Separation Concept
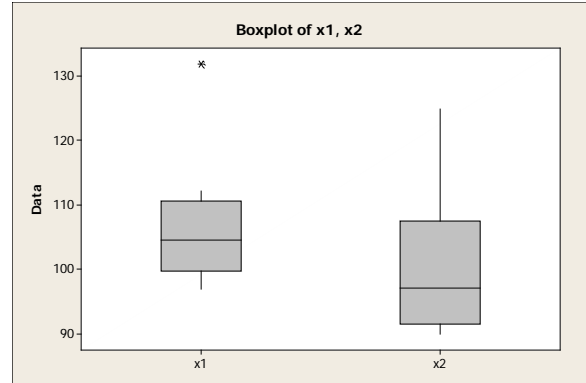
Scenario 1

Two-Sample T-Test and CI: x1, x2

```
Two-sample T for x1 vs x2

      N     Mean   StDev   SE Mean
x1   10   107.15    9.93       3.1
x2   10    100.2    11.1       3.5


Difference = mu (x1) - mu (x2)
Estimate for difference:  6.99
95% CI for difference:  (-2.89, 16.87)
T-Test of difference = 0 (vs not =): T-Value = 1.49   P-Value = 0.155   DF = 18
Both use Pooled StDev = 10.5169
```
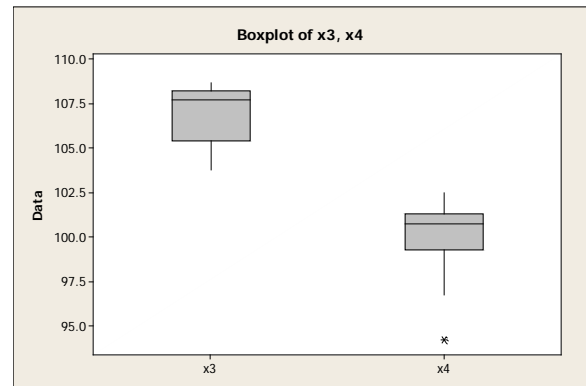

Boxplot of x1, x2

Scenario 2

Two-Sample T-Test and CI: x3, x4

```
Two-sample T for x3 vs x4

      N     Mean   StDev   SE Mean
x3   10   106.99    1.74      0.55
x4   10    99.96    2.49      0.79


Difference = mu (x3) - mu (x4)
Estimate for difference:  7.030
95% CI for difference:  (5.007, 9.053)
T-Test of difference = 0 (vs not =): T-Value = 7.30   P-Value = 0.000   DF = 18
Both use Pooled StDev = 2.1528
```


Boxplot of x3, x4

Scenario 3

Two-Sample T-Test and CI: x5, x6

```
Two-sample T for x5 vs x6

                    SE
     N   Mean  StDev  Mean
x5  10   1016   217    69
x6  10   1191   175    55


Difference = mu (x5) - mu (x6)
Estimate for difference:  -175.1
95% CI for difference:  (-360.1, 10.0)
T-Test of difference = 0 (vs not =): T-Value = -1.99  P-Value = 0.062  DF = 18
Both use Pooled StDev = 196.9710
```
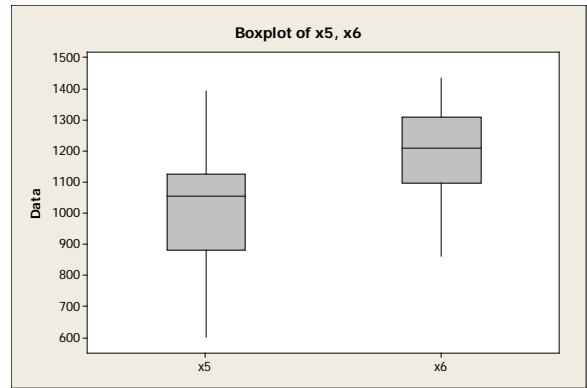

Boxplot of x5, x6

Scenario 4

Two-Sample T-Test and CI: x7, x8

```
Two-sample T for x7 vs x8

                    SE
     N   Mean  StDev  Mean
x7  100  1013   197    20
x8  100  1188   203    20


Difference = mu (x7) - mu (x8)
Estimate for difference:  -175.7
95% CI for difference:  (-231.5, -120.0)
T-Test of difference = 0 (vs not =): T-Value = -6.21  P-Value = 0.000  DF = 198
Both use Pooled StDev = 199.9438
```


Boxplot of x7, x8