Diet	Wtloss
A	3.709
A	7.087
A	6.754
A	8.994
A	9.077
A	6.413
A	5.877
A	2.572
A	7.520
A	6.881
A	7.265
A	3.477
A	3.755
A	8.760
A	7.032
A	9.052
A	10.062
A	4.840
A	6.449
A	9.019
A	-1.715
A	4.718
A	4.007
A	7.241
A	2.128
A	6.968
A	4.853
A	0.055
A	2.680
A	3.746
A	7.033
A	5.033
A	5.569
A	6.712
A	3.663
A	2.741
A	6.256
A	5.349
A	7.300
A	5.445
A	4.970
A	3.613
A	7.568
A	5.861
A	4.157
A	0.203
A	4.441
A	5.875
A	5.715
A	0.280
B	-1.087
B	1.819
B	0.074
B	1.755
B	1.889
B	3.089
B	4.008
B	4.551
B	1.372
B	3.413
B	-4.148
B	2.823
B	2.865
B	4.369
B	6.337
B	6.308
B	3.494
B	10.539
B	3.840
B	5.123
B	5.485
B	-1.894
B	8.016
B	2.310
B	3.882
B	7.030
B	7.727
B	0.105
B	3.650
B	4.547
B	4.985
B	5.159
B	4.760
B	4.934
B	3.106
B	5.598
B	2.162
B	6.520
B	7.046
B	1.757
B	1.848
B	1.096
B	2.145
B	8.435
B	6.099
B	3.972
B	2.409
B	0.569
B	7.013
B	2.594

Diet A	**n**	50
	Mean	5.341
	SD	2.536
Diet B	**n**	50
	Mean	3.710
	SD	2.769

F-Test Two-Sample for Variances

	Variable 1	*Variable 2*
Mean	5.3412	3.70996
Variance	6.429280612	7.66759359
Observations	50	50
df	49	49
F	0.838500442	
P(F<=f) one-tail	0.269951478	
F Critical one-tail	0.622165468	

p2 0.539902956

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	*Variable 2*
Mean	5.3412	3.70996
Variance	6.429280612	7.66759359
Observations	50	50
Pooled Variance	7.048437101	
Hypothesized Mean Difference	0	
df	98	
t Stat	3.072143179	
P(T<=t) one-tail	0.001375772	
t Critical one-tail	1.660551217	
P(T<=t) two-tail	0.002751544	
t Critical two-tail	1.984467455	

Difference in Means 1.63124

Interpretation

This analysis compares weight loss for two diets (A and B), each tested on 50 participants. We first checked whether the two groups had similar variance using an F-test, which showed there was no major difference.

Then, a two-sample t-test (assuming equal variances) was run. Diet A had an average weight loss of about 5.34, while Diet B's average was about 3.71, a difference of around 1.63. Because the p-value (about 0.0028) is lower than 0.05, this difference is statistically significant. Hence, Diet A seems to lead to more weight loss than Diet B.

DATA SET B (Diets.xlsx)

These data relate to the weight losses achieved by two separate samples of 50 human subjects, each of whom undertook one of two different weight reducing diets (A or B).

Variable	**Description**
Diet	The diet undertaken (A or B)
Wtloss	The individual's weight loss (in kg) following a fixed period on the relevant diet

Note that a *negative* value of Wtloss indicates that the individual's weight *increased* over the study period.

The data are as follows:

Diet	Wtloss
A	3.709
A	7.087
A	6.754
⋮	⋮
B	-1.087
B	1.819
B	0.074
⋮	⋮