

# Stat 794, Example Application of **knitr**

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```
fm.table <- xtable(fm1, digits=2,
                  caption = "Summary of Regression",
                  label="reginf")

align(fm.table) <- "|l|rrrr|"

print(fm.table)

## % latex table generated in R 3.6.2 by xtable 1.8-4 package
## % Thu Sep 03 14:24:03 2020
## \begin{table}[ht]
## \centering
## \begin{tabular}{|l|rrrr|}
## \hline
## & Estimate & Std. Error & t value & Pr(>|t|) & \\
## \hline
## (Intercept) & -985.95 & 204.82 & -4.81 & 0.00 & \\
## PrivateYes & -291.62 & 133.28 & -2.19 & 0.03 & \\
## EliteYes & 1745.00 & 151.74 & 11.50 & 0.00 & \\
## Accept & 1.43 & 0.02 & 70.60 & 0.00 & \\
## Outstate & -0.01 & 0.02 & -0.84 & 0.40 & \\
## Room.Board & 0.17 & 0.05 & 3.35 & 0.00 & \\
## Grad.Rate & 8.63 & 2.95 & 2.93 & 0.00 & \\
## \hline
## \end{tabular}
## \caption{Summary of Regression}
## \label{reginf}
## \end{table}
```

Predicted values for the new schools are: 7000, 4800, 9300 and 2300, 57, 4600

When exploring the relationship between each variable, a pairwise scatterplot was created, see Figure 1. As seen in plot, Outstate and Room Board are highly correlated.

As seen in Table 2, University 1 recieved more applications than University 2.



Table 1: Summary statistics for the ISLR College data set.

Statistic	Mean	Median	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Private Flag	3,001.638	1,558	3,870.201	81	776	3,624	48,094
Application Count	2,018.804	1,110	2,451.114	72	604	2,424	26,330
Acceptance Count	779.973	434	929.176	35	242	902	6,392
Enrollment Count	27.559	23	17.640	1	15	35	96
Top 10 Percent in High School	55.797	54	19.805	9	41	69	100
Top 25 Percent in High School	3,699.907	1,707	4,850.421	139	992	4,005	31,643
Full-time Undergrad	855.299	353	1,522.432	1	95	967	21,836
Part-time Undergrad	10,440.670	9,990	4,023.016	2,340	7,320	12,925	21,700
Out-of-state tuition	4,357.526	4,200	1,096.696	1,780	3,597	5,050	8,124
Room and board Costs	549.381	500	165.105	96	470	600	2,340
Estimated Book Costs	1,340.642	1,200	677.071	250	850	1,700	6,800
Estimated Personal Costs	72.660	75	16.328	8	62	85	103
Percent of Faculty with PhD	79.703	82	14.722	24	71	92	100
Percent of Faculty with terminal Degree	14.090	13.600	3.958	2.500	11.500	16.500	39.800
Student/Faculty Ratio	22.744	21	12.392	0	13	31	64
Percent of alumni donated	9,660.171	8,377	5,221.768	3,186	6,751	10,830	56,233
Instructional expenditure per student	65.463	65	17.178	10	53	78	118

	univ	elite	gradrate	preds	lwr	upr	outstate
1	University 1	No	0.60	7000.00	4800.00	9300.00	8000.00
2	University 2	Yes	0.90	2300.00	57.00	4600.00	16000.00

Table 2: Prediction Table

## Appendix A: Supplementary Plots

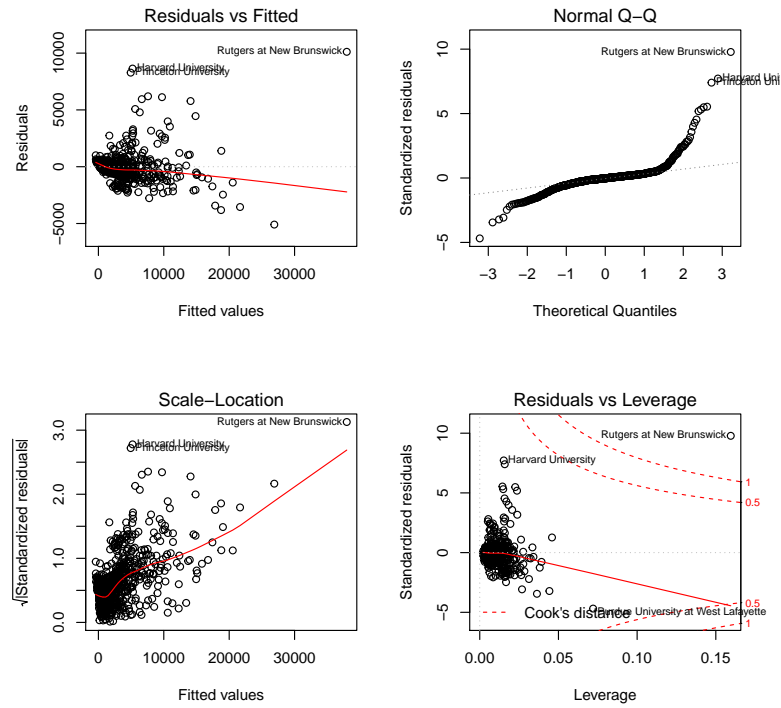


Figure 2: Plot of Regression Diagnostics

As seen in Figure 2, residuals vs fitted values have a pattern similar to a fan.