

```
data rtherapy;
input x1-x6;
cards;
```

```
0.889 1.389 1.555 2.222 1.945 1
2.813 1.437 0.999 2.312 2.312 2
...
0.889 1.000 1.000 2.000 1.000 2
```

```
run;
```

```
proc iml;
```

```
start main;
```

```
use rtherapy;
```

```
read all into x;
```

```
ones98=j(98,1,1);
```

```
xbar=(1/98)*x`*ones98;
```

```
resid=x-ones98*xbar`;
```

```
s=(1/97)*resid`*resid;
```

```
print xbar s;
```

```
bigmat=resid*inv(s)*resid`; ← Computes a matrix with  $d_j^2$ 's on main diagonal
```

```
dvec=vecdiag(bigmat); ← Makes vector of  $d_j^2$ 's
```

```
temp=dvec;
```

```
dvec[rank(dvec),]=temp;
```

```
print dvec;
```

```
c3=1:98;
```

```
c3=(c3-0.5)/98;
```

```
print c3;
```

```
q=cinv(c3,6);
```

```
q=q`;
```

```
print q;
```

```
dvecq=dvec||q;
```

```
create dvecq from dvecq;
```

```
append from dvecq;
```

```
finish main;
```

```
run;
```

```
proc plot data=dvecq;
```

```
plot col1*col2;
```

```
run;
```

```
quit;
```

Reads the data into the matrix $\underline{x}$

Computes $\bar{x}$ and $\underline{S}$

← Computes a matrix with d_j^2 's on main diagonal

← Makes vector of d_j^2 's

Ranks d_j^2 's

Obtains quantiles of the χ_6^2 distribution

Dumps results out of proc iml

Plots $d_{(j)}^2$ vs quantiles of χ_6^2 distribution