

## Import file into R

```
> setwd("C:/Users/Trupti/Desktop")
>
> require(XLConnect)
> loan = loadworkbook("loan.xlsx")
> loananalysis = readworksheet(loan, sheet = "loan", header = TRUE)
```

## Create Factor

```
>
> Res_status<-as.factor(loananalysis$Res_status)
> Occupation<- as.factor(loananalysis$Occupation)
> Job_Status<-as.factor(loananalysis$Job_status)
> Liab_red<- as.factor(loananalysis$Liab_ref)
> Acc_ref<-as.factor(loananalysis$Acc_ref)
> decision<-as.factor(loananalysis$Decision)
>
> contrasts(Res_status)
      rent
owner    0
rent     1
> contrasts(Occupation)
      driver executive guard_etc labourer manager office_st productio professio
creative_  0          0          0          0          0          0          0          0
driver     1          0          0          0          0          0          0          0
executive  0          1          0          0          0          0          0          0
guard_etc  0          0          1          0          0          0          0          0
labourer   0          0          0          1          0          0          0          0
manager    0          0          0          0          1          0          0          0
office_st  0          0          0          0          0          1          0          0
productio  0          0          0          0          0          0          1          0
professio  0          0          0          0          0          0          0          1
sales      0          0          0          0          0          0          0          0
semi_pro   0          0          0          0          0          0          0          0
unemploye  0          0          0          0          0          0          0          0
      sales semi_pro unemploye
creative_  0          0          0
driver     0          0          0
executive  0          0          0
guard_etc  0          0          0
labourer   0          0          0
manager    0          0          0
office_st  0          0          0
productio  0          0          0
professio  0          0          0
sales      1          0          0
semi_pro   0          1          0
unemploye  0          0          1
> contrasts(Job_Status)
      military private_s retired self_empl student unemploye
governmen  0          0          0          0          0          0
military   1          0          0          0          0          0
private_s  0          1          0          0          0          0
retired    0          0          1          0          0          0
self_empl  0          0          0          1          0          0
student    0          0          0          0          1          0
unemploye  0          0          0          0          0          1
> contrasts(Liab_red)
      t
f 0
t 1
> contrasts(Acc_ref)
      oth_inst_
given          0
oth_inst_      1
> contrasts(decision)
      reject
```

```
accept      0
reject      1
>
```

### Calculate Summary

```
> x<- data.frame(Res_status, Occupation, Job_Status, Liab_red, Acc_ref)
> loan.fit<-glm(decision ~ Res_status + Occupation+ Job_Status+ Liab_red+ Acc_ref,
family="binomial", data=x)
> summary(loan.fit)
```

### Apply Logistics Regression

```
Call:
glm(formula = decision ~ Res_status + Occupation + Job_Status +
    Liab_red + Acc_ref, family = "binomial", data = x)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-2.2057	-1.0662	0.5474	0.9612	1.9504

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	-0.41690	0.33802	-1.233	0.21743
Res_statusrent	0.79288	0.27312	2.903	0.00370 **
Occupationdriver	0.95195	0.63677	1.495	0.13492
Occupationexecutive	-0.39269	0.82181	-0.478	0.63276
Occupationguard_etc	1.66730	0.52886	3.153	0.00162 **
Occupationlabourer	0.76282	0.42015	1.816	0.06944 .
Occupationmanager	0.17805	0.47322	0.376	0.70673
Occupationoffice_st	-0.39815	0.37943	-1.049	0.29402
Occupationproductio	-0.07408	0.37861	-0.196	0.84487
Occupationprofessio	-1.45715	0.61684	-2.362	0.01816 *
Occupationsales	0.37712	0.43581	0.865	0.38686
Occupationsemi_pro	-1.13380	0.57578	-1.969	0.04893 *
Occupationunemploye	-12.04586	882.74365	-0.014	0.98911
Job_Statusmilitary	15.33162	882.74345	0.017	0.98614
Job_Statusprivate_s	0.57225	0.29014	1.972	0.04857 *
Job_Statusretired	-0.28588	1.17367	-0.244	0.80756
Job_Statusself_empl	-0.18964	0.51340	-0.369	0.71185
Job_Statusstudent	1.06694	1.25777	0.848	0.39628
Job_Statusunemploye	14.22015	882.74348	0.016	0.98715
Liab_redt	-0.34865	0.21881	-1.593	0.11107
Acc_refoth_inst_	0.78921	0.47358	1.666	0.09562 .

---

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

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 589.99 on 428 degrees of freedom  
Residual deviance: 508.92 on 408 degrees of freedom  
AIC: 550.92

Number of Fisher Scoring iterations: 13

### Calculate Prediction case 1 when res\_status="owner"

```
>
> newdata1= data.frame(Res_status="owner", Occupation="creative_", Job_Status="governme
", Liab_red ="f", Acc_ref="given")
> summary(newdata1)
  Res_status      Occupation      Job_Status      Liab_red      Acc_ref
owner:1      creative_:1      governmen:1      f:1      given:1
> predict(loan.fit, newdata1, type="response")
1
0.3972582
>
```

Calculate Prediction case 2 when res\_status="rent"

```
> newdata2= data.frame(Res_status="rent", Occupation="creative_",  
Job_Status="governmen", Liab_red ="f", Acc_ref="given")
```

```
> summary(newdata2)
```

```
Res_status      Occupation      Job_Status Liab_red  Acc_ref  
rent:1      creative_:1      governmen:1      f:1      given:1
```

```
> predict(loan.fit, newdata2, type="response")
```

```
1  
0.5929028
```