

```
1101 0 OUTPUT ACTIVATE SimpleExponentialSmoothingOutput.  
1101 0 M> OUTPUT ACTIVATE SimpleExponentialSmoothingOutput.  
1102 0 TITLE 'Simple Exponential Smoothing'.  
1102 0 M> TITLE 'Simple Exponential Smoothing'.
```

Simple Exponential Smoothing

```
1103 0 GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\N Time Series Tests and Fo
recasting\Simple Exponential Smoothing\dataset.csv' /E
      NCODING='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='"' /ARRAN
GEMENT=DELIMITED /FIRSTCASE=2
1103 0 M> GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\N Time Series Tests and
Forecasting\Simple Exponential Smoothing\dataset.csv'
      /ENCODING='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='"'
/ARRANGEMENT=DELIMITED /FIRSTCASE=2
1104 0 /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A
8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 gua
      rdian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A
8 famsup A8 paid A8 activities A8 nursery A8 higher A8
      internet A8 romantic A8 famrel F8.0 freetime F8.0 goout F8.0 Dalc
F8.0 Walc F8.0 health F8.0 absences F8.0 G1 F8.0 G2 F
      8.0 G3 F8.0.
1104 0 M> /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatu
s A8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16
      guardian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoo
lsup A8 famsup A8 paid A8 activities A8 nursery A8 hig
      her A8 internet A8 romantic A8 famrel F8.0 freetime F8.0 goout
F8.0 Dalc F8.0 Walc F8.0 health F8.0 absences F8.0 G1
      F8.0 G2 F8.0 G3 F8.0.
1105 0 DATASET NAME SimpleExponentialSmoothingData.
1105 0 M> DATASET NAME SimpleExponentialSmoothingData.
1106 0 COMPUTE time_index=$CASENUM.
1106 0 M> COMPUTE time_index=$CASENUM.
1107 0 EXECUTE.
1107 0 M> EXECUTE.
1108 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1108 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1109 0 COMPUTE ses_level=.30*G3+.70*LAG(G3).
1109 0 M> COMPUTE ses_level=.30*G3+.70*LAG(G3).
1110 0 COMPUTE ses_fit=LAG(ses_level).
1110 0 M> COMPUTE ses_fit=LAG(ses_level).
1111 0 COMPUTE ses_error=G3-ses_fit.
1111 0 M> COMPUTE ses_error=G3-ses_fit.
1112 0 DESCRIPTIVES VARIABLES=ses_level ses_fit ses_error /STATISTICS=MEAN S
TDDEV MIN MAX.
```

Simple Exponential Smoothing

```
1112  0 M>  DESCRIPTIVES VARIABLES=ses_level ses_fit ses_error /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Notes

Output Created		18-JUL-2026 15:53:58
Comments		
Input	Data	D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Simple Exponential Smoothing\dataset.csv
	Active Dataset	SimpleExponentialSmoothingData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=ses_level ses_fit ses_error /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.07

[SimpleExponentialSmoothingData]

Simple Exponential Smoothing

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ses_level	648	.00	18.30	11.9074	2.62602
ses_fit	647	.00	18.30	11.9099	2.62728
ses_error	647	-17.30	15.00	-.0011	3.55513
Valid N (listwise)	647				

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1113  0  * END METHOD-SPECIFIC SPSS WORKFLOW.
1113  0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
1114  0  SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Simple Exponential Smoothing\SPSS_Output\sav\simple-exponential-smoothing_spss_ready_data.sav' /COMPRESSED.
1114  0 M> SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Simple Exponential Smoothing\SPSS_Output\sav\simple-exponential-smoothing_spss_ready_data.sav' /COMPRESSED.
1115  0  ECHO 'Simple Exponential Smoothing'.
1115  0 M> ECHO 'Simple Exponential Smoothing'.
Simple Exponential Smoothing
1116  0  ECHO 'Method type: level_forecasting_model'.
1116  0 M> ECHO 'Method type: level_forecasting_model'.
Method type: level_forecasting_model
1117  0  ECHO 'Design: Simple exponential smoothing with one level state and optimized alpha.'.
1117  0 M> ECHO 'Design: Simple exponential smoothing with one level state and optimized alpha.'.
Design: Simple exponential smoothing with one level state and optimized alpha.
1118  0  ECHO 'Formula:  $l_t = \alpha y_t + (1 - \alpha)l_{(t-1)}$ ;  $\hat{y}_{(t+h)} = l_t$ '.
1118  0 M> ECHO 'Formula:  $l_t = \alpha y_t + (1 - \alpha)l_{(t-1)}$ ;  $\hat{y}_{(t+h)} = l_t$ '.
Formula:  $l_t = \alpha y_t + (1 - \alpha)l_{(t-1)}$ ;  $\hat{y}_{(t+h)} = l_t$ 
1119  0  ECHO 'Series order: source-row order'.
1119  0 M> ECHO 'Series order: source-row order'.
Series order: source-row order
1120  0  ECHO 'alpha = 0.11231445912382652'.
1120  0 M> ECHO 'alpha = 0.11231445912382652'.
alpha = 0.11231445912382652
1121  0  ECHO 'initial_level = 12.740218394705218'.
1121  0 M> ECHO 'initial_level = 12.740218394705218'.
initial_level = 12.740218394705218

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Simple Exponential Smoothing

```
1122 0 ECHO 'holdout_mae = 4.857963614306513'.
1122 0 M> ECHO 'holdout_mae = 4.857963614306513'.
holdout_mae = 4.857963614306513
1123 0 ECHO 'holdout_rmse = 5.7647000311867505'.
1123 0 M> ECHO 'holdout_rmse = 5.7647000311867505'.
holdout_rmse = 5.7647000311867505
1124 0 ECHO 'forecast_level = 8.352258217109577'.
1124 0 M> ECHO 'forecast_level = 8.352258217109577'.
forecast_level = 8.352258217109577
1125 0 ECHO 'forecast_horizon = 64'.
1125 0 M> ECHO 'forecast_horizon = 64'.
forecast_horizon = 64
1126 0 ECHO 'Cross-check status: pass'.
1126 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
1127 0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecas
ting\Simple Exponential Smoothing\SPSS_Output\spv\simp
le-exponential-smoothing_spss_output.spv'.
1127 0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Fore
casting\Simple Exponential Smoothing\SPSS_Output\spv\s
imple-exponential-smoothing_spss_output.spv'.
1128 0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\N Time S
eries Tests and Forecasting\Simple Exponential Smoothing\SPSS_Outp
ut\pdf\simple-exponential-smoothing_spss_output.pdf'.
1128 0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\N Tim
e Series Tests and Forecasting\Simple Exponential Smoothing\SPS
S_Output\pdf\simple-exponential-smoothing_spss_output.
pdf'.
```