

## INTRODUCTION

The purpose of the of this report is elementing statistics in the company "Amazing Sports Australia Ltd (ASAL)". An online e-store. ASAL specializes in selling a wide range of branded and non-branded sports products, which are broadly categorized as (i) Equipment, (ii) Apparel, and (iii) Footwear. The company has recently launched a shopping mobile app and is concerned about its effectiveness in increasing sales and promoting its products. The management team aims to understand customer spending patterns and behavior with the ultimate goal of optimizing the app usage and enhancing sales by means of **supported by Deskriptive statistic and visual representation**, with recommendations and solutions to be offered to the company.

## SUMMARY STATISTIC

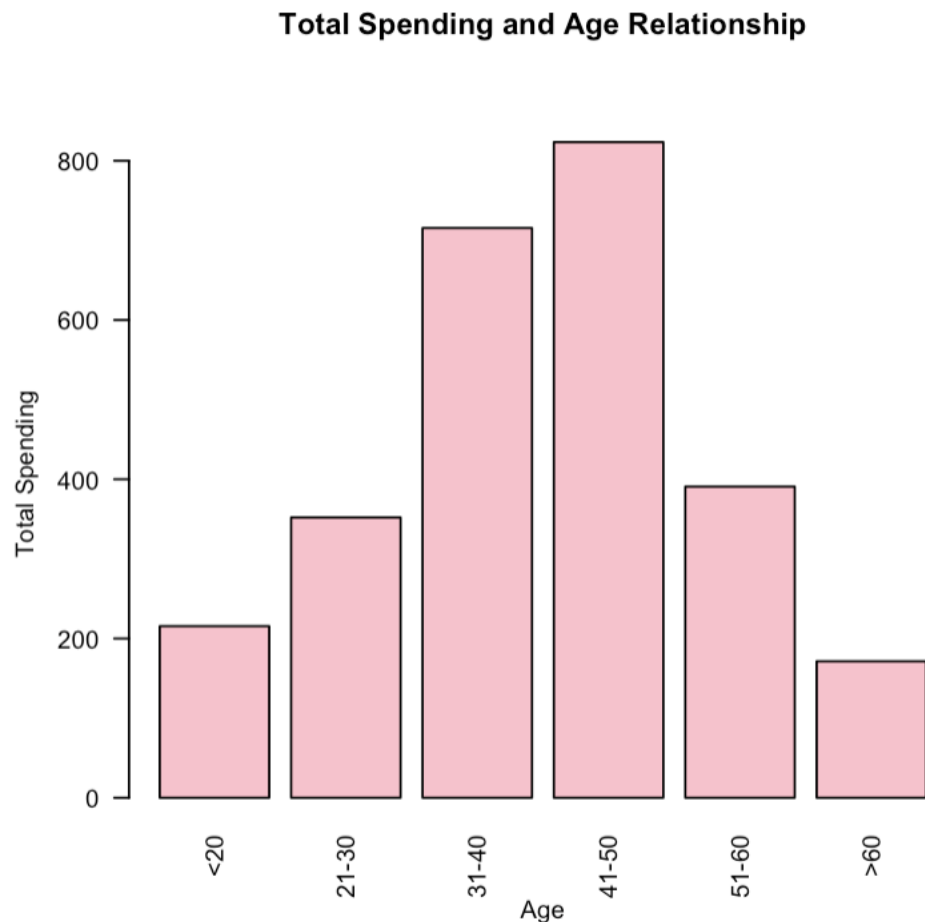
In summary statistics can be seen using descriptive statistics that function to see patterns and behavior from the data used, in this case data obtained from the company "Amazing Sports Australia Ltd (ASAL)" for analysis used 4 selected variables, namely Age, State, Gender, Shoooping Duration, And Total Spend. The first thing to do is look at the following descriptive statistics:

**Figure 1. Descriptive Statistic**

C_ID Length:2000 Class :character Mode :character	C_TotalSpend Min. : 85.0 1st Qu.: 207.0 Median : 490.0 Mean : 634.5 3rd Qu.:1030.0 Max. :2208.0	C_Gender Length:2000 Class :character Mode :character	C_Age Min. :18.00 1st Qu.:29.00 Median :34.00 Mean :34.25 3rd Qu.:39.00 Max. :66.00	C_State Length:2000 Class :character Mode :character
C_Area Length:2000 Class :character Mode :character	C_Product Length:2000 Class :character Mode :character	C_DeviceType Length:2000 Class :character Mode :character	C_ShoppingDuration Min. : 3.00 1st Qu.: 8.00 Median :14.00 Mean :15.58 3rd Qu.:22.00 Max. :45.00	C_TimeOfShopping Length:2000 Class :character Mode :character
App_SatisfactionRating Length:2000 Class :character Mode :character	App_Tenure Min. : 2.00 1st Qu.: 9.00 Median :16.00 Mean :15.95 3rd Qu.:23.00 Max. :30.00	App_Referral Min. : 0.00 1st Qu.: 0.00 Median : 0.00 Mean : 1.79 3rd Qu.: 0.00 Max. :16.00	App_Promotion Length:2000 Class :character Mode :character	

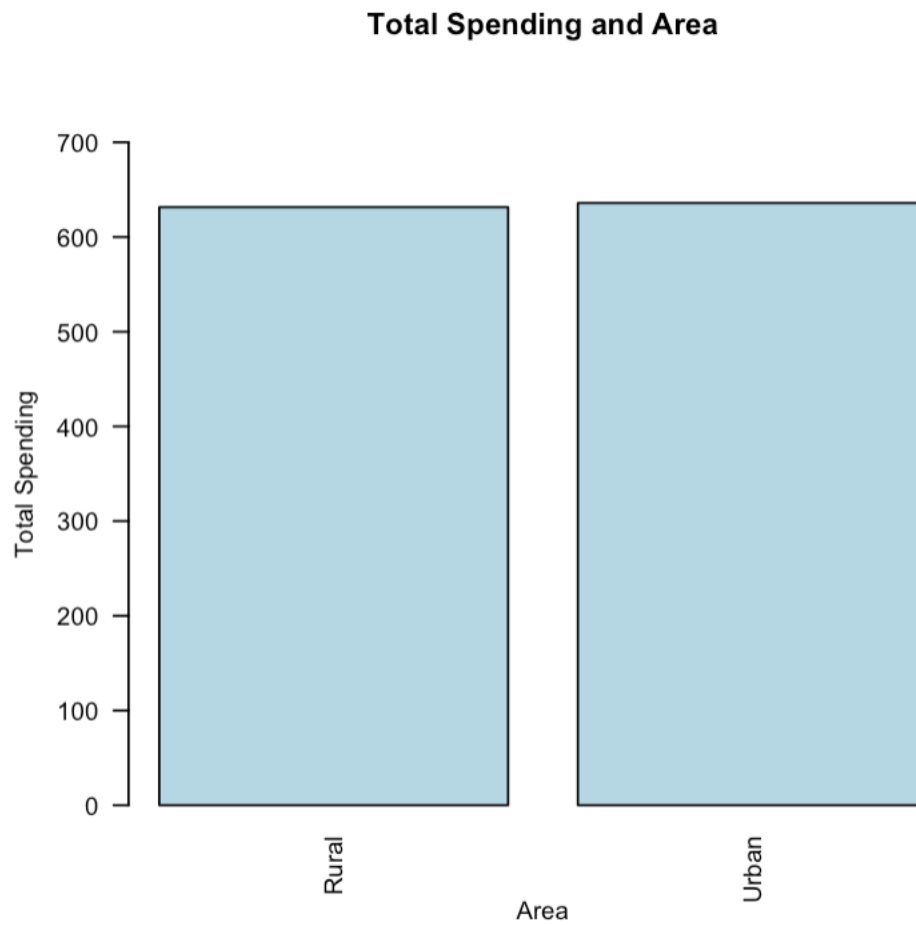
From Figure 1, it can be seen how the distribution of data from the four variables used, such as median, Mean, Maximum, minimum, Quartile 1, and Quartil 3 from the selected data. More details can be seen in Figure 2 below.

**Figure 2. Total Spending and Age**



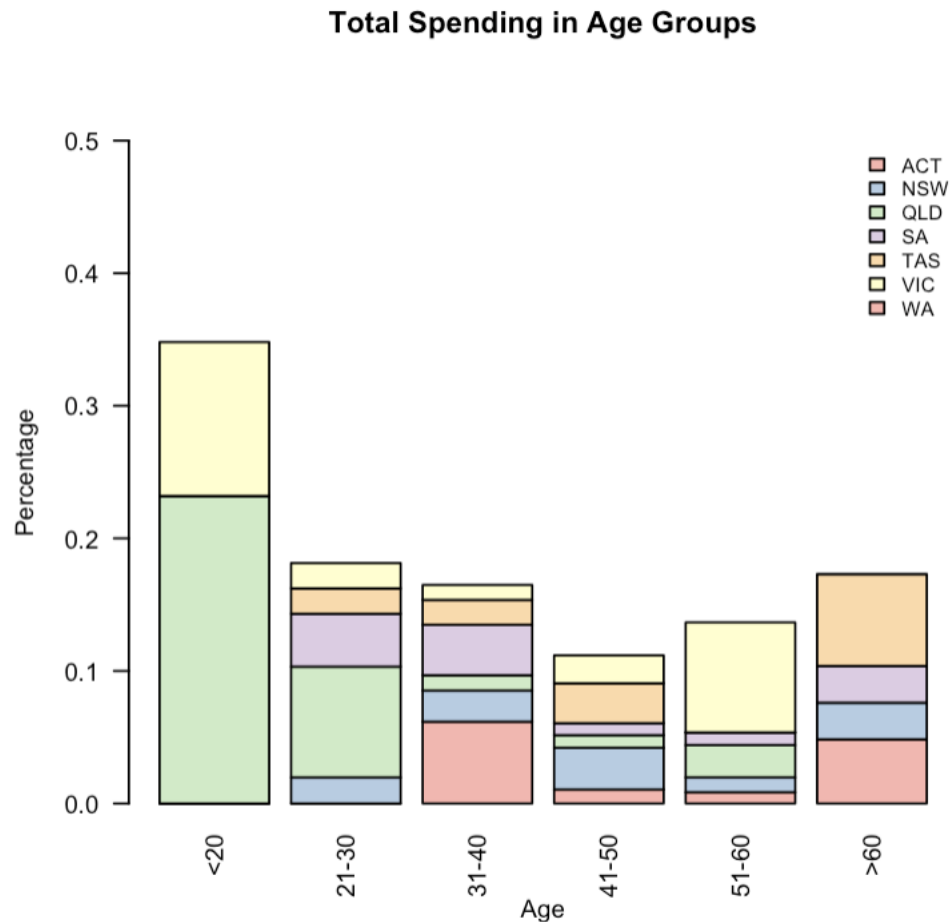
Based on Figure 2 above, it can be seen that the relationship between Total Spending and Age, where the most Total Spending ranges from the Age of 21 to 60 years, it is appropriate because when the productive age spends more is done with the range of Total Spending ranging from around \$ 380 - \$ 800 where at the age of 31 - 40 years Total spending is around \$ 650 and the highest expenditure at the age of 41 - 50 years is around \$ 800. Based on Figure 2, the distribution of expenditure by age range is a normal distribution.

**Figure 3. Total Spending and Area**



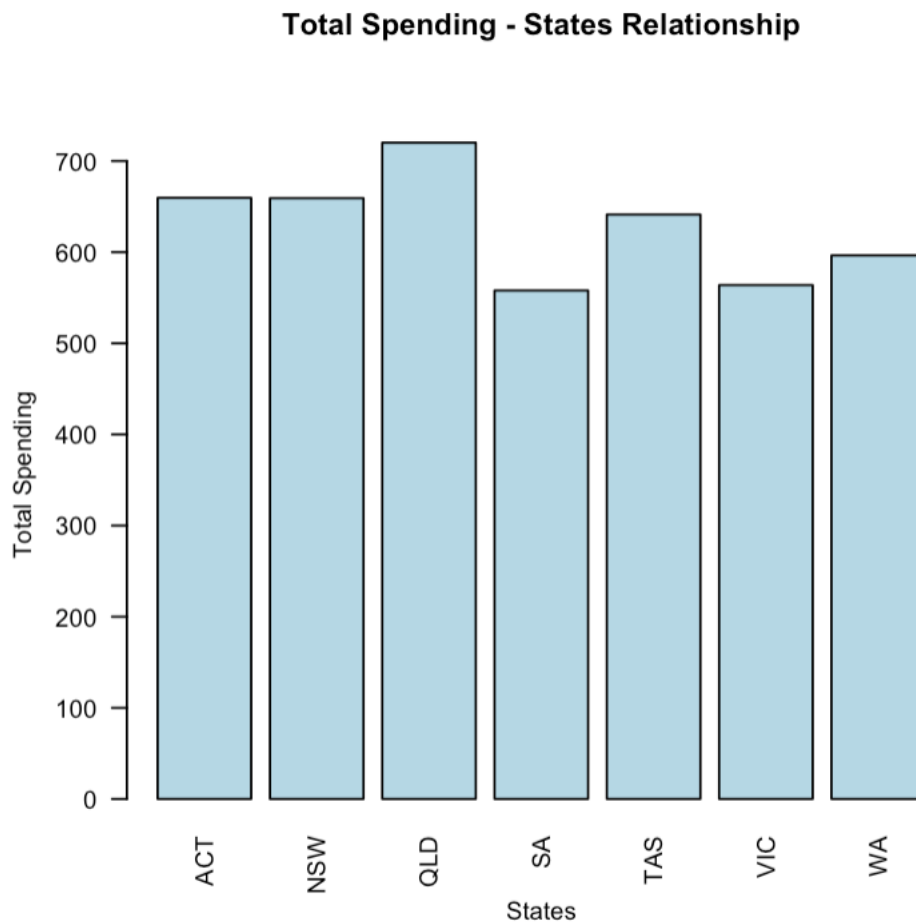
Furthermore, to analyze total expenditure can be seen based on Area, namely Urban and Rural with the same Total spending in both. So further analysis is needed by looking at the total spending and Age Group in Figure 2 below.

Figure 4. Total Spending in Age Groups



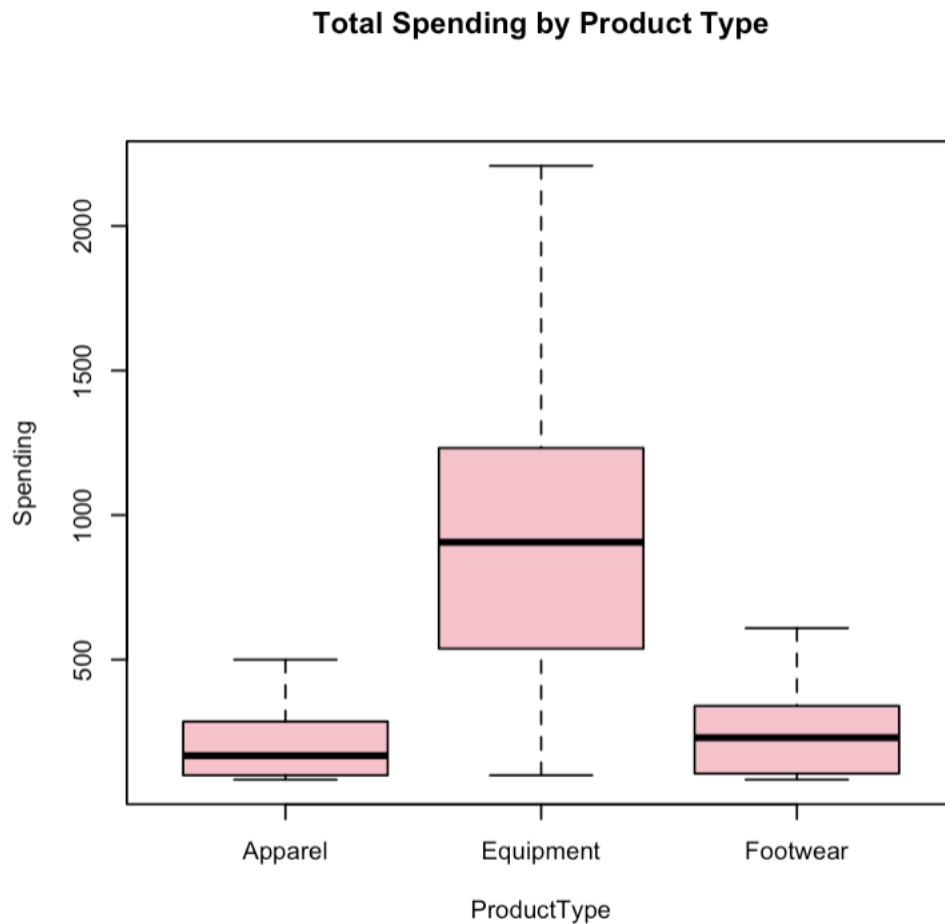
Based on figure 4 above, Total Spending in percent is obtained that for the age of <20 years, most State Queensland (QLD) and (Victoria) with a range of \$ 0.0 - \$ 0.35, then for the age of 21 - 30 years the percentage of Total spending is \$ 0.0 - \$ 0.18 for the states of New South Wales (NSW), Queensland (QLD), South Australia (SA), Tasmania (TAS), and Victoria (VIC), aged 31 – 40 years West Australia (WA) is the state with the most for its percentage, and the last for >60 years old is dominated by the state WA, NSW, SA, and TAS.

Figure 5. Total Spending and States



Based on Figure 5, it was concluded that total spending for Queensland (QLD) was the highest compared to other states of \$700, followed by the Australian Capital Territory (ACT) and NSW with the same total expenditure of \$650. Tasmania (TAS) around \$630, West Australian (WA) around \$600, Victoria (VIC) around \$560 and the least Total Spending is South Australian (SA) stae around \$550.

Figure 6. Total Spending by Product Type



Based on Figure 6 above, it is obtained that the average Total expenditure spent to buy Equipment with a Median of \$ 800 can be seen in the equipment plot box, the largest equipment purchase is  $> \$ 2000$  and the lowest is around \$ 100 followed by Total Spending to buy Footwear with a Median of around \$ 250 with the largest Footwear purchase of around  $> \$ 500$  and the lowest around \$ 90. The total spending for purchasing apparel is around \$ 100 - \$ 500.

Figur 7. Customer Reviews

### Customer Reviews - Device Type Relationship

		Device Type			
		Phone_iOS	Phone_Android	Tablet_iOS	Tablet_Android
Reviews	H	53.6	54.19	48.75	49.05
	L	46.4	45.81	51.25	50.95

### Customer Reviews - States Relationship

		States						
		ACT	NSW	QLD	SA	TAS	VIC	WA
Reviews	H	53.33	53.73	43.49	54	49.33	54.31	50.31
	L	46.67	46.27	56.51	46	50.67	45.69	49.69

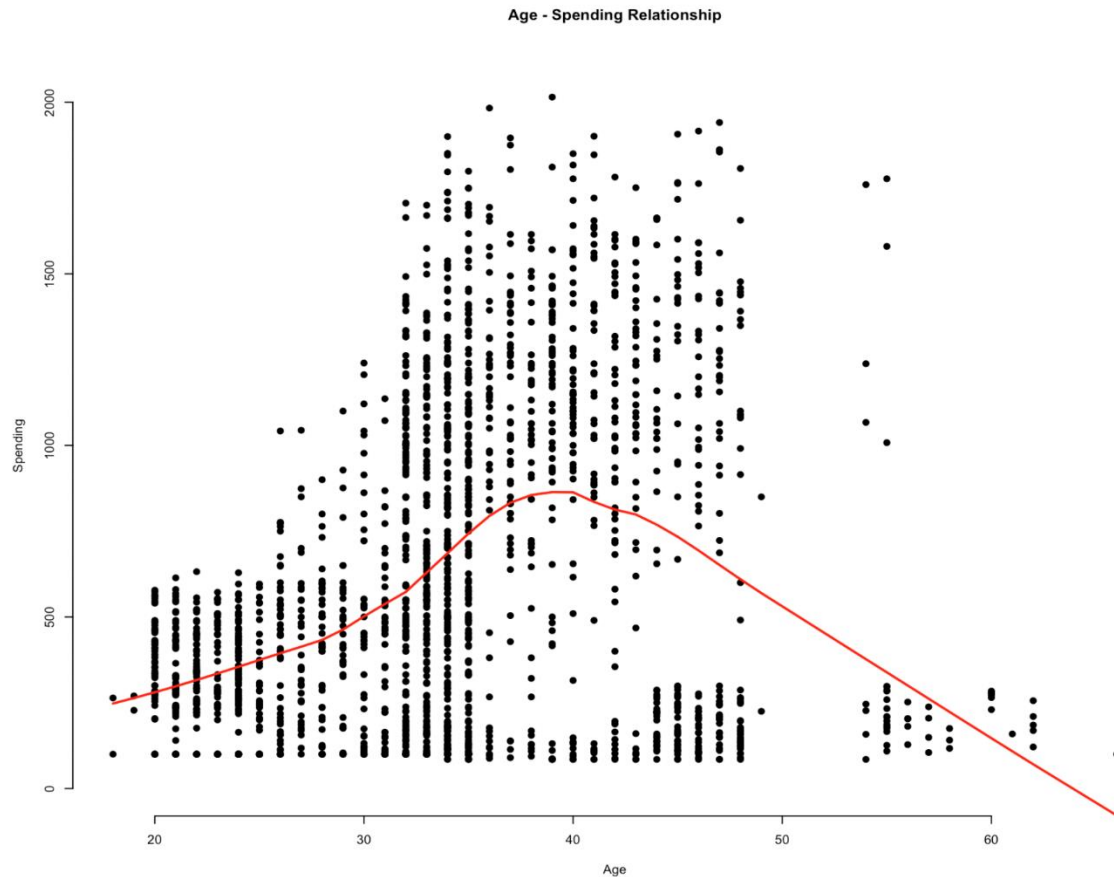
### Customer Reviews - Promotion Relationship

		Promotion	
		No	Yes
Reviews	H	51.66	51.21
	L	48.34	48.79

Based on Figure 7 above, it is obtained that for Customer Reviews – Device Type is divided into 2 components, namely Phone (Android / IOS) and Tablet (Android / IOS), Reviews (L / H) for Review (H) cases with Device Type Phone using the most Android type of 54.19 and Android Tablet around 49.05 this is in contrast to purchases with Reviews (L) using the most devices (IOS) of 51.25. while for Customer Reviews (L/H) for states where the most Customer reviews (H) are in Victoria (VIC) at 54.31 and for Reviews (H) the largest in Queensland (QLD) at 56.51. the last

one is for Customer Reviews (L/H) – with the promotion for Customer Reviews (H) prefer no promotion while for Customer Reviews (L) there needs to be a promotion.

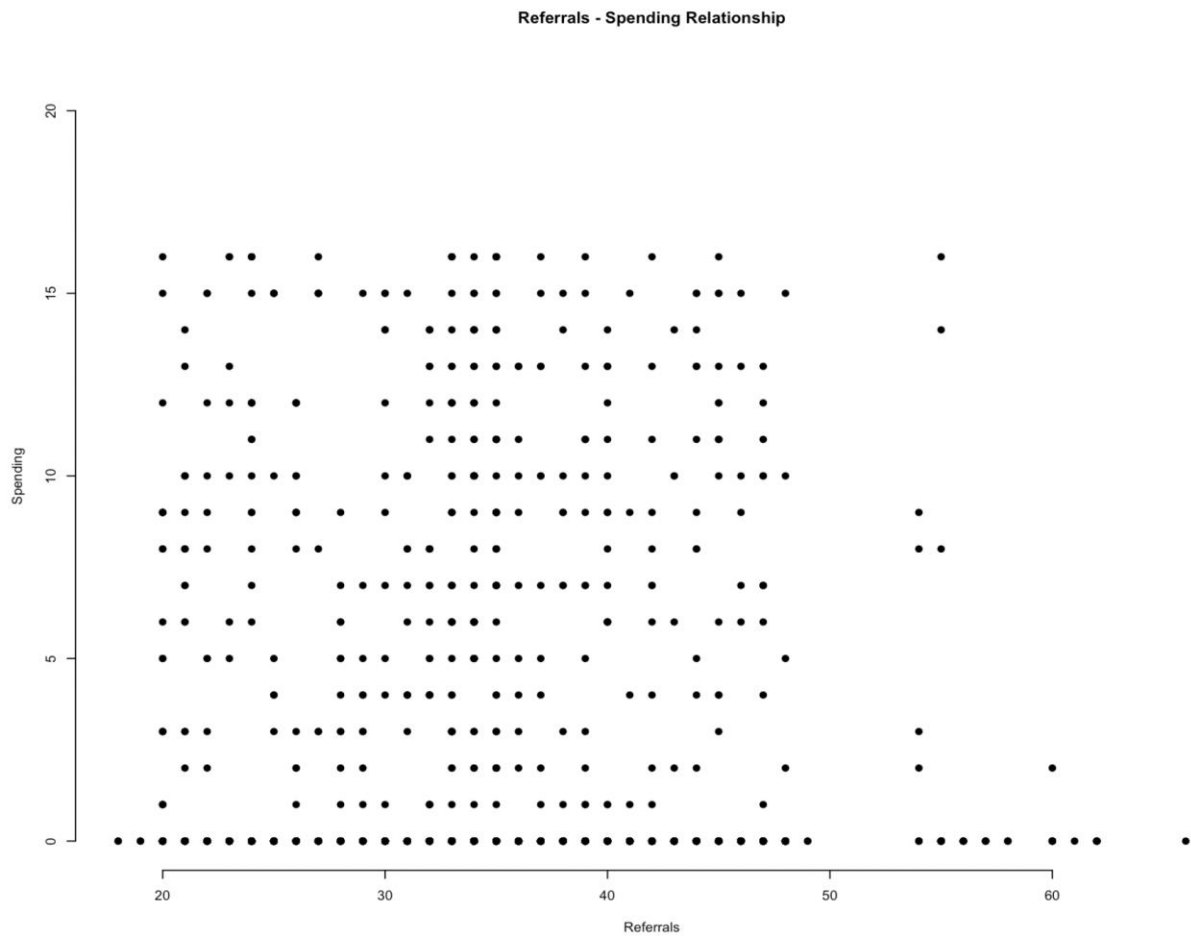
Figure 8. Scatter Plot Spending and Age



Based on Figure 8 above, it can be seen that total spending is mostly spread in the range after 30 – 50 years is the productive age for work, marriage and so on where the pattern of total spending is random, meaning that there is a correlation between each age range both for the age range of 20 years – 60 years.

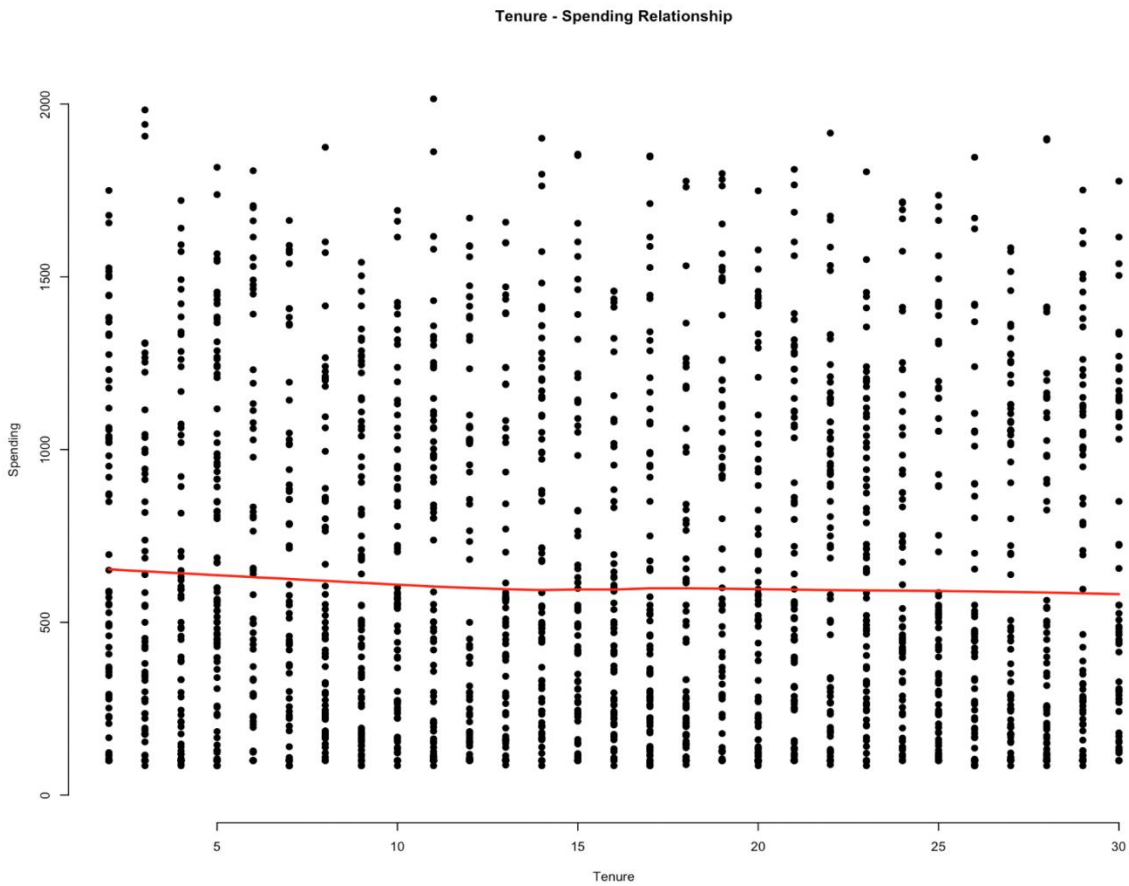
Figure 9. Scatter Plot Referrals and Spending





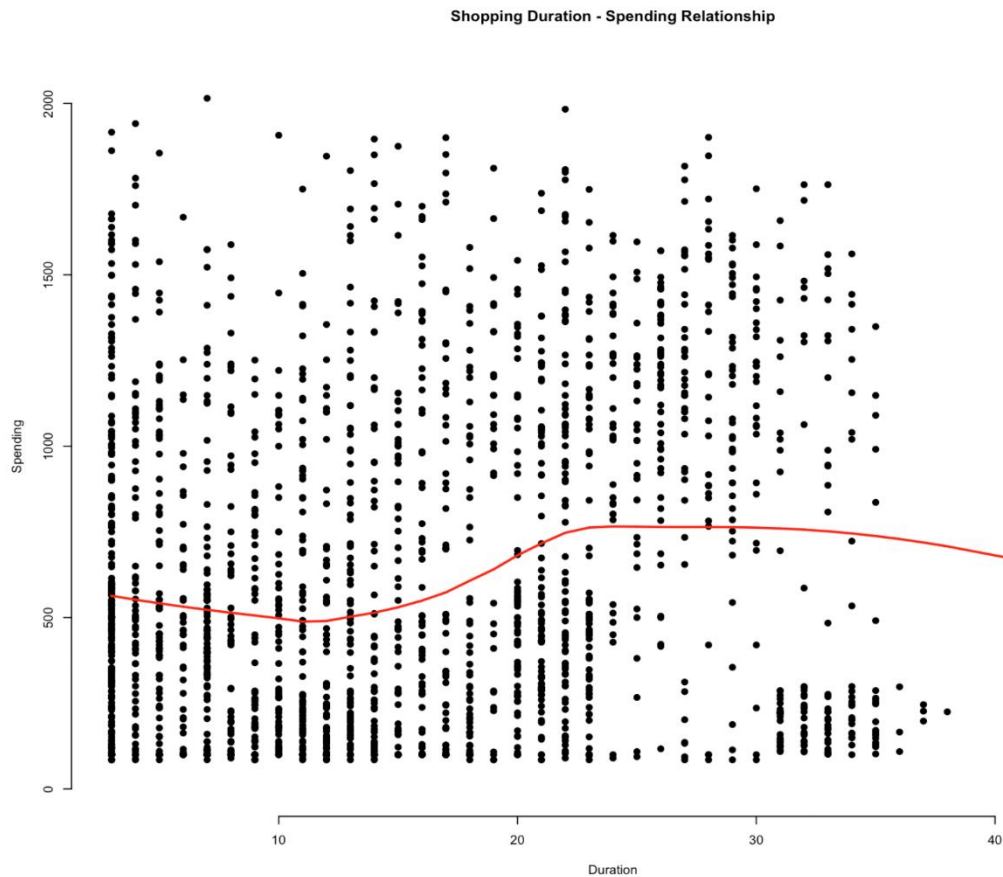
Based on Figure 9, it is obtained that the average referrals for each total expenditure is high, which for purchases at the age of 20-60 years referrals are high, so it can be concluded that the products in the ASAL company are very good due to the high reeferrals of its customers.

Figure 10. Tenure – Spending



Based on Figure 10, the high tenure does not affect the total expenditure of purchases in the ASAL company, this can be seen from the position level of 5-30, the average tenure level is the same, so it can be concluded that the tenure level does not affect the amount of expenditure.

Figure 11. Shopping Duration – Spending



Based on Figure 11 The average duration of shopping ranges from 1 – 20 minutes with a lot of spending done around \$ 10 - < \$ 2000 with the most shopping duration used for shopping around 1 – 10 minutes.

## SOLUTION

This time the task uses the R studio application to analyze the sales results of a sports company "ASAL (Amazing Sports Australia Ltd)," ASAL is a company that sells various sports equipment. ASAL wants to see the performance of Total Spending based on Age, Area, State, Tenure, Promotoion, Shooping Duration, and State it is concluded that for Total Spending – Age on average at the age of 20 – 50 years is not distinguished between Urban and Rural Areas because of the same total spending, for total spending – state it is obtained that the Queensland state (QLD) is the most purchased ASAL product with the most equipment collection ranging from \$ 100 - \$ 2000

spent for the purchase of equipment, the rest is for Footwear and followed by the purchase of Apparel.

In addition, total spending is also seen based on High rating shopping reviews where purchases are most in demand using Android Phone for the State of New South Wales (NSW) and without any promotion, then for Low Rating Reviews obtained namely purchases with IOS Tablets with State South Australia and need to be promoted. So that the ASAL company needs to improve the performance of its applications / web browsers on the iOS OS device and needs to hold many promotions on these devices so that the ASAL company does not lose its consumers who use IOS OS.

## **References**

Alpar. R. (2003) Uygulamalı çok değişkenli istatistiksel yöntemlere giriş 1 (ikinci baskı). Ankara: Nobel Yayınları.

Purnamasari, I., & Hayati, M.N., 2018. Analisis Deskriptif Pada Faktor-Faktor Yang Mempengaruhi Minat Siswa Untuk Melanjutkan Pendidikan Ke Tingkat Perguruan Tinggi. Jurnal.unimus.ac.id. [6 :2]. Doi: <https://doi.org/10.26714/jsunimus.v6i2.4315.g3994>

Wilson, C., 2016. Mean vs median: What do they mean and when do you use them?, [online] Michigan State University. Available at: <[https://www.canr.msu.edu/news/mean\\_vs.median\\_what\\_do\\_they\\_mean\\_and\\_when\\_do\\_you\\_use\\_them](https://www.canr.msu.edu/news/mean_vs.median_what_do_they_mean_and_when_do_you_use_them)> [Accessed 10 March 2021]