**Appendix**

**Q1: (i)**

**proc** **means** data=mydata.cosmetics;

var take1 take2;

**run**;

**data** temp;

set mydata.cosmetics;

d = take1 - take2;

**run**;

**proc** **univariate** data=temp;

var d;

**run**;

**Q2:(i)**

**proc** **reg** data=mydata.pubvalues corr;

model value = Ratevalue Footprint Otherarea House Pubs Food Social Employ Car Garden / vif;

**run**;

**quit**;

**proc** **reg** data=mydata.pubvalues;

model value = Ratevalue Footprint Otherarea House Pubs Food Social Employ Car Garden / collin;

**run**;

**quit**;

**proc** **reg** data=mydata.pubvalues;

model value = Ratevalue Footprint Otherarea House Pubs Food Social Employ Car Garden / selection = backward slstay=**0.05**;

**run**;

**quit**;

**proc** **reg** data=mydata.pubvalues;

model value = Ratevalue Footprint Otherarea House Pubs Food Social Employ Car Garden / selection = forward slentry=**0.05**;

**run**;

**quit**;

**proc** **reg** data=mydata.pubvalues;

model value = Ratevalue Footprint Otherarea House Pubs Food Social Employ Car Garden / selection = rsquare cp;

**run**;

**quit**;

**proc** **reg** data=mydata.pubvalues noprint;

model value = Ratevalue Employ Garden;

output out=INFL predicted=pred dffits=DFF;

**run**;

**quit**;

**data** INFL; set INFL;

Adff = abs(DFF);

**run**;

**proc** **sort** data=INFL;

by descending Adff;

**run**;

**data** INFL; set INFL;

Index = \_N\_;

**run**;

**proc** **gplot** data=INFL;

plot Adff\*Index / vref=**0.632** vref=**2**;

**run**;

**quit**;

**proc** **print** data=INFL;

var ID pred value DFF;

where Index <=**4** ;

**run**;

**proc** **reg** data=INFL;

model value=Ratevalue Employ Garden / influence;

output out=INFL1 h=H rstudent=DeletedResidual4ry covratio=c;

**run**;

**quit**;

**data** PRED1;

RateValue = **13**; Employ = **10**; Garden = **100**;

**run**;

**data** PRED1;

set mydata.pubvalues PRED1;

**run**;

**proc** **reg** data = PRED1 noprint;

model value = Ratevalue Employ Garden;

output out = PRED2 p = Pred h = H lcl = Lower ucl = Upper;

**run**;

**quit**;

**proc** **print** data = PRED2 noobs;

var Ratevalue Employ Garden H Pred Lower Upper;

where Value = **.**;

**run**;

**Q3:(i)**

**proc** **reg** data=mydata.travel;

model Claim=Age;

plot Claim\*Age;

plot student.\*p.;

**run**;

**quit**;

**proc** **sort** data=mydata.travel;

by Age;

**run**;

**proc** **reg** data=mydata.travel;

model Lnclaim=Age / clm cli;

plot LnClaim\*Age;

plot student.\*p.;

output out=fits p=predicted student=student\_resid;

**run**;

**quit**;

**proc** **univariate** data=fits noprint;

histogram student\_resid/normal(noprint);

qqplot student\_resid;

**run**;

**Q4:**

**data** Temp;

input AgeGroup Late Count;

datalines;

1 0 247

1 1 53

2 0 266

2 1 34

;

**proc** **freq** data=Temp;

weight Count;

tables AgeGroup\*Late / norow nocol nopercent;

tables AgeGroup\*Late / nofreq nocol nopercent;

tables AgeGroup\*Late / nofreq norow nocol nopercent chisq expected;

tables AgeGroup\*Late / noprint riskdiff;

**run**;