to identify which areas are causing the most dissatisfaction for the City of Austin as a place to live for residents by using SAS® Enterprise Miner. The dataset is comprised of over 6,300 responses and 55 variables from 2015 to 2017. The residents of Austin that were selected to take this survey were chosen randomly. The survey covers a broad spectrum of categories such as perception of the community, personal safety, infrastructure, and environmental services. By determining the services that are causing the most dissatisfaction for the city's residents, the City of Austin can be proactive in taking measures to rectify and improve the identified areas of discontent. The city can use these results to focus budgets, improve services for residents, and improve the lives of those who live within the Austin city limits.

Introduction

Austin, the capital of Texas, is the fourth largest city in the state of Texas. According to the world population review, the metropolitan area contains over 2 million people. The number is rapidly growing. Other city sectors like construction, commercial businesses, and residential areas, have simultaneously increased growth to support the rapidly increasing population. Each year, the City of Austin conducts a survey to assess the overall level of satisfaction or dissatisfaction of its residents. The survey measures satisfaction levels over a wide array of topics. These topics range from public services offered by the city like public transportation and the library system, to the individual's personal feelings towards the city such as how he or she views Austin as a place to raise children, work, retire, and his or her overall outlook as feeling a part of the community. By analyzing the results of the survey, the City of Austin can discover insights into the population's opinion on which areas of Austin need improvement.

Data Background

This dataset is freely available on the city of Austin website. The survey is randomly distributed to residents of Austin. The survey helps the city of Austin to improve their services and to meet needs related to health, safety, mobility, economic opportunity, culture, learning, and government efficiency. The data is sourced from the 2015-2017 and has over 6,300 observations and 55 variables.

Data Preparation

I downloaded the dataset from the city of Austin's website into an excel file. The responses were available in text format ranging from "Very Dissatisfied" to "Very Satisfied" and were ranked from 1 - 5. I dummy coded male and female to 1 and 0. I transformed the text results into responses from 1 - 5 and used the number 9 for a response of "Don't Know". There were 156 variables initially downloaded from the website, but I was able to reduce the variables to 55. I removed any variables that contained a large amount of missing results or variables that were similar in nature to other remaining questions. I used the vlookup function with the key shown in Figure 1.1 to transform the text from results to numeric responses for data analysis. My dataset contained 55 variables and 6,374 observations when it was ready to be imported into SAS® Enterprise Miner. I used the file import node to import the excel file into SAS® Enterprise Miner.

Transformations			Age	
Strongly Agree	Very Satisfied	5	18-34 years	1
Agree	Satisfied	4	35-44 years	2
Neutral	Neutral	3	45-54 years	3
Disagree	Dissatisfied	2	55-64 years	4
Strongly Disagree	Very Dissatisfied	1	65+ years	5
Don't Know	Don't Know	9	Not provided	6
Race			**Income**	
Hispanic		1	$40K-59,999	1
African American Only		2	$60K-79,999	2
Caucasian/White Only		3	$80K-149,999	3
Other		4	less than $20K	4
Asian/Pacific Islander Only		5	$20K-39,999	5
American Indian Only		6	$150K or more	6
			Not provided	7
Gender				
male		1		
Female		0		

Figure 1.1

Data Exploration

Descriptive statistics were initially conducted to form a basis of understanding of the data.

Interval Variable Summary Statistics

Variable	Label	Missing	N	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Animal_services	Animal services	0	6374	1	9	4.64	2.200	1.1092	0.11
Availability_of_affordable_housi	Availability of affordable housing for low/moderate income families	0	6374	1	9	3.81	2.985	0.9326	-0.72
Do_you_own_or_rent_your_home_	Do you own or rent your home?	0	6374	0	1	0.72	0.448	-0.9913	-1.02
Employees_of_the_City_ofAustin_a	Employees of the City ofAustin are ethical in the way they conduct City business.	0	6374	1	9	4.57	2.332	0.9652	-0.13
Energy_Conservation_program	Energy Conservation program	0	6374	1	9	4.32	2.178	1.2233	0.59
Enforcement_of_local_traffic_law	Enforcement of local traffic laws	0	6374	1	9	3.89	1.935	1.4471	2.06
Flood_control_efforts	Flood control efforts	0	6374	1	9	4.15	2.261	1.2407	0.56
Food_Safety_Inspection_program	Food Safety Inspection program	0	6374	1	9	5.90	2.869	0.0405	-1.77
How_many_dependents__including_y	How many dependents (including yourself) did your household claim on its most recentfederal taxes?	36	6338	0	5	1.97	1.247	0.5837	-0.09
I_feel_safe_in_my_neighborhood_a	I feel safe in my neighborhood at night	0	6374	1	9	3.89	1.165	0.0944	2.96
I_feel_safe_in_my_neighborhood_d	I feel safe in my neighborhood during the day	0	6374	1	9	4.37	0.905	0.2343	7.09
Library_hours	Library hours	0	6374	1	9	5.06	2.471	0.7188	-0.94
Medical_assistance_provided_by_E	Medical assistance provided by EMS	0	6374	1	9	5.57	2.282	0.6538	-1.15
Neighborhood_planning_zoning_eff	Neighborhood planning/zoning efforts	0	6374	1	9	4.39	2.870	0.7520	-0.98
Number_of_City_of_Austin_parks	Number of City of Austin parks	0	6374	1	9	4.22	1.586	1.5217	3.38
Overall_effectiveness_of_communi	Overall effectiveness of communication	0	6374	1	9	3.59	1.801	1.6910	3.34
Overall_management_of_stormwater	Overall management of stormwater runoff	0	6374	1	9	3.83	2.010	1.4815	1.91
Overall_quality_of_Austin_Energy	Overall quality of Austin Energy	0	6374	1	9	3.94	1.653	1.2725	3.03
Overall_quality_of_city_librarie	Overall quality of city libraries	0	6374	1	9	4.81	2.123	1.0918	0.09
Overall_quality_of_city_parks_an	Overall quality of city parks and recreation	0	6374	1	9	4.14	1.416	1.5512	4.72
Overall_quality_of_customer_serv	Overall quality of customer service	0	6374	1	9	4.33	1.991	1.3690	1.26
Overall_quality_of_drinking_wate	Overall quality of drinking water	0	6374	1	9	4.05	1.225	0.9734	5.02
Overall_quality_of_fire_services	Overall quality of fire services	0	6374	1	9	5.36	2.162	0.8874	-0.75
Overall_quality_of_health_and_hu	Overall quality of health and human services	0	6374	1	9	4.79	2.592	0.7773	-0.89
Overall_quality_of_municipal_cou	Overall quality of municipal court services	0	6374	1	9	4.86	2.645	0.6979	-1.03
Overall_quality_of_police_servic	Overall quality of police services	0	6374	1	9	4.20	1.677	1.4873	2.95
Overall_quality_of_public_safety	Overall quality of public safety services	0	6374	1	9	4.16	1.491	1.5349	4.16
Overall_quality_of_services	Overall quality of services	0	6374	1	9	3.52	1.333	1.3749	5.42
Overall_quality_of_the_Airport	Overall quality of the Airport	0	6374	1	9	4.27	1.299	1.6806	5.61
Overall_quality_of_wastewater_se	Overall quality of wastewater services	0	6374	1	9	4.05	1.526	1.5057	3.97
Overall_satisfaction_with_City_o	Overall satisfaction with City of Austin swimming pools	0	6374	1	9	5.10	2.662	0.5589	-1.22
Overall_value__tax_dollars_and_f	Overall value tax dollars and fees	0	6374	1	9	3.21	1.624	1.5722	4.12
Quality_of_residential_garbage_c	Quality of residential garbage collection	0	6374	1	9	4.34	1.386	1.4565	4.67
Quality_of_youth_athletic_progra	Quality of youth athletic programs offered	0	6374	1	9	6.22	2.849	-0.1502	-1.77
Race_Ethnicity_Recode	Race/Ethnicity Recode	0	6374	1	6	2.35	1.162	0.2824	-0.54
Services_provided_by_the_City_s	Services provided by the City's 3-1-1 assistance telephone number	0	6374	1	9	5.06	2.276	0.8269	-0.56
Speed_of_police_response	Speed of police response	0	6374	1	9	5.08	2.455	0.6862	-0.90
The_water_quality_of_lakes_and_s	The water quality of lakes and streams	0	6374	1	9	4.19	2.039	1.3989	1.29
Timeliness_of_EMS_response_to_em	Timeliness of EMS response to emergency location	0	6374	1	9	5.66	2.322	0.5720	-1.29
Timeliness_of_fire_department_re	Timeliness of fire department response to emergency location	0	6374	1	9	5.70	2.323	0.5526	-1.34
Traffic_flow_on_major_city_stree	Traffic flow on major city streets	0	6374	1	9	2.27	1.450	2.2968	7.90
Traffic_flow_on_major_highways	Traffic flow on major highways	0	6374	1	9	4.12	3.575	0.5685	-1.57
What_is_your_gender_	What is your gender?	0	6374	0	1	0.48	0.500	0.0672	-2.00
Which_of_the_following_best_des1	Which of the following best describes your annual household income?	0	6374	1	7	3.67	1.902	0.2082	-1.16
Which_of_the_following_best_desc	Which of the following best describes your AGE?	0	6374	1	6	2.98	1.408	0.0609	-1.21
Year	Year	0	6374	2015	2017	2016.02	0.819	-0.0448	-2.82
Zip_Code	Zip Code	0	6374	78613	99999	78739.39	267.079	79.1650	6302.57
_place_to_raise_children	place to raise children	0	6374	1	9	4.74	2.129	1.0312	0.17
_place_to_retire	place to retire	0	6374	1	9	4.04	2.361	1.0243	0.23
_planning_growth	planning growth	0	6374	1	9	2.57	1.781	2.0278	4.86
place_to_live	place to live	0	6374	1	9	4.07	1.112	0.3082	4.55
place_to_work	place to work	0	6374	1	9	4.17	1.344	1.3473	4.80

Figure 1.2

I used the data mining database node shown in Figure 1.2 to see the number of missing results, the mean, the skewness, and the kurtosis. As you can see in Figure 1.2, the results for "Traffic flow on major city streets" and how well the city is "planning growth" scored very poor. Austin needs to focus on planning growth, which in turn, will positively affect traffic flow on major streets. Shown below in Figure 1.3 is a histogram of the results for the target variable, Austin, as a place to live.
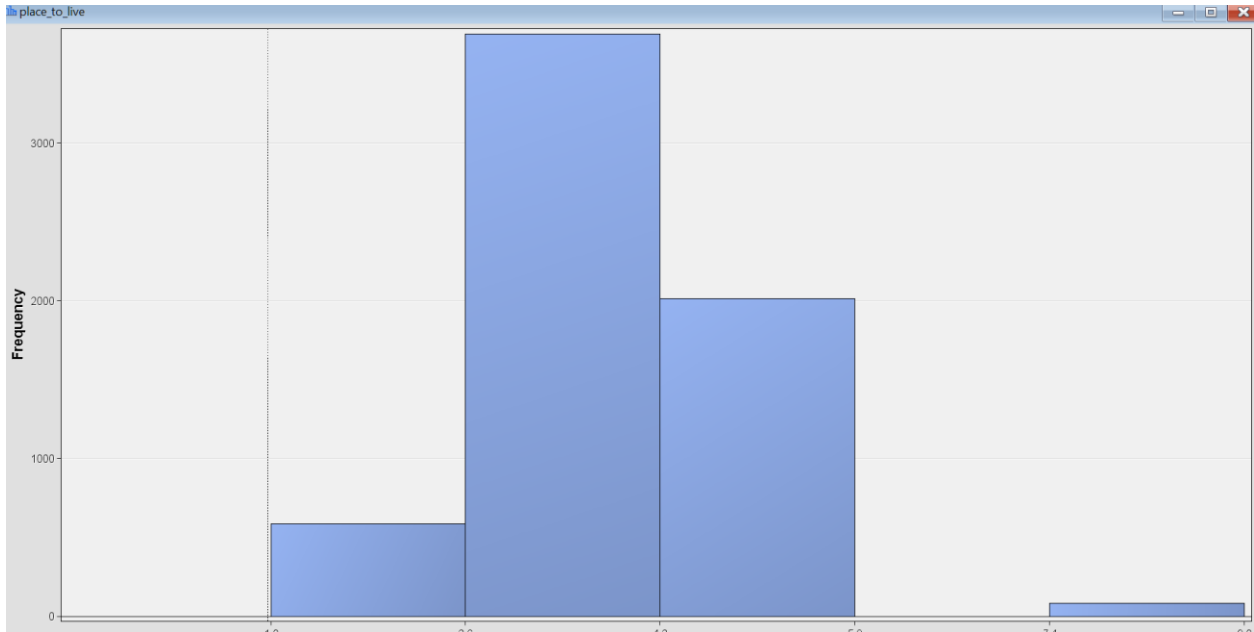
Figure 1.3

The graph shown in Figure 1.4 illustrates the correlation of the independent variables to the dependent variable, which is a place to live.

Figure 1.4

Shown in Figure 1.5 is the variable worth of each independent variable to the dependent variable.

Figure 1.5

Both "traffic flow on major city streets" and "planning growth" as depicted in Figure 1.6 and Figure 1.7 have low results and are areas in which the City of Austin needs to focus its budget and attention.
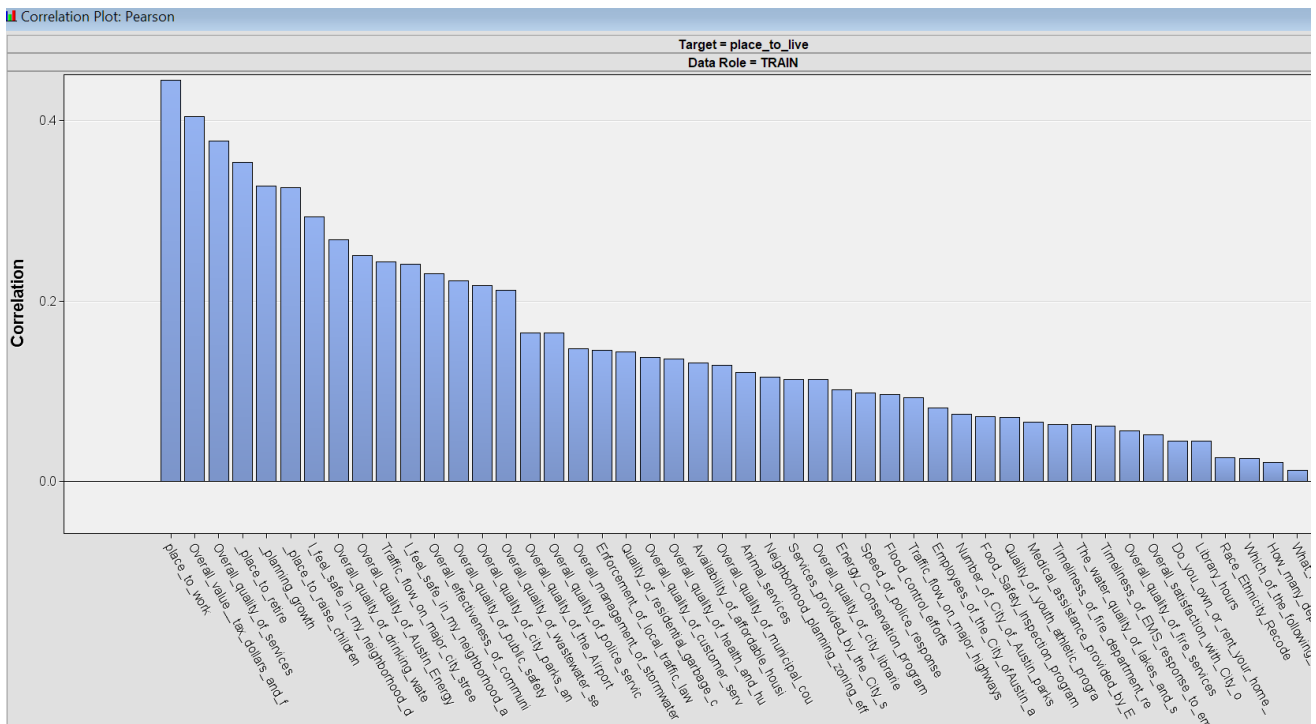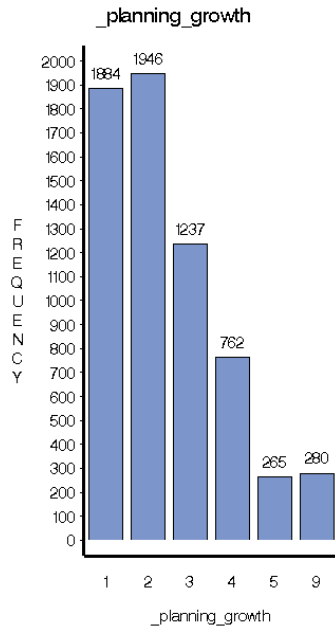

Figure 1.6

_planning_growth

Figure 1.7

In the output from the variable selection node shown in Figure 1.8, you can observe which variables were not selected by the R-square value due to insufficiency.

```
                    R-Squares for Target Variable: place_to_live

Effect                                            DF        R-Square

AOV16: _place_to_raise_children                    5        0.315725
AOV16: place_to_work                               5        0.273464
AOV16: _place_to_retire                            5        0.270764
AOV16: Overall_value__tax_dollars_and_f            5        0.214152
Var:   place_to_work                               1        0.198181
AOV16: Overall_quality_of_services                 5        0.165153
Var:   Overall_value__tax_dollars_and_f            1        0.163856
AOV16: _planning_growth                            5        0.152089
Var:   Overall_quality_of_services                 1        0.142400
Var:   _place_to_retire                            1        0.125244
AOV16: Overall_effectiveness_of_communi            5        0.110224
Var:   _planning_growth                            1        0.107211
Var:   _place_to_raise_children                    1        0.105862
AOV16: I_feel_safe_in_my_neighborhood_d            5        0.090093
AOV16: Overall_quality_of_Austin_Energy            5        0.089348
AOV16: Overall_quality_of_city_parks_an            5        0.087054
Var:   I_feel_safe_in_my_neighborhood_d            1        0.086108
AOV16: Overall_quality_of_drinking_wate            5        0.081840
AOV16: Overall_quality_of_wastewater_se            5        0.081574
AOV16: Overall_quality_of_public_safety            5        0.077528
AOV16: Traffic_flow_on_major_city_stree            5        0.072696
Var:   Overall_quality_of_drinking_wate            1        0.071941
AOV16: Overall_quality_of_health_and_hu            5        0.071697
AOV16: Overall_quality_of_the_Airport             5        0.070485
AOV16: Overall_quality_of_municipal_cou            5        0.063966
AOV16: I_feel_safe_in_my_neighborhood_a            5        0.063556
AOV16: Overall_quality_of_customer_serv            5        0.062695
Var:   Overall_quality_of_Austin_Energy            1        0.062533
Var:   Traffic_flow_on_major_city_stree            1        0.059148
Var:   I_feel_safe_in_my_neighborhood_a            1        0.057781
AOV16: Neighborhood_planning_zoning_eff            5        0.057420
AOV16: Energy_Conservation_program                 5        0.055096
Var:   Overall_effectiveness_of_communi            1        0.053013
AOV16: Overall_management_of_stormwater            5        0.052131
AOV16: Overall_quality_of_police_servic            5        0.049778
Var:   Overall_quality_of_public_safety            1        0.049489
Var:   Overall_quality_of_city_parks_an            1        0.046975
AOV16: Quality_of_residential_garbage_c            5        0.046615
AOV16: Animal_services                             5        0.045769
AOV16: Enforcement_of_local_traffic_law            5        0.045616
Var:   Overall_quality_of_wastewater_se            1        0.044825
AOV16: Overall_quality_of_city_librarie            5        0.043794
AOV16: Traffic_flow_on_major_highways              5        0.041551
AOV16: Number_of_City_of_Austin_parks             5        0.039077
AOV16: The_water_quality_of_lakes_and_s            5        0.038885
AOV16: Flood_control_efforts                       5        0.036750
AOV16: Services_provided_by_the_City_s             5        0.036345
AOV16: Availability_of_affordable_housi            5        0.035128
AOV16: Overall_satisfaction_with_City_o            5        0.033335
AOV16: Employees_of_the_City_ofAustin_a            5        0.032690
AOV16: Food_Safety_Inspection_program             5        0.030375
AOV16: Speed_of_police_response                    5        0.027880
Var:   Overall_quality_of_the_Airport             1        0.027008
Var:   Overall_quality_of_police_servic            1        0.026936
Var:   Overall_management_of_stormwater            1        0.021626
Var:   Enforcement_of_local_traffic_law            1        0.021205
AOV16: Quality_of_youth_athletic_progra            5        0.020541
Var:   Quality_of_residential_garbage_c            1        0.020539
AOV16: Library_hours                               5        0.019203
Var:   Overall_quality_of_customer_serv            1        0.018825
Var:   Overall_quality_of_health_and_hu            1        0.018505
AOV16: Medical_assistance_provided_by_E            5        0.018257
Var:   Availability_of_affordable_housi            1        0.017168
AOV16: Timeliness_of_fire_department_re            5        0.017150
AOV16: Overall_quality_of_fire_services            5        0.017054
AOV16: Timeliness_of_EMS_response_to_em            5        0.016669
Var:   Overall_quality_of_municipal_cou            1        0.016523
Var:   Animal_services                             1        0.014632
Var:   Neighborhood_planning_zoning_eff            1        0.013344
Var:   Services_provided_by_the_City_s             1        0.012831
Var:   Overall_quality_of_city_librarie            1        0.012690
AOV16: Which_of_the_following_best_desl            6        0.012539
Var:   Energy_Conservation_program                 1        0.010217
Var:   Speed_of_police_response                    1        0.009634
Var:   Flood_control_efforts                       1        0.009182
Var:   Traffic_flow_on_major_highways              1        0.008563
Var:   Employees_of_the_City_ofAustin_a            1        0.006682
Var:   Number_of_City_of_Austin_parks             1        0.005476
Var:   Food_Safety_Inspection_program             1        0.005105
Var:   Quality_of_youth_athletic_progra            1        0.005018
Var:   Medical_assistance_provided_by_E            1        0.004256
Var:   Timeliness_of_fire_department_re            1        0.003994
Var:   The_water_quality_of_lakes_and_s            1        0.003980
Var:   Timeliness_of_EMS_response_to_em            1        0.003758
AOV16: Which_of_the_following_best_desc            5        0.003340
Var:   Overall_quality_of_fire_services            1        0.003137
Var:   Which_of_the_following_best_desc            1        0.002721
Var:   Overall_satisfaction_with_City_o            1        0.002688
AOV16: Race_Ethnicity_Recode                       5        0.002284
AOV16: How_many_dependents__including_y            5        0.002220
Var:   Do_you_own_or_rent_your_home_               1        0.002010
AOV16: Do_you_own_or_rent_your_home_               1        0.002010
Var:   Library_hours                               1        0.001957
AOV16: Year                                        2        0.001866
Var:   Year                                        1        0.001798
Var:   Race_Ethnicity_Recode                       1        0.000696
Var:   Which_of_the_following_best_desl            1        0.000625
Var:   How_many_dependents__including_y            1        0.000435
Var:   What_is_your_gender_                        1        0.000158
AOV16: What_is_your_gender_                        1        0.000158
```

Figure 1.8

Model Building

To predict whether living in Austin will be ranked as "very dissatisfied" to "very satisfying" as a place to live, different models were built using SAS® Enterprise Miner.
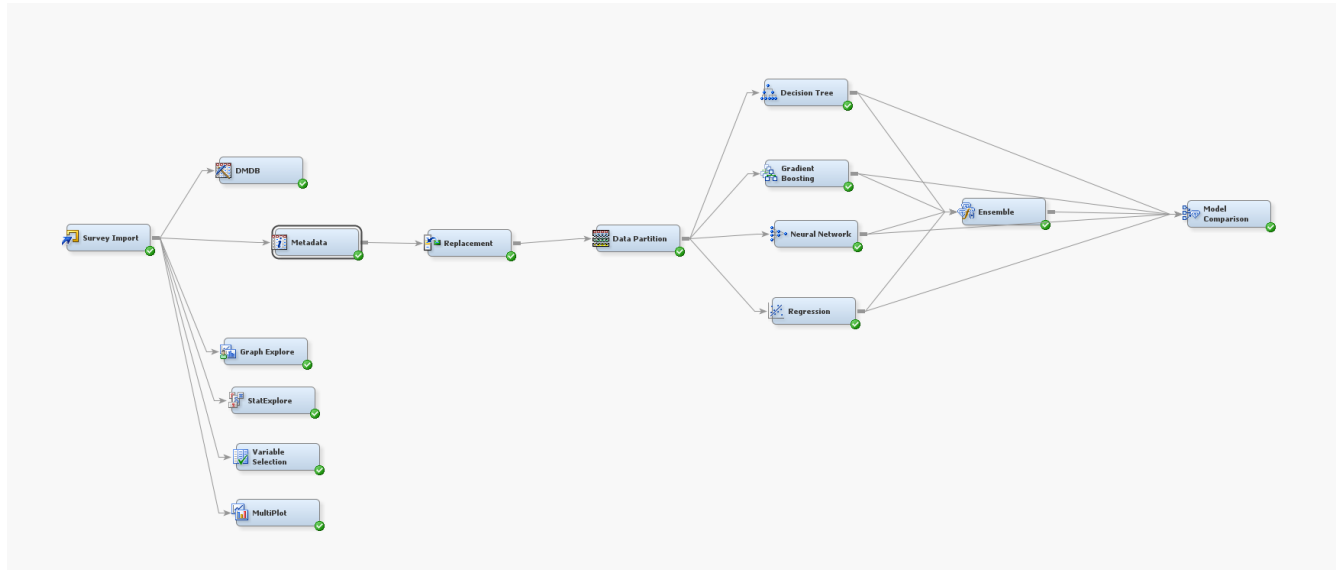

Figure 1.9

I used the metadata node to reject the zip code variable as it had too many levels of observations. I used the replacement node to replace any missing values in the dataset. I partitioned the dataset to contribute 50% to training and 50% to validation. The variables shown in Figure 2.1 are those that flowed through the data partitioned node and were used in the models.

Name	Role △	Level
dataobs	ID	Interval
REP_Overall_quality_of_drinking	Input	Interval
REP_Overall_quality_of_customer	Input	Interval
REP_Overall_quality_of_fire_serv	Input	Interval
REP_Overall_quality_of_city_libr	Input	Interval
REP_Overall_quality_of_Austin_En	Input	Interval
REP_Overall_quality_of_city_park	Input	Interval
REP_Overall_quality_of_public_sa	Input	Interval
REP_Overall_quality_of_police_se	Input	Interval
REP_Overall_quality_of_services	Input	Interval
REP_Overall_quality_of_health_an	Input	Interval
REP_Overall_quality_of_municipal	Input	Interval
REP_I_feel_safe_in_my_neighborho	Input	Interval
REP_How_many_dependents__includi	Input	Interval
REP_Library_hours	Input	Interval
REP_Flood_control_efforts	Input	Interval
REP_Food_Safety_Inspection_progr	Input	Interval
REP_Overall_effectiveness_of_com	Input	Interval
REP_Number_of_City_of_Austin_par	Input	Interval
REP_Overall_management_of_stormw	Input	Interval
REP_Medical_assistance_provided	Input	Interval
REP_Neighborhood_planning_zoning	Input	Interval
REP_What_is_your_gender	Input	Interval
REP_Traffic_flow_on_major_highwa	Input	Interval
REP_Which_of_the_following_best	Input	Interval
REP_Timeliness_of_fire_departmen	Input	Interval
REP_Timeliness_of_EMS_response_t	Input	Interval
REP_Traffic_flow_on_major_city_s	Input	Interval
REP__planning_growth	Input	Interval
REP__place_to_retire	Input	Interval
REP_place_to_work	Input	Interval
REP_Year	Input	Interval
REP__place_to_raise_children	Input	Interval
REP_Overall_value__tax_dollars_a	Input	Interval
REP_Overall_satisfaction_with_Ci	Input	Interval
REP_Quality_of_residential_garba	Input	Interval
REP_Overall_quality_of_the_Airpo	Input	Interval
REP_Overall_quality_of_wastewate	Input	Interval
REP_Speed_of_police_response	Input	Interval
REP_Services_provided_by_the_Cit	Input	Interval
REP_The_water_quality_of_lakes_a	Input	Interval
REP_Quality_of_youth_athletic_pr	Input	Interval
REP_Race_Ethnicity_Recode	Input	Interval
REP_Do_you_own_or_rent_your_home	Input	Interval
REP_Dup2	Input	Interval
REP_Animal_services	Input	Interval
REP_Availability_of_affordable_h	Input	Interval
REP_Energy_Conservation_program	Input	Interval
REP_Enforcement_of_local_traffic	Input	Interval
REP_Dup4	Input	Interval
REP_Employees_of_the_City_ofAust	Input	Interval

Figure 2.1

The models built were a decision tree, gradient boosting, neural network, and a logistic regression. As you can see in Figure 2.2, the decision tree shows the two most important variables being a "place to raise children" followed by a "place to work".

```
Variable Importance


                                                                    Number of
                                                                    Splitting                      Validation
Variable Name                    Label                                Rules      Importance        Importance

REP__place_to_raise_children     Replacement: place to raise children    10        1.0000            1.0000
REP_place_to_work                Replacement: place to work               4        0.6336            0.7102
REP__place_to_retire             Replacement: place to retire             4        0.6268            0.6306
REP_Overall_quality_of_services  Replacement: Overall quality of services 1        0.5219            0.3360
REP_Overall_value__tax_dollars_a Replacement: Overall value  tax dollars and fees  5  0.2217         0.1971
REP_Dup2                         Replacement: I feel safe in my neighborhood during the day  1  0.1823  0.0513
REP_Overall_quality_of_police_se Replacement: Overall quality of police services  1  0.0789          0.0497
REP_Overall_effectiveness_of_com Replacement: Overall effectiveness of communication  1  0.0655      0.0658
```

Figure 2.2

The gradient boosting model came to the same conclusion as the decision tree, showing that the most important variables are a "place to raise children" followed by a "place to work", to predict the score of a "place to live" for the city of Austin. The logistic regression chose the variables in Figure 2.3 in the stepwise selection.

Summary of Stepwise Selection

Step	Effect Entered	DF	Number In	F Value	Pr > F
1	REP_place_to_work	1	1	873.93	<.0001
2	REP_Overall_value__tax_dollars_a	1	2	414.20	<.0001
3	REP__place_to_retire	1	3	157.31	<.0001
4	REP__planning_growth	1	4	97.97	<.0001
5	REP_Dup2	1	5	79.88	<.0001
6	REP_Overall_quality_of_drinking_	1	6	45.25	<.0001
7	REP__place_to_raise_children	1	7	43.59	<.0001
8	REP_The_water_quality_of_lakes_a	1	8	24.18	<.0001
9	REP_Overall_quality_of_services	1	9	24.81	<.0001
10	REP_Do_you_own_or_rent_your_home	1	10	22.07	<.0001
11	REP_Traffic_flow_on_major_city_s	1	11	18.50	<.0001
12	REP_Speed_of_police_response	1	12	15.78	<.0001
13	REP_Overall_quality_of_Austin_En	1	13	5.99	0.0145
14	REP_Overall_satisfaction_with_Ci	1	14	7.00	0.0082
15	REP_Availability_of_affordable_h	1	15	8.37	0.0038
16	REP_Food_Safety_Inspection_progr	1	16	5.62	0.0178
17	REP_Dup4	1	17	5.08	0.0242

Figure 2.3

All the models were conjoined to create an ensemble model, and each model, as well as the ensemble model, were flowed into a model comparison node to determine the model that best accurately predicted the ranking of a "place to live", shown in Figure 2.4.

Selected Model	Predecessor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion: Valid: Average Squared Error
Y	Ensmbl	Ensmbl	Ensemble	place to live	place to live	0.624971
	Tree	Tree	Decision Tree	place to live	place to live	0.641678
	Boost	Boost	Gradient Boosting	place to live	place to live	0.706362
	Neural	Neural	Neural Network	place to live	place to live	0.706678
	Reg	Reg	Regression	place to live	place to live	0.746088

Figure 2.4

The ensemble model, using the fit statistic of average square value, was chosen because it produced the lowest average squared error.

Conclusion

The City of Austin is growing at a very fast pace and needs to be managed in a proper and organized manner. The overall ratings of the City of Austin show that it is doing very well as a place to live. The results show that the city should focus on improving traffic flow on city streets as well as improve strategy for city growth and planning. These two variables are correlated as follows: if traffic flow improves, there will be a perception that the City is planning growth more effectively. A good predictive model can help city council focus on what is important to the citizens of the city, and what is already sufficient in the cities organizational principles for managing the city. To continue to reach these extremely valuable opinions from residents of Austin, this survey should continue to be distributed annually. By being consistent in the random distribution of the survey to Austin residents, all voices in the city can be heard, and growth of certain variables can be tracked closely. All of these factors will lead to sufficient and steady progress for the city of Austin.

Further Scope

Run models on certain demographic sections of the observations that can be used to determine what the key variables are in different segments of the dataset. This would allow the city council to be able to understand the problems that exist for subsections of the city.

References

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