

MGMT 3344-Managing Production/Operations

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POM Software Library Operating Procedure

POM Library Operating Procedure

2

Accessing POM Library Selection Sequence:
 1-Start
 2-Programs Command
 3-POM Library folder
 4-POM Software Library

3

4

1

Main Menu
 File Module

POM Library initial window
 Select Module for Module Menu

POM Software Library
 for Windows
 Version 2.1

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(A special acknowledgement goes to Craig Boland at the University of Texas at Arlington for his programming assistance.)

Main Menu
 File Module

- Time Series Forecasting
- Causal Regression Forecasting
- Linear Programming
- LP: Assignment
- LP: Transportation
- Line Balancing
- Fixed Order Quantity Inv. Model
- Fixed Order Period Inv. Model
- MRP
- Waiting Lines
- Control Charts
- Acceptance Cr
- Critical Path Method
- PERT

POM Library Module Menu
 Select Time Series Forecasting

Time Series Forecasting
 File Solve Help

Period	Sales
1	0.0
2	0.0
3	0.0

Problem title:

How many time periods of past data?

Name of variable to forecast:

Number of past periods for MAD:

Forecasting Method

- Simple Moving Average
- Weighted Moving Average
- Simple Exponential Smoothing
- Exponential Smoothing with Trend
- Time Series Regression
- Seasonalized Time Series Regression

POM Library Time Series Forecasting Options
 Simple Moving Average selected as default

POM Library Operating Procedure

Moving Average Application-Problem Definition

Time Series Forecasting

File Solve Help

Initial Problem Setup

Period	Demand
1	0.0
2	0.0
3	0.0
4	0.0
5	0.0
6	0.0
7	0.0
8	0.0
9	0.0
10	0.0
11	0.0
12	0.0
13	0.0
14	0.0
15	0.0
16	0.0
17	0.0

Problem title: Ex 3-5 Inventory Forecast

How many time periods of past data? 17

Name of variable to forecast: Demand

Number of past periods for MAD: 10

Forecasting Method

- Simple Moving Average
- Weighted Moving Average
- Simple Exponential Smoothing
- Exponential Smoothing with Trend
- Time Series Regression
- Seasonalized Time Series Regression

Parameters:

Number of averaging periods (AP): 3

Time Series Forecasting

File Solve Help

Data Entry/Select Solve

Period	Demand
1	100.0
2	125.0
3	90.0
4	110.0
5	105.0
6	130.0
7	85.0
8	102.0
9	110.0
10	90.0
11	105.0
12	95.0
13	115.0
14	120.0
15	80.0
16	95.0
17	100.0

Problem title: Ex 3-5 Inventory Forecast

How many time periods of past data? 17

Name of variable to forecast: Demand

Number of past periods for MAD: 10

Forecasting Method

- Simple Moving Average
- Weighted Moving Average
- Simple Exponential Smoothing
- Exponential Smoothing with Trend
- Time Series Regression
- Seasonalized Time Series Regression

Parameters:

Number of averaging periods (AP): 3

POM Library Operating Procedure-Moving Average Application

Ex 3-5 Inventory Forecast

File Minimize Help

Solution for AP = 3

*** SIMPLE MOVING AVERAGE FORECASTING ***

PROBLEM NAME: Ex 3-5 Inventory Forecast

PERIOD	Demand ACTUAL	Demand FORECAST	ABSOLUTE ERROR
1	100.000		
2	125.000		
3	90.000		
4	110.000	105.000	5.000
5	105.000	108.333	3.333
6	130.000	101.667	28.333
7	85.000	115.000	30.000
8	102.000	106.667	4.667
9	110.000	105.667	4.333
10	90.000	99.000	9.000
11	105.000	100.667	4.333
12	95.000	101.667	6.667
13	115.000	96.667	18.333
14	120.000	105.000	15.000
15	80.000	110.000	30.000
16	95.000	105.000	10.000
17	100.000	98.333	1.667
18		91.667	

THE NUMBER OF AVERAGING PERIODS IS = 3

MEAN ABSOLUTE DEVIATION (MAD) FOR THE LAST 10 PERIODS = 10.4

MEAN SQUARED ERROR (MSE) FOR ALL PAST PERIODS = 249.111

MEAN ERROR (bias) FOR ALL PAST PERIODS = -1.19

STANDARD ERROR (sigmasubyx) IS = 16.3791

Notes:

POM Library Operating Procedure

Exponential Smoothing Application

Time Series Forecasting
File Solve Help

Select Exponential Smoothing from Time Series Forecasting Options

Period	Sales
1	0.0
2	0.0
3	0.0

Problem title:

How many time periods of past data?

Name of variable to forecast:

Number of past periods for MAD:

Forecasting Method

- Simple Moving Average
- Weighted Moving Average
- Simple Exponential Smoothing
- Exponential Smoothing with Trend
- Time Series Regression
- Seasonalized Time Series Regression

Parameters:

Smoothing constant (alpha):

Beginning forecast for Period 1:

Initial Problem Screen

Time Series Forecasting
File Solve Help

Problem Setup/Select Solve

Period	Demand
1	102.0
2	110.0
3	90.0
4	105.0
5	95.0
6	115.0
7	120.0
8	80.0
9	95.0
10	100.0

Problem title:

How many time periods of past data?

Name of variable to forecast:

Number of past periods for MAD:

Forecasting Method

- Simple Moving Average
- Weighted Moving Average
- Simple Exponential Smoothing
- Exponential Smoothing with Trend
- Time Series Regression
- Seasonalized Time Series Regression

Parameters:

Smoothing constant (alpha):

Beginning forecast for Period 1:

POM Library Operating Procedure

Exponential Smoothing Application

Ex 3-6 Inventory Forecast

File Minimize Help

Solution for $\alpha = 0.1$

*** EXPONENTIAL SMOOTHING FORECASTING ***

PROBLEM NAME: Ex 3-6 Inventory Forecast

PERIOD	Demand ACTUAL	Demand FORECAST	ABSOLUTE ERROR
1	102.000	85.000	17.000
2	110.000	86.700	23.300
3	90.000	89.030	0.970
4	105.000	89.127	15.873
5	95.000	90.714	4.286
6	115.000	91.143	23.857
7	120.000	93.529	26.471
8	80.000	96.176	16.176
9	95.000	94.558	0.442
10	100.000	94.602	5.398

11		95.142	

THE VALUE OF ALPHA USED IS = 0.1

BEGINNING FORECAST IS = 85

MEAN ABSOLUTE DEVIATION (MAD) FOR THE LAST 10 PERIODS = 13.37

MEAN SQUARED ERROR (MSE) FOR ALL PAST PERIODS = 266.403

MEAN ERROR (bias) FOR ALL PAST PERIODS = 10.142

STANDARD ERROR (sigmasubyx) IS = 17.2048

Notes: