1. ทำการ Import และแสดงผลลัพธ์

mydata - Notepad

File Edit Format View Help

```
No.     Salary  Original        Level   NewSalary       NewRate Adjust
1       10620   10010   408.70  14020   14428.70        3810
2       11260   10010   837.52  14020   14857.50        3600
3       11940   10010   1293.10 14020   15313.10        3380
4       12660   10010   1775.50 14020   15795.50        3140
5       13420   10010   2284.70 14020   16304.70        2890
6       14230   10010   2827.40 14020   16847.40        2620
7       15090   10010   3403.60 14020   17426.60        2340
8       16000   10010   4013.30 14020   18033.30        2040
9       16960   10010   4656.50 14020   18676.50        1720
```

```
> x = read.table("mydata.txt", sep="\t", header=TRUE)
> x
  No. Salary Original   Level NewSalary NewRate Adjust
1   1  10620    10010  408.70     14020 14428.7   3810
2   2  11260    10010  837.52     14020 14857.5   3600
3   3  11940    10010 1293.10     14020 15313.1   3380
4   4  12660    10010 1775.50     14020 15795.5   3140
5   5  13420    10010 2284.70     14020 16304.7   2890
6   6  14230    10010 2827.40     14020 16847.4   2620
7   7  15090    10010 3403.60     14020 17426.6   2340
8   8  16000    10010 4013.30     14020 18033.3   2040
9   9  16960    10010 4656.50     14020 18676.5   1720
```

นำข้อมูลใส่ Textfile และแสดงผลลัพธ์

```
> range(x$Salary)
[1] 10620 16960
> range(x$Original)
[1] 10010 10010
> range(x$Level)
[1]  408.7 4656.5
> range(x$NewSalary)
[1] 14020 14020
> range(x$NewRate)
[1] 14428.7 18676.5
> range(x$Adjust)
[1] 1720 3810
```

ค่าพิสัยใช้ฟังก์ชัน range()

Salary = 6340, Original = 0, Levels = 4247.8, NewSalary = 0, NewRate = 4247.8, Adjust = 2090

```
> var(x$Salary)
[1] 4711103
> var(x$Original)
[1] 0
> var(x$Level)
[1] 2114806
> var(x$NewSalary)
[1] 0
> var(x$NewRate)
[1] 2115576
> var(x$Adjust)
[1] 511919.4
```

ความแปรปรวนใช้ฟังก์ชัน var()

Salary = 4711103, Original = 0, Levels = 2114806, NewSalary = 0, NewRate = 2115576,

Adjust = 511919.4

```
> sd(x$Salary)
[1] 2170.507
> sd(x$Original)
[1] 0
> sd(x$Level)
[1] 1454.237
> sd(x$NewSalary)
[1] 0
> sd(x$NewRate)
[1] 1454.502
> sd(x$Adjust)
[1] 715.4855
```

ค่าเบี่ยงเบนมาตราฐานใช้ฟังก์ชัน sd()

Salary = 2170.507, Original = 0, Levels = 1454.237, NewSalary = 0, NewRate = 1454.502,

Adjust = 715.4855

```
> quantile(x$Salary)
   0%   25%   50%   75%  100%
10620 11940 13420 15090 16960
> quantile(x$Original)
   0%   25%   50%   75%  100%
10010 10010 10010 10010 10010
> quantile(x$Level)
    0%    25%    50%    75%   100%
 408.7 1293.1 2284.7 3403.6 4656.5
> quantile(x$NewSalary)
   0%   25%   50%   75%  100%
14020 14020 14020 14020 14020
> quantile(x$NewRate)
     0%     25%     50%     75%    100%
14428.7 15313.1 16304.7 17426.6 18676.5
```

```
> quantile(x$Adjust)
  0%  25%  50%  75% 100%
1720 2340 2890 3380 3810
```

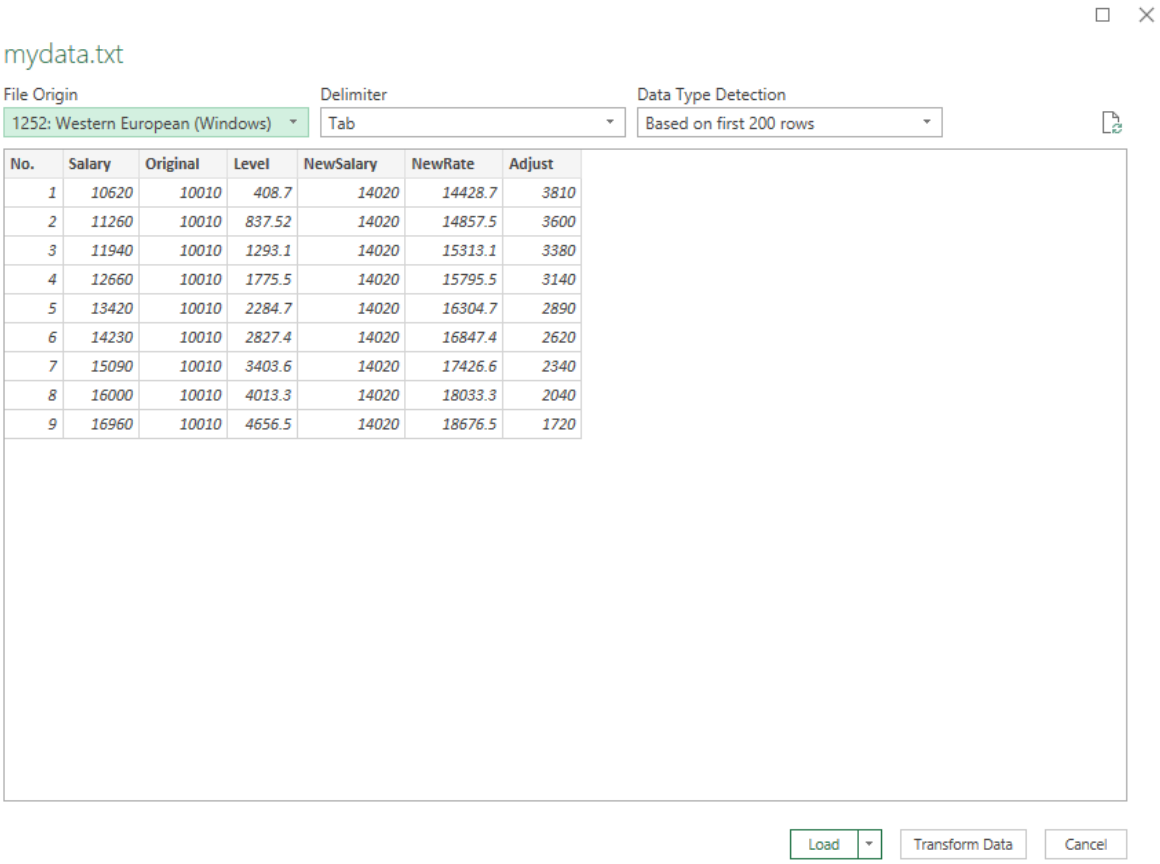
หา Quartile ใช้ฟังก์ชัน quantile()

```
> quantile(x$Salary, c(.2, .5, .8))
  20%   50%   80%
11668 13420 15454
> quantile(x$Original, c(.2, .5, .8))
  20%   50%   80%
10010 10010 10010
> quantile(x$Level, c(.2, .5, .8))
     20%      50%      80%
1110.868 2284.700 3647.480
> quantile(x$NewSalary, c(.2, .5, .8))
  20%   50%   80%
14020 14020 14020
> quantile(x$NewRate, c(.2, .5, .8))
     20%      50%      80%
15130.86 16304.70 17669.28
> quantile(x$Adjust, c(.2, .5, .8))
 20%  50%  80%
2220 2890 3468
```

หา Percentile ใช้ฟังก์ชั่น quantile(…, c(.n1, .n2, …)) หา Percentile ที่ 20 50 80

```
> summary(x$Salary)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  10620   11940   13420   13576   15090   16960
> summary(x$Original)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  10010   10010   10010   10010   10010   10010
> summary(x$Level)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  408.7  1293.1  2284.7  2388.9  3403.6  4656.5
> summary(x$NewSalary)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  14020   14020   14020   14020   14020   14020
> summary(x$NewRate)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  14429   15313   16305   16409   17427   18677
> summary(x$Adjust)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   1720    2340    2890    2838    3380    3810
```

หาค่าสถิติโดยรวมใช้ฟังก์ชัน summary() แสดงค่าต่ำสุด Q1 มัธยฐาน ค่าเฉลี่ย Q3 ค่าสูงสุด



No.	Salary	Original	Level	NewSalary	NewRate	Adjust
1	10620	10010	408.7	14020	14428.7	3810
2	11260	10010	837.52	14020	14857.5	3600
3	11940	10010	1293.1	14020	15313.1	3380
4	12660	10010	1775.5	14020	15795.5	3140
5	13420	10010	2284.7	14020	16304.7	2890
6	14230	10010	2827.4	14020	16847.4	2620
7	15090	10010	3403.6	14020	17426.6	2340
8	16000	10010	4013.3	14020	18033.3	2040
9	16960	10010	4656.5	14020	18676.5	1720

```
> mydata = read.csv("mydata.csv", sep=",", header=TRUE)
> mydata
  No. Salary Original   Level NewSalary NewRate Adjust
1   1  10620    10010  408.70     14020 14428.7   3810
2   2  11260    10010  837.52     14020 14857.5   3600
3   3  11940    10010 1293.10     14020 15313.1   3380
4   4  12660    10010 1775.50     14020 15795.5   3140
5   5  13420    10010 2284.70     14020 16304.7   2890
6   6  14230    10010 2827.40     14020 16847.4   2620
7   7  15090    10010 3403.60     14020 17426.6   2340
8   8  16000    10010 4013.30     14020 18033.3   2040
9   9  16960    10010 4656.50     14020 18676.5   1720
```

นำข้อมูลจาก Textfile มาลง Excel และ Savefile นามสกุล CSV

2. แสดงผลลัพธ์จากการใช้คำสั่ง พิสัย, ความแปรปรวน, ค่าเบี่ยงเบนมาตรฐาน, Quartile ,Percentile และ ค่าสถิติโดยรวม

```
> range(mydata$Salary)
[1] 10620 16960
> range(mydata$Original)
[1] 10010 10010
> range(mydata$Level)
[1]  408.7 4656.5
> range(mydata$NewSalary)
[1] 14020 14020
> range(mydata$NewRate)
[1] 14428.7 18676.5
> range(mydata$Adjust)
[1] 1720 3810
```

ค่าพิสัยใช้ฟังก์ชัน range()

Salary = 6340, Original = 0, Levels = 4247.8, NewSalary = 0, NewRate = 4247.8, Adjust = 2090

```
> var(mydata$Salary)
[1] 4711103
> var(mydata$Original)
[1] 0
> var(mydata$Level)
[1] 2114806
> var(mydata$NewSalary)
[1] 0
> var(mydata$NewRate)
[1] 2115576
> var(mydata$Adjust)
[1] 511919.4
```

ความแปรปรวนใช้ฟังก์ชัน var()

Salary = 4711103, Original = 0, Levels = 2114806, NewSalary = 0, NewRate = 2115576,

Adjust = 511919.4

```
> sd(mydata$Salary)
[1] 2170.507
> sd(mydata$Original)
[1] 0
> sd(mydata$Level)
[1] 1454.237
> sd(mydata$NewSalary)
[1] 0
> sd(mydata$NewRate)
[1] 1454.502
> sd(mydata$Adjust)
[1] 715.4855
```

ค่าเบี่ยงเบนมาตราฐานใช้ฟังก์ชัน sd()

Salary = 2170.507, Original = 0, Levels = 1454.237, NewSalary = 0, NewRate = 1454.502,

Adjust = 715.4855

```
> quantile(mydata$Salary)
   0%   25%   50%   75%  100%
10620 11940 13420 15090 16960
> quantile(mydata$Original)
   0%   25%   50%   75%  100%
10010 10010 10010 10010 10010
> quantile(mydata$Level)
    0%    25%    50%    75%   100%
 408.7 1293.1 2284.7 3403.6 4656.5
> quantile(mydata$NewSalary)
   0%   25%   50%   75%  100%
14020 14020 14020 14020 14020
> quantile(mydata$NewRate)
     0%     25%     50%     75%    100%
14428.7 15313.1 16304.7 17426.6 18676.5
> quantile(mydata$Adjust)
  0%  25%  50%  75% 100%
1720 2340 2890 3380 3810
```

หา Quartile ใช้ฟังก์ชัน quantile()

```
> quantile(mydata$Salary, c(.1, .4, .7))
  10%   40%   70%
11132 12812 14746
> quantile(mydata$Original, c(.1, .4, .7))
  10%   40%   70%
10010 10010 10010
> quantile(mydata$Level, c(.1, .4, .7))
     10%      40%      70%
 751.756 1877.340 3173.120
> quantile(mydata$NewSalary, c(.1, .4, .7))
  10%   40%   70%
14020 14020 14020
> quantile(mydata$NewRate, c(.1, .4, .7))
     10%      40%      70%
14771.74 15897.34 17194.92
> quantile(mydata$Adjust, c(.1, .4, .7))
 10%  40%  70%
1976 2674 3284
```

หา Percentile ใช้ฟังก์ชั่น quantile(…, c(.n1, .n2, …)) หา Percentile ที่ 10 40 70

```
> summary(mydata$Salary)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  10620   11940   13420   13576   15090   16960
> summary(mydata$Original)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  10010   10010   10010   10010   10010   10010
> summary(mydata$Level)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  408.7  1293.1  2284.7  2388.9  3403.6  4656.5
> summary(mydata$NewSalary)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  14020   14020   14020   14020   14020   14020
> summary(mydata$NewRate)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  14429   15313   16305   16409   17427   18677
> summary(mydata$Adjust)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
   1720    2340    2890    2838    3380    3810
```

หาค่าสถิติโดยรวมใช้ฟังก์ชัน summary() แสดงค่าต่ำสุด Q1 มัธยฐาน ค่าเฉลี่ย Q3 ค่าสูงสุด