Practical work 6
Fisher-Test

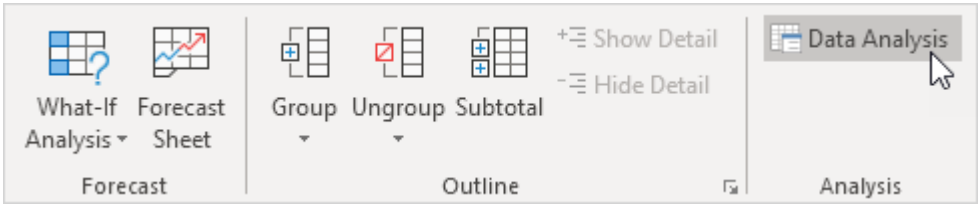
This example teaches you how to perform an F-Test in Excel. The F-Test is used to test the null hypothesis that the variances of two populations are equal.
Below you can find the study hours of 6 female students and 5 male students.

$H_0: \sigma_1^2 = \sigma_2^2$
$H_1: \sigma_1^2 \neq \sigma_2^2$

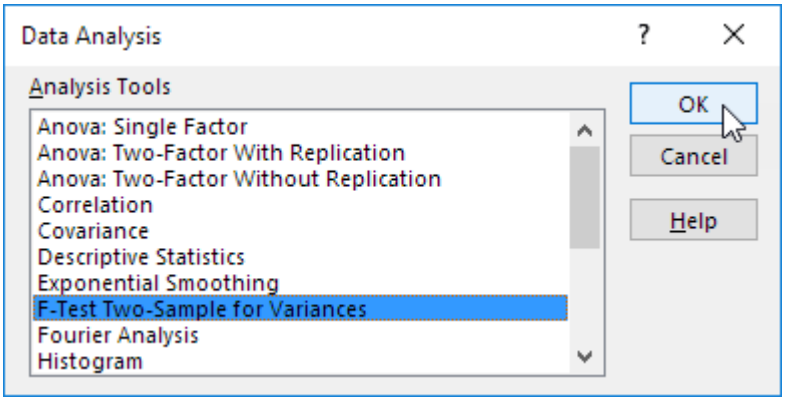
	A	B	C
1	Female	Male	
2	26	23	
3	25	30	
4	43	18	
5	34	25	
6	18	28	
7	52		
8			

To perform an F-Test, execute the following steps.

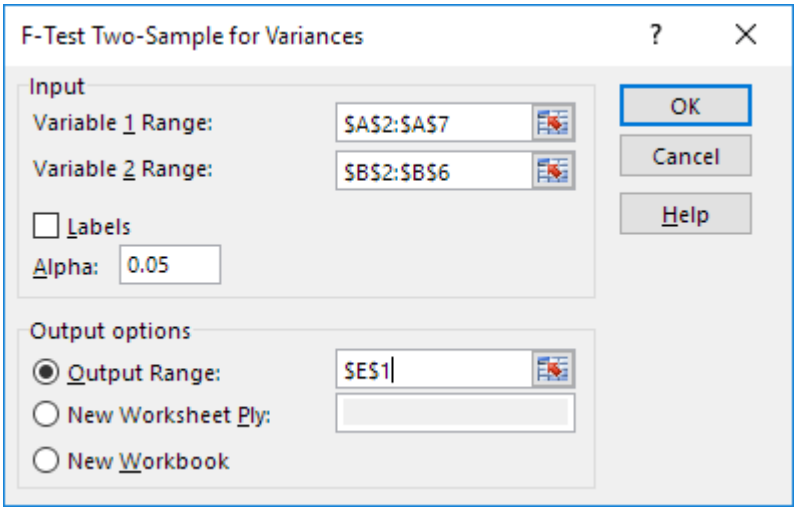
1. On the Data tab, in the Analysis group, click Data Analysis.



2. Select F-Test Two-Sample for Variances and click OK.



3. Click in the Variable 1 Range box and select the range A2:A7.
4. Click in the Variable 2 Range box and select the range B2:B6.
5. Click in the Output Range box and select cell E1.



6. Click OK.

Result:

E	F	G
F-Test Two-Sample for Variances		
	Variable 1	*Variable 2*
Mean	33	24.8
Variance	160	21.7
Observations	6	5
df	5	4
F	7.373271889	
P(F<=f) one-tail	0.037888376	
F Critical one-tail	6.256056502	

Important: be sure that the variance of Variable 1 is higher than the variance of Variable 2. This is the case, 160 > 21.7. If not, swap your data. As a result, Excel calculates the correct F value, which is the ratio of Variance 1 to Variance 2 (F = 160 / 21.7 = 7.373).

Conclusion: if F > F Critical one-tail, we reject the null hypothesis. This is the case,

7.373 > 6.256. Therefore, we reject the null hypothesis. The variances of the two populations are unequal.

Ex: Apply the above in series 6.