

▼ 三軍總醫院北投分院統計及實驗設計課程之三

2021/6/26

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使用方法:

使用gmail帳號登入 按"執行階段" -->"全部執行" 以執行全部內容,

若要個別執行可點選每格程式左方箭頭或按 Control + Enter 鍵執行。

##0-1

```
!git clone https://github.com/YuehMintTai/RPython.git
```

```
Cloning into 'RPython'...
remote: Enumerating objects: 90, done.
remote: Counting objects: 100% (90/90), done.
remote: Compressing objects: 100% (88/88), done.
remote: Total 90 (delta 39), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (90/90), done.
```

##0-2

```
!pip install rpy2
```

```
Requirement already satisfied: rpy2 in /usr/local/lib/python3.7/dist-packages (3.4.5)
Requirement already satisfied: Jinja2 in /usr/local/lib/python3.7/dist-packages (from rpy2) (2.11.3)
Requirement already satisfied: tzlocal in /usr/local/lib/python3.7/dist-packages (from rpy2) (2.1)
Requirement already satisfied: cffi>=1.10.0 in /usr/local/lib/python3.7/dist-packages (from rpy2) (1.15.1)
Requirement already satisfied: pytz in /usr/local/lib/python3.7/dist-packages (from rpy2) (2021.1)
Requirement already satisfied: MarkupSafe>=0.23 in /usr/local/lib/python3.7/dist-packages (from Jinja2) (2.0.1)
Requirement already satisfied: pycparser in /usr/local/lib/python3.7/dist-packages (from cffi>=1.10.0) (2.21)
```

##0-3

```
%load_ext rpy2.ipynb
```

##0-4

```
%%R
```

```
myData<-read.csv('RPython/samples.csv')
```

```
tail(myData,1)
```

```

SID 性別 年齡 入伍前職業 教育程度 婚姻狀況 皆無過去病史01 早產兒01
188 4 1 25 商 4 1 1 0
頭部曾受傷01 發展遲緩01 注意力不足過動症01 癲癇01 癲癇服藥治療 癲癇服藥期間
188 0 0 0 0 0 0 0
軍種 軍階 役別 入伍至今_年 聽過自殺課程_次 求助心輔_次 求助精神科_次
188 1 1 2 0.5 1 0 2
使用1995_次 使用24h專線_次 特殊狀況 父母婚姻狀態 自殺意念_bsrs6 B型肝炎01

```

```

188      0      0      4      4      4      0
C型肝炎01 氣喘史01 過敏史01 心臟病史01 高血壓01 糖尿病01 甲狀腺01 類風濕01
188      0      1      1      0      0      0      1      0
重大意外01 自殺意念01 透露父母 透露手足 透露好友 透露同儕 透露長官 透露心輔
188      1      1      0      0      0      0      0      0
透露醫師 拒告父母 拒告手足 拒告好友 拒告同儕 拒告長官 拒告心輔 拒告醫師
188      0      1      1      1      1      1      1      1
BSRS總分 BSRS總分 過動症總分 Inattention Impulsivity opposition depression
188      20      5      18      9      9      8      57
anxiety burdensome belonging 家庭滿意度apgar 網路成癮症01 網路成癮分數YDQ
188 29.0294      42      12      0      0      0
existenness meaning control seeking death suicidea 睡眠困擾_bsrs1
188      28      10      22      16      15      7      4
睡眠困擾_bsrsr1 睡眠困擾_bdi16 易怒_bsrs3 易怒_bsrsr3 depress impuls
188      1      3      4      1      57      9
Internet ADHD
188      0      18

```

```
##3-1
```

```
%%R
```

```

formula='網路成癮分數YDQ~家庭滿意度apgar+as.factor(性別)'
modell <- glm(formula, myData, family='gaussian')
summary(modell)

```

```
Call:
```

```
glm(formula = formula, family = "gaussian", data = myData)
```

```
Deviance Residuals:
```

```

      Min       1Q   Median       3Q      Max
-3.6114  -2.0277  -0.8196   1.7421   5.9723

```

```
Coefficients:
```

```

              Estimate Std. Error t value Pr(>|t|)
(Intercept)    3.61143    0.45550   7.929 2.03e-13 ***
家庭滿意度apgar -0.15837    0.05792  -2.734 0.00686 **
as.factor(性別)2 -1.06259    0.49946  -2.127 0.03470 *
---

```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for gaussian family taken to be 5.747105)
```

```

Null deviance: 1136.5 on 187 degrees of freedom
Residual deviance: 1063.2 on 185 degrees of freedom
AIC: 867.25

```

```
Number of Fisher Scoring iterations: 2
```

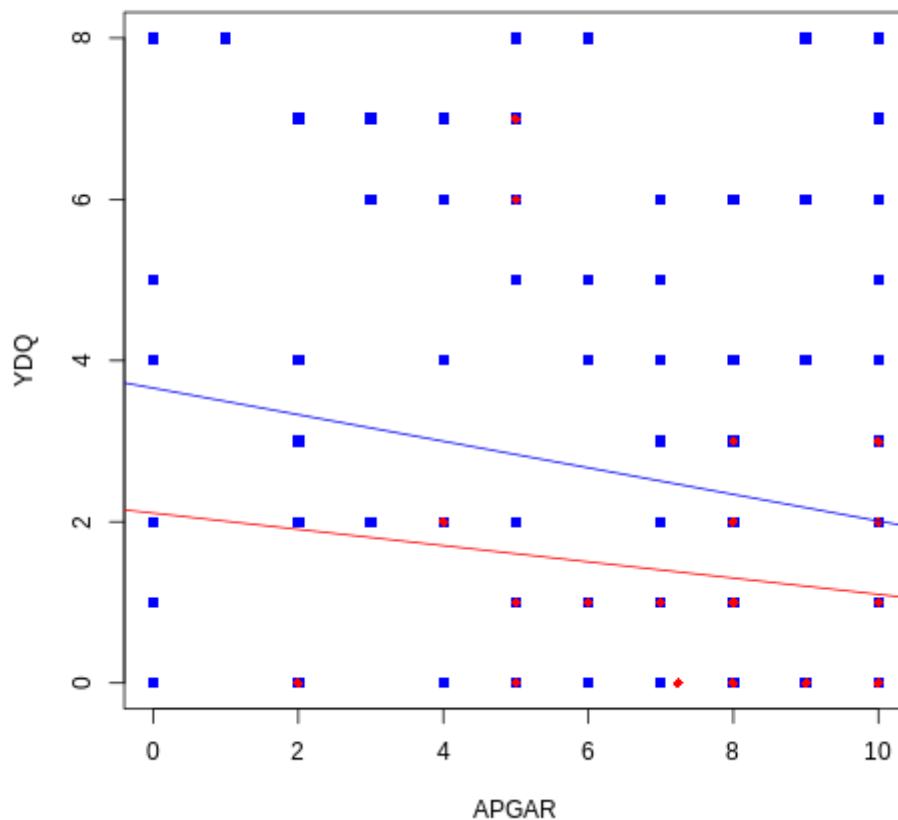
```
##3-2
```

```
%%R
```

```

male=subset(myData, 性別==1)
female=subset(myData, 性別==2)
plot(male$家庭滿意度apgar, male$網路成癮分數YDQ, col='blue', pch=15, xlab='APGAR', ylab='YDQ')
points(female$家庭滿意度apgar, female$網路成癮分數YDQ, col='red', pch=18)
abline(glm(網路成癮分數YDQ~家庭滿意度apgar, data=male), col='blue')
abline(glm(網路成癮分數YDQ~家庭滿意度apgar, data=female), col='red')

```



```
##3-3
```

```
%%R
```

```
formula='網路成癮分數YDQ~家庭滿意度apgar+as.factor(性別)+家庭滿意度apgar*as.factor(性別)'
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

```
Call:
```

```
glm(formula = formula, family = "gaussian", data = myData)
```

```
Deviance Residuals:
```

Min	1Q	Median	3Q	Max
-3.6574	-2.0095	-0.8334	1.7310	5.9905

```
Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	3.65736	0.47720	7.664	1e-12 ***
家庭滿意度apgar	-0.16479	0.06121	-2.692	0.00776 **
as.factor(性別)2	-1.55060	1.55641	-0.996	0.32043
家庭滿意度apgar:as.factor(性別)2	0.06402	0.19332	0.331	0.74091

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for gaussian family taken to be 5.774898)
```

```
Null deviance: 1136.5 on 187 degrees of freedom
Residual deviance: 1062.6 on 184 degrees of freedom
AIC: 869.14
```

Number of Fisher Scoring iterations: 2

```
##3-3-1
```

```
%%R
```

```
formula='網路成癮分數YDQ~家庭滿意度apgar+性別+家庭滿意度apgar*性別'
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

Call:

```
glm(formula = formula, family = "gaussian", data = myData)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-3.6574	-2.0095	-0.8334	1.7310	5.9905

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	5.20796	1.76226	2.955	0.00353 **
家庭滿意度apgar	-0.22880	0.22049	-1.038	0.30076
性別	-1.55060	1.55641	-0.996	0.32043
家庭滿意度apgar:性別	0.06402	0.19332	0.331	0.74091

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 5.774898)

Null deviance: 1136.5 on 187 degrees of freedom
Residual deviance: 1062.6 on 184 degrees of freedom
AIC: 869.14

Number of Fisher Scoring iterations: 2

```
##3-4
```

```
%%R
```

```
formula='網路成癮分數YDQ~家庭滿意度apgar+年齡'
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

Call:

```
glm(formula = formula, family = "gaussian", data = myData)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-3.5674	-1.8336	-0.7965	1.8062	6.3314

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	4.32133	1.04574	4.132	5.44e-05 ***
家庭滿意度apgar	-0.17338	0.05907	-2.935	0.00375 **
年齡	-0.03534	0.04109	-0.860	0.39080

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 5.864259)

Null deviance: 1136.5 on 187 degrees of freedom

Residual deviance: 1084.9 on 185 degrees of freedom
AIC: 871.05

Number of Fisher Scoring iterations: 2

```
##3-5
```

```
%%R
```

```
formula='網路成癮分數YDQ~家庭滿意度apgar+anxiety'
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

Call:

```
glm(formula = formula, family = "gaussian", data = myData)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-5.4029	-1.6351	-0.8669	1.7393	5.9706

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.18438	0.85130	1.391	0.16582
家庭滿意度apgar	-0.12145	0.05861	-2.072	0.03962 *
anxiety	0.06916	0.02153	3.212	0.00156 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 5.576771)

Null deviance: 1136.5 on 187 degrees of freedom
Residual deviance: 1031.7 on 185 degrees of freedom
AIC: 861.6

Number of Fisher Scoring iterations: 2

```
##3-6-1
```

```
%%R
```

```
install.packages("scatterplot3d")
library('scatterplot3d')
```

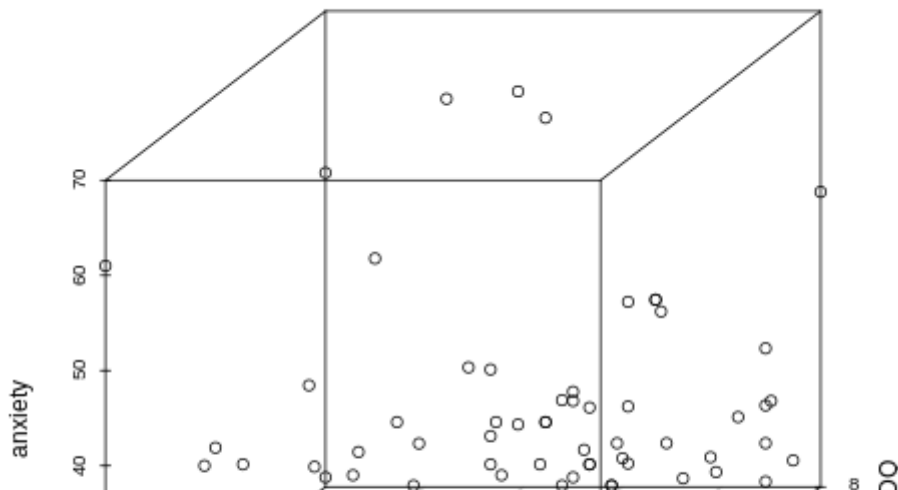
R[write to console]: Installing package into '/usr/local/lib/R/site-library'
(as 'lib' is unspecified)

R[write to console]: trying URL 'https://cran.rstudio.com/src/contrib/scatterplot3d_0.3-

R[write to console]: Content type 'application/x-gzip'
R[write to console]: length 460912 bytes (450 KB)

R[write to console]: =
R[write to console]: =
R[write to console]: =
R[write to console]: =
R[write to console]: =
R[write to console]: =
R[write to console]: =





```
##3-7
```

```
%%R
```

```
formula='網路成癮分數YDQ~家庭滿意度apgar+anxiety+家庭滿意度apgar*anxiety'
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

Call:

```
glm(formula = formula, family = "gaussian", data = myData)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-5.0797	-1.6819	-0.8761	1.7412	5.9368

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.539326	1.473788	1.044	0.298
家庭滿意度apgar	-0.175972	0.193686	-0.909	0.365
anxiety	0.058039	0.043382	1.338	0.183
家庭滿意度apgar:anxiety	0.001774	0.006005	0.295	0.768

(Dispersion parameter for gaussian family taken to be 5.604422)

Null deviance: 1136.5 on 187 degrees of freedom
 Residual deviance: 1031.2 on 184 degrees of freedom
 AIC: 863.51

Number of Fisher Scoring iterations: 2

```
##3-8
```

```
%%R
```

```
myData$注意力不足過動症01<-as.integer(myData$注意力不足過動症01)
formula='網路成癮分數YDQ~as.factor(性別)+年齡+家庭滿意度apgar+as.factor(注意力不足過動症01)'
formula=paste(formula,'+anxiety+depression+過動症總分+睡眠困擾_bsrs1')
model2<-glm(formula, myData, family='gaussian')
summary(model2)
```

Call:

```
glm(formula = formula, family = "gaussian", data = myData)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-5.324	-1.568	-0.524	1.366	6.512

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2.12876	1.13825	1.870	0.0631 .
as.factor(性別)2	-1.02656	0.48352	-2.123	0.0351 *
年齡	-0.06828	0.04005	-1.705	0.0900 .
家庭滿意度apgar	-0.05140	0.06128	-0.839	0.4027
as.factor(注意力不足過動症01)1	0.26978	0.96693	0.279	0.7806
anxiety	0.03745	0.02404	1.558	0.1211
depression	0.04952	0.02100	2.359	0.0194 *
過動症總分	0.04383	0.01921	2.282	0.0237 *
睡眠困擾_bsrs1	-0.14922	0.20412	-0.731	0.4657

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 5.129394)

Null deviance: 1136.48 on 187 degrees of freedom
Residual deviance: 918.16 on 179 degrees of freedom
AIC: 851.68

Number of Fisher Scoring iterations: 2