

# Run BJSALES

*Automatic Forecasting Systems Inc.*

*2017-08-18*

```
# Save the current working directory.
saveWd <- getwd()

# Move to the Documents\AutoboxR directory.
setwd("~/AutoboxR")

# Load the library.
library(autobox)

# Initialize the autobox package.
autoboxInitPackage()

## [[1]]
## [1] 0
##
## [[2]]
## [1] "License status: active license, will expire on Fri Aug 18 14:30:57 2017."

# Create a column of M_IND values.
col_M_IND <- c(
  10.01,10.07,10.32, 9.75,10.33,10.13,10.36,10.32,10.13,10.16,
  10.58,10.62,10.86,11.2, 10.74,10.56,10.48,10.77,11.33,10.96,
  11.16,11.7, 11.39,11.42,11.94,11.24,11.59,10.96,11.4, 11.02,
  11.01,11.23,11.33,10.83,10.84,11.14,10.38,10.9, 11.05,11.11,
  11.01,11.22,11.21,11.91,11.69,10.93,10.99,11.01,10.84,10.76,
  10.77,10.88,10.49,10.5, 11, 10.98,10.61,10.48,10.53,11.07,
  10.61,10.86,10.34,10.78,10.8, 10.33,10.44,10.5, 10.75,10.4,
  10.4, 10.34,10.55,10.46,10.82,10.91,10.87,10.67,11.11,10.88,
  11.28,11.27,11.44,11.52,12.1, 11.83,12.62,12.41,12.43,12.73,
  13.01,12.74,12.73,12.76,12.92,12.64,12.79,13.05,12.69,13.01,
  12.9, 13.12,12.47,12.47,12.94,13.1, 12.91,13.39,13.13,13.34,
  13.34,13.14,13.49,13.87,13.39,13.59,13.27,13.7, 13.2, 13.32,
  13.15,13.3, 12.94,13.29,13.26,13.08,13.24,13.31,13.52,13.02,
  13.25,13.12,13.26,13.11,13.3, 13.06,13.32,13.1, 13.27,13.64,
  13.58,13.87,13.53,13.41,13.25,13.5, 13.58,13.51,13.77,13.4)

# Create a column of test values.
col_test <- c(
  200.1,199.5,199.4,198.9,199, 200.2,198.6,200, 200.3,201.2,
  201.6,201.5,201.5,203.5,204.9,207.1,210.5,210.5,209.8,208.8,
  209.5,213.2,213.7,215.1,218.7,219.8,220.5,223.8,222.8,223.8,
  221.7,222.3,220.8,219.4,220.1,220.6,218.9,217.8,217.7,215,
  215.3,215.9,216.7,216.7,217.7,218.7,222.9,224.9,222.2,220.7,
  220, 218.7,217, 215.9,215.8,214.1,212.3,213.9,214.6,213.6,
  212.1,211.4,213.1,212.9,213.3,211.5,212.3,213, 211, 210.7,
  210.1,211.4,210, 209.7,208.8,208.8,208.8,210.6,211.9,212.8,
```

```

212.5,214.8,215.3,217.5,218.8,220.7,222.2,226.7,228.4,233.2,
235.7,237.1,240.6,243.8,245.3,246, 246.3,247.7,247.6,247.8,
249.4,249, 249.9,250.5,251.5,249, 247.6,248.8,250.4,250.7,
253, 253.7,255, 256.2,256, 257.4,260.4,260, 261.3,260.4,
261.6,260.8,259.8,259, 258.9,257.4,257.7,257.9,257.4,257.3,
257.6,258.9,257.8,257.7,257.2,257.5,256.8,257.5,257, 257.6,
257.3,257.5,259.6,261.1,262.9,263.3,262.8,261.8,262.2,262.7)

# Run the forecast with future values.
# Create a list of 10 zero's of future values for the M_IND column.
M_IND_future <- rep(0,10)
# Create a list of 10 NA's of future values for the test column.
test_future <- rep(NA,10)
# Create a matrix of BJSales values.
mBJSales <- matrix(c(col_M_IND,M_IND_future,col_test,test_future),
                    ncol=2,
                    dimnames=list(c(1:(length(col_M_IND)+10)),c("M_IND","test")))

# Create a time series from the matrix.
tsBJSales <- ts(mBJSales,start=c(1,1),frequency=1)

# Print the time series.
print(tsBJSales)

```

```

## Time Series:
## Start = 1
## End = 160
## Frequency = 1
##      M_IND  test
##  1 10.01 200.1
##  2 10.07 199.5
##  3 10.32 199.4
##  4  9.75 198.9
##  5 10.33 199.0
##  6 10.13 200.2
##  7 10.36 198.6
##  8 10.32 200.0
##  9 10.13 200.3
## 10 10.16 201.2
## 11 10.58 201.6
## 12 10.62 201.5
## 13 10.86 201.5
## 14 11.20 203.5
## 15 10.74 204.9
## 16 10.56 207.1
## 17 10.48 210.5
## 18 10.77 210.5
## 19 11.33 209.8
## 20 10.96 208.8
## 21 11.16 209.5
## 22 11.70 213.2
## 23 11.39 213.7
## 24 11.42 215.1

```

## 25 11.94 218.7  
## 26 11.24 219.8  
## 27 11.59 220.5  
## 28 10.96 223.8  
## 29 11.40 222.8  
## 30 11.02 223.8  
## 31 11.01 221.7  
## 32 11.23 222.3  
## 33 11.33 220.8  
## 34 10.83 219.4  
## 35 10.84 220.1  
## 36 11.14 220.6  
## 37 10.38 218.9  
## 38 10.90 217.8  
## 39 11.05 217.7  
## 40 11.11 215.0  
## 41 11.01 215.3  
## 42 11.22 215.9  
## 43 11.21 216.7  
## 44 11.91 216.7  
## 45 11.69 217.7  
## 46 10.93 218.7  
## 47 10.99 222.9  
## 48 11.01 224.9  
## 49 10.84 222.2  
## 50 10.76 220.7  
## 51 10.77 220.0  
## 52 10.88 218.7  
## 53 10.49 217.0  
## 54 10.50 215.9  
## 55 11.00 215.8  
## 56 10.98 214.1  
## 57 10.61 212.3  
## 58 10.48 213.9  
## 59 10.53 214.6  
## 60 11.07 213.6  
## 61 10.61 212.1  
## 62 10.86 211.4  
## 63 10.34 213.1  
## 64 10.78 212.9  
## 65 10.80 213.3  
## 66 10.33 211.5  
## 67 10.44 212.3  
## 68 10.50 213.0  
## 69 10.75 211.0  
## 70 10.40 210.7  
## 71 10.40 210.1  
## 72 10.34 211.4  
## 73 10.55 210.0  
## 74 10.46 209.7  
## 75 10.82 208.8  
## 76 10.91 208.8  
## 77 10.87 208.8  
## 78 10.67 210.6

## 79 11.11 211.9  
## 80 10.88 212.8  
## 81 11.28 212.5  
## 82 11.27 214.8  
## 83 11.44 215.3  
## 84 11.52 217.5  
## 85 12.10 218.8  
## 86 11.83 220.7  
## 87 12.62 222.2  
## 88 12.41 226.7  
## 89 12.43 228.4  
## 90 12.73 233.2  
## 91 13.01 235.7  
## 92 12.74 237.1  
## 93 12.73 240.6  
## 94 12.76 243.8  
## 95 12.92 245.3  
## 96 12.64 246.0  
## 97 12.79 246.3  
## 98 13.05 247.7  
## 99 12.69 247.6  
## 100 13.01 247.8  
## 101 12.90 249.4  
## 102 13.12 249.0  
## 103 12.47 249.9  
## 104 12.47 250.5  
## 105 12.94 251.5  
## 106 13.10 249.0  
## 107 12.91 247.6  
## 108 13.39 248.8  
## 109 13.13 250.4  
## 110 13.34 250.7  
## 111 13.34 253.0  
## 112 13.14 253.7  
## 113 13.49 255.0  
## 114 13.87 256.2  
## 115 13.39 256.0  
## 116 13.59 257.4  
## 117 13.27 260.4  
## 118 13.70 260.0  
## 119 13.20 261.3  
## 120 13.32 260.4  
## 121 13.15 261.6  
## 122 13.30 260.8  
## 123 12.94 259.8  
## 124 13.29 259.0  
## 125 13.26 258.9  
## 126 13.08 257.4  
## 127 13.24 257.7  
## 128 13.31 257.9  
## 129 13.52 257.4  
## 130 13.02 257.3  
## 131 13.25 257.6  
## 132 13.12 258.9

```
## 133 13.26 257.8
## 134 13.11 257.7
## 135 13.30 257.2
## 136 13.06 257.5
## 137 13.32 256.8
## 138 13.10 257.5
## 139 13.27 257.0
## 140 13.64 257.6
## 141 13.58 257.3
## 142 13.87 257.5
## 143 13.53 259.6
## 144 13.41 261.1
## 145 13.25 262.9
## 146 13.50 263.3
## 147 13.58 262.8
## 148 13.51 261.8
## 149 13.77 262.2
## 150 13.40 262.7
## 151 0.00 NA
## 152 0.00 NA
## 153 0.00 NA
## 154 0.00 NA
## 155 0.00 NA
## 156 0.00 NA
## 157 0.00 NA
## 158 0.00 NA
## 159 0.00 NA
## 160 0.00 NA
```

```
# Make an autobox object.
objBJSales <- autobox(tsBJSales,
  iDataType=c(2,0),
  iObjective=c(0,0,0),
  iNumberOfRetainedValues=0,
  iNumberOfForecastValues=10,
  cPath=".\\Output")
```

```
# Run the calculation.
objBJSales <- autoboxRun(objBJSales)
```

```
# Print the status.
print(objBJSales$cStatus)
```

```
## [1] "test: Autobox calculation complete, return code = 0."
```

```
# Print the results
# The selection parameter selects the values to print:
# a = Actual,
# c = Cleansed (Adjusted),
# e = Equations,
# f = Forecast,
# h = Historical,
# i = Interventions,
```

```

# r = Residual,
# s = Statistics,
# t = Fitted.
autoboxPrint(objBJSales,selection="acefirst")

```

```

## [1] "
## [2] " AUTOMATIC FORECASTING SYSTEMS
## [3] "      HATBORO PA 19040
## [4] "      215-675-0652
## [5] "      VERSION: 08/10/2017 16:33
## [6] "
## [7] "
## [8] "
## [9] "MODELLING OUTPUT SERIES:test
## [10] "
## [11] "
## [12] "
## [13] "[(1-B**1)]Y(T) = 0.51106E-01          test
## [14] "          +[X1(T)][(1-B**1)][(1- 0.724B** 1)]**-1 [
## [15] "          (+ 4.7228B** 3)]      M_IND
## [16] "          +[X2(T)][(1-B**1)][(- 0.579)]      :PULSE      92      I~ "
## [17] "          +      [(1+ 0.419B** 1)]**-1 [A(T)]      test
## [18] "
## [19] "
## [20] "
## [1] "test          1      1      1      3
## [2] "      1
## [3] "      0.1410D-01
## [4] "      0.1000D+01      0.0000D+00
## [5] "      1      1      0      0
## [6] "      1
## [7] "      1
## [8] "      1
## [9] "      -0.4191D+00
## [10] "M_IND
## [11] "      0.1000D+01      0.0000D+00
## [12] "      1      1      1      0
## [13] "      1
## [14] "      1      1
## [15] "      1      3
## [16] "      0.7242D+00      0.4723D+01
## [17] "I~P00092test
## [18] "      0.1000D+01      0.0000D+00
## [19] "      0      1      1      0
## [20] "      1
## [21] "      1
## [22] "      0
## [23] "      -0.5792D+00
##      Period      Actual      Adjusted      Forecast      LowerLimits      UpperLimits      M_IND
## 1      1 1 200.10000 200.10000      NA      NA      NA 10.01000
## 2      2 1 199.50000 199.50000      NA      NA      NA 10.07000
## 3      3 1 199.40000 199.40000      NA      NA      NA 10.32000
## 4      4 1 198.90000 198.90000      NA      NA      NA 9.75000

```

## 5	5	1	199.00000	199.00000	NA	NA	NA 10.33000
## 6	6	1	200.20000	200.20000	NA	NA	NA 10.13000
## 7	7	1	198.60000	198.60000	NA	NA	NA 10.36000
## 8	8	1	200.00000	200.00000	NA	NA	NA 10.32000
## 9	9	1	200.30000	200.30000	NA	NA	NA 10.13000
## 10	10	1	201.20000	201.20000	NA	NA	NA 10.16000
## 11	11	1	201.60000	201.60000	NA	NA	NA 10.58000
## 12	12	1	201.50000	201.50000	NA	NA	NA 10.62000
## 13	13	1	201.50000	201.50000	NA	NA	NA 10.86000
## 14	14	1	203.50000	203.50000	NA	NA	NA 11.20000
## 15	15	1	204.90000	204.90000	NA	NA	NA 10.74000
## 16	16	1	207.10000	207.10000	NA	NA	NA 10.56000
## 17	17	1	210.50000	210.50000	NA	NA	NA 10.48000
## 18	18	1	210.50000	210.50000	NA	NA	NA 10.77000
## 19	19	1	209.80000	209.80000	NA	NA	NA 11.33000
## 20	20	1	208.80000	208.80000	NA	NA	NA 10.96000
## 21	21	1	209.50000	209.50000	NA	NA	NA 11.16000
## 22	22	1	213.20000	213.20000	NA	NA	NA 11.70000
## 23	23	1	213.70000	213.70000	NA	NA	NA 11.39000
## 24	24	1	215.10000	215.10000	NA	NA	NA 11.42000
## 25	25	1	218.70000	218.70000	NA	NA	NA 11.94000
## 26	26	1	219.80000	219.80000	NA	NA	NA 11.24000
## 27	27	1	220.50000	220.50000	NA	NA	NA 11.59000
## 28	28	1	223.80000	223.80000	NA	NA	NA 10.96000
## 29	29	1	222.80000	222.80000	NA	NA	NA 11.40000
## 30	30	1	223.80000	223.80000	NA	NA	NA 11.02000
## 31	31	1	221.70000	221.70000	NA	NA	NA 11.01000
## 32	32	1	222.30000	222.30000	NA	NA	NA 11.23000
## 33	33	1	220.80000	220.80000	NA	NA	NA 11.33000
## 34	34	1	219.40000	219.40000	NA	NA	NA 10.83000
## 35	35	1	220.10000	220.10000	NA	NA	NA 10.84000
## 36	36	1	220.60000	220.60000	NA	NA	NA 11.14000
## 37	37	1	218.90000	218.90000	NA	NA	NA 10.38000
## 38	38	1	217.80000	217.80000	NA	NA	NA 10.90000
## 39	39	1	217.70000	217.70000	NA	NA	NA 11.05000
## 40	40	1	215.00000	215.00000	NA	NA	NA 11.11000
## 41	41	1	215.30000	215.30000	NA	NA	NA 11.01000
## 42	42	1	215.90000	215.90000	NA	NA	NA 11.22000
## 43	43	1	216.70000	216.70000	NA	NA	NA 11.21000
## 44	44	1	216.70000	216.70000	NA	NA	NA 11.91000
## 45	45	1	217.70000	217.70000	NA	NA	NA 11.69000
## 46	46	1	218.70000	218.70000	NA	NA	NA 10.93000
## 47	47	1	222.90000	222.90000	NA	NA	NA 10.99000
## 48	48	1	224.90000	224.90000	NA	NA	NA 11.01000
## 49	49	1	222.20000	222.20000	NA	NA	NA 10.84000
## 50	50	1	220.70000	220.70000	NA	NA	NA 10.76000
## 51	51	1	220.00000	220.00000	NA	NA	NA 10.77000
## 52	52	1	218.70000	218.70000	NA	NA	NA 10.88000
## 53	53	1	217.00000	217.00000	NA	NA	NA 10.49000
## 54	54	1	215.90000	215.90000	NA	NA	NA 10.50000
## 55	55	1	215.80000	215.80000	NA	NA	NA 11.00000
## 56	56	1	214.10000	214.10000	NA	NA	NA 10.98000
## 57	57	1	212.30000	212.30000	NA	NA	NA 10.61000
## 58	58	1	213.90000	213.90000	NA	NA	NA 10.48000

## 59	59	1	214.60000	214.60000	NA	NA	NA 10.53000
## 60	60	1	213.60000	213.60000	NA	NA	NA 11.07000
## 61	61	1	212.10000	212.10000	NA	NA	NA 10.61000
## 62	62	1	211.40000	211.40000	NA	NA	NA 10.86000
## 63	63	1	213.10000	213.10000	NA	NA	NA 10.34000
## 64	64	1	212.90000	212.90000	NA	NA	NA 10.78000
## 65	65	1	213.30000	213.30000	NA	NA	NA 10.80000
## 66	66	1	211.50000	211.50000	NA	NA	NA 10.33000
## 67	67	1	212.30000	212.30000	NA	NA	NA 10.44000
## 68	68	1	213.00000	213.00000	NA	NA	NA 10.50000
## 69	69	1	211.00000	211.00000	NA	NA	NA 10.75000
## 70	70	1	210.70000	210.70000	NA	NA	NA 10.40000
## 71	71	1	210.10000	210.10000	NA	NA	NA 10.40000
## 72	72	1	211.40000	211.40000	NA	NA	NA 10.34000
## 73	73	1	210.00000	210.00000	NA	NA	NA 10.55000
## 74	74	1	209.70000	209.70000	NA	NA	NA 10.46000
## 75	75	1	208.80000	208.80000	NA	NA	NA 10.82000
## 76	76	1	208.80000	208.80000	NA	NA	NA 10.91000
## 77	77	1	208.80000	208.80000	NA	NA	NA 10.87000
## 78	78	1	210.60000	210.60000	NA	NA	NA 10.67000
## 79	79	1	211.90000	211.90000	NA	NA	NA 11.11000
## 80	80	1	212.80000	212.80000	NA	NA	NA 10.88000
## 81	81	1	212.50000	212.50000	NA	NA	NA 11.28000
## 82	82	1	214.80000	214.80000	NA	NA	NA 11.27000
## 83	83	1	215.30000	215.30000	NA	NA	NA 11.44000
## 84	84	1	217.50000	217.50000	NA	NA	NA 11.52000
## 85	85	1	218.80000	218.80000	NA	NA	NA 12.10000
## 86	86	1	220.70000	220.70000	NA	NA	NA 11.83000
## 87	87	1	222.20000	222.20000	NA	NA	NA 12.62000
## 88	88	1	226.70000	226.70000	NA	NA	NA 12.41000
## 89	89	1	228.40000	228.40000	NA	NA	NA 12.43000
## 90	90	1	233.20000	233.20000	NA	NA	NA 12.73000
## 91	91	1	235.70000	235.70000	NA	NA	NA 13.01000
## 92	92	1	237.10000	237.67919	NA	NA	NA 12.74000
## 93	93	1	240.60000	240.60000	NA	NA	NA 12.73000
## 94	94	1	243.80000	243.80000	NA	NA	NA 12.76000
## 95	95	1	245.30000	245.30000	NA	NA	NA 12.92000
## 96	96	1	246.00000	246.00000	NA	NA	NA 12.64000
## 97	97	1	246.30000	246.30000	NA	NA	NA 12.79000
## 98	98	1	247.70000	247.70000	NA	NA	NA 13.05000
## 99	99	1	247.60000	247.60000	NA	NA	NA 12.69000
## 100	100	1	247.80000	247.80000	NA	NA	NA 13.01000
## 101	101	1	249.40000	249.40000	NA	NA	NA 12.90000
## 102	102	1	249.00000	249.00000	NA	NA	NA 13.12000
## 103	103	1	249.90000	249.90000	NA	NA	NA 12.47000
## 104	104	1	250.50000	250.50000	NA	NA	NA 12.47000
## 105	105	1	251.50000	251.50000	NA	NA	NA 12.94000
## 106	106	1	249.00000	249.00000	NA	NA	NA 13.10000
## 107	107	1	247.60000	247.60000	NA	NA	NA 12.91000
## 108	108	1	248.80000	248.80000	NA	NA	NA 13.39000
## 109	109	1	250.40000	250.40000	NA	NA	NA 13.13000
## 110	110	1	250.70000	250.70000	NA	NA	NA 13.34000
## 111	111	1	253.00000	253.00000	NA	NA	NA 13.34000
## 112	112	1	253.70000	253.70000	NA	NA	NA 13.14000



##	113	113	1	255.00000	255.00000	NA	NA	NA	13.49000
##	114	114	1	256.20000	256.20000	NA	NA	NA	13.87000
##	115	115	1	256.00000	256.00000	NA	NA	NA	13.39000
##	116	116	1	257.40000	257.40000	NA	NA	NA	13.59000
##	117	117	1	260.40000	260.40000	NA	NA	NA	13.27000
##	118	118	1	260.00000	260.00000	NA	NA	NA	13.70000
##	119	119	1	261.30000	261.30000	NA	NA	NA	13.20000
##	120	120	1	260.40000	260.40000	NA	NA	NA	13.32000
##	121	121	1	261.60000	261.60000	NA	NA	NA	13.15000
##	122	122	1	260.80000	260.80000	NA	NA	NA	13.30000
##	123	123	1	259.80000	259.80000	NA	NA	NA	12.94000
##	124	124	1	259.00000	259.00000	NA	NA	NA	13.29000
##	125	125	1	258.90000	258.90000	NA	NA	NA	13.26000
##	126	126	1	257.40000	257.40000	NA	NA	NA	13.08000
##	127	127	1	257.70000	257.70000	NA	NA	NA	13.24000
##	128	128	1	257.90000	257.90000	NA	NA	NA	13.31000
##	129	129	1	257.40000	257.40000	NA	NA	NA	13.52000
##	130	130	1	257.30000	257.30000	NA	NA	NA	13.02000
##	131	131	1	257.60000	257.60000	NA	NA	NA	13.25000
##	132	132	1	258.90000	258.90000	NA	NA	NA	13.12000
##	133	133	1	257.80000	257.80000	NA	NA	NA	13.26000
##	134	134	1	257.70000	257.70000	NA	NA	NA	13.11000
##	135	135	1	257.20000	257.20000	NA	NA	NA	13.30000
##	136	136	1	257.50000	257.50000	NA	NA	NA	13.06000
##	137	137	1	256.80000	256.80000	NA	NA	NA	13.32000
##	138	138	1	257.50000	257.50000	NA	NA	NA	13.10000
##	139	139	1	257.00000	257.00000	NA	NA	NA	13.27000
##	140	140	1	257.60000	257.60000	NA	NA	NA	13.64000
##	141	141	1	257.30000	257.30000	NA	NA	NA	13.58000
##	142	142	1	257.50000	257.50000	NA	NA	NA	13.87000
##	143	143	1	259.60000	259.60000	NA	NA	NA	13.53000
##	144	144	1	261.10000	261.10000	NA	NA	NA	13.41000
##	145	145	1	262.90000	262.90000	NA	NA	NA	13.25000
##	146	146	1	263.30000	263.30000	NA	NA	NA	13.50000
##	147	147	1	262.80000	262.80000	NA	NA	NA	13.58000
##	148	148	1	261.80000	261.80000	NA	NA	NA	13.51000
##	149	149	1	262.20000	262.20000	NA	NA	NA	13.77000
##	150	150	1	262.70000	262.70000	NA	NA	NA	13.40000
##	151	151	1	NA	NA	262.92500	262.42500	263.32100	0.00000
##	152	152	1	NA	NA	264.24900	263.74700	264.67100	0.00000
##	153	153	1	NA	NA	263.50300	262.96200	263.93600	0.00000
##	154	154	1	NA	NA	199.67300	199.12600	200.06900	0.00000
##	155	155	1	NA	NA	153.46400	152.92300	153.89100	0.00000
##	156	156	1	NA	NA	120.00800	119.58500	120.45700	0.00000
##	157	157	1	NA	NA	95.79100	95.25400	96.22900	0.00000
##	158	158	1	NA	NA	78.26300	77.71600	78.69200	0.00000
##	159	159	1	NA	NA	65.57900	65.04500	65.99600	0.00000
##	160	160	1	NA	NA	56.40400	55.97800	56.80500	0.00000
##	test Interventions			Residuals	Fitted				
##	1	200.10000		0.0000000	200.10000				
##	2	199.50000		0.0000000	199.50000				
##	3	199.40000		0.0000000	199.40000				
##	4	198.90000		0.0000000	198.90000				
##	5	199.00000		0.0000000	199.00000				

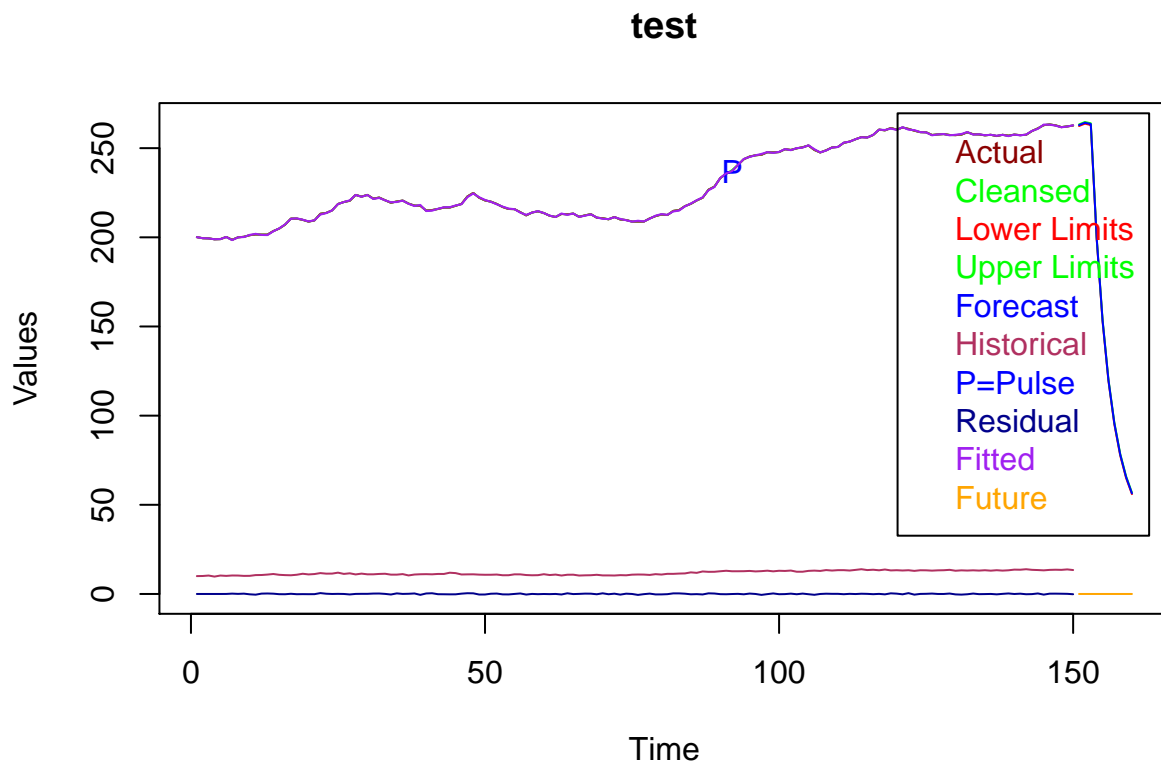
## 6	200.20000	0.0076795	200.19232
## 7	198.60000	0.1921964	198.40780
## 8	200.00000	0.0379938	199.96201
## 9	200.30000	0.1684629	200.13154
## 10	201.20000	-0.1989130	201.39891
## 11	201.60000	-0.3901013	201.99010
## 12	201.50000	0.1847254	201.31527
## 13	201.50000	0.2631715	201.23683
## 14	203.50000	0.1638703	203.33613
## 15	204.90000	-0.1258212	205.02582
## 16	207.10000	-0.1519863	207.25199
## 17	210.50000	0.0989511	210.40105
## 18	210.50000	-0.1478965	210.64790
## 19	209.80000	-0.0925079	209.89251
## 20	208.80000	-0.1334254	208.93343
## 21	209.50000	-0.1044589	209.60446
## 22	213.20000	0.4814118	212.71859
## 23	213.70000	0.1322954	213.56770
## 24	215.10000	-0.0060047	215.10600
## 25	218.70000	0.0564942	218.64351
## 26	219.80000	-0.0011468	219.80115
## 27	220.50000	-0.2712207	220.77122
## 28	223.80000	0.0268299	223.77317
## 29	222.80000	0.0628366	222.73716
## 30	223.80000	0.0674728	223.73253
## 31	221.70000	0.2158037	221.48420
## 32	222.30000	0.2482878	222.05171
## 33	220.80000	0.0437860	220.75621
## 34	219.40000	-0.3074906	219.70749
## 35	220.10000	0.3263675	219.77363
## 36	220.60000	0.0258613	220.57414
## 37	218.90000	0.1031226	218.79688
## 38	217.80000	0.2699079	217.53009
## 39	217.70000	-0.5037301	218.20373
## 40	215.00000	0.2810282	214.71897
## 41	215.30000	0.3919083	214.90809
## 42	215.90000	-0.1400251	216.04003
## 43	216.70000	-0.1698678	216.86987
## 44	216.70000	-0.2097561	216.90976
## 45	217.70000	-0.2026604	217.90266
## 46	218.70000	0.1656276	218.53437
## 47	222.90000	0.4110743	222.48893
## 48	224.90000	0.3522370	224.54776
## 49	222.20000	-0.3190878	222.51909
## 50	220.70000	-0.3075329	221.00753
## 51	220.00000	0.1270597	219.87294
## 52	218.70000	0.2100239	218.48998
## 53	217.00000	-0.2386287	217.23863
## 54	215.90000	-0.2625922	216.16259
## 55	215.80000	0.0079810	215.79202
## 56	214.10000	0.2802218	213.81978
## 57	212.30000	-0.3374643	212.63746
## 58	213.90000	0.0254173	213.87458
## 59	214.60000	-0.1327265	214.73273

## 60	213.60000	-0.0223417	213.62234
## 61	212.10000	-0.0913259	212.19133
## 62	211.40000	0.0020667	211.39793
## 63	213.10000	-0.2930818	213.39308
## 64	212.90000	0.3711362	212.52886
## 65	213.30000	-0.0704834	213.37048
## 66	211.50000	0.0345703	211.46543
## 67	212.30000	0.1898919	212.11011
## 68	213.00000	0.1602977	212.83970
## 69	211.00000	-0.1742286	211.17423
## 70	210.70000	0.3682192	210.33178
## 71	210.10000	-0.1500063	210.25001
## 72	211.40000	0.1519085	211.24809
## 73	210.00000	-0.3604368	210.36044
## 74	209.70000	0.1502127	209.54979
## 75	208.80000	-0.0055189	208.80552
## 76	208.80000	-0.5255000	209.32550
## 77	208.80000	-0.1121035	208.91210
## 78	210.60000	0.1826402	210.41736
## 79	211.90000	-0.2685939	212.16859
## 80	212.80000	-0.2407441	213.04074
## 81	212.50000	-0.1338281	212.63383
## 82	214.80000	0.3251815	214.47482
## 83	215.30000	0.3260990	214.97390
## 84	217.50000	0.1375750	217.36243
## 85	218.80000	-0.1819035	218.98190
## 86	220.70000	-0.0932277	220.79323
## 87	222.20000	-0.2701337	222.47013
## 88	226.70000	0.3584124	226.34159
## 89	228.40000	0.2444829	228.15552
## 90	233.20000	-0.1180651	233.31807
## 91	235.70000	-0.1518240	235.85182
## 92	237.10000	Pulse -0.5792 -0.0431704	237.14317
## 93	240.60000	0.0564384	240.54356
## 94	243.80000	-0.1811943	243.98119
## 95	245.30000	0.2129006	245.08710
## 96	246.00000	-0.0071055	246.00711
## 97	246.30000	-0.5099442	246.80994
## 98	247.70000	-0.1023958	247.80240
## 99	247.60000	0.2992820	247.30072
## 100	247.80000	-0.1459704	247.94597
## 101	249.40000	-0.0753044	249.47530
## 102	249.00000	0.1681291	248.83187
## 103	249.90000	-0.1546590	250.05466
## 104	250.50000	0.2068568	250.29314
## 105	251.50000	-0.1417945	251.64179
## 106	249.00000	-0.4695769	249.46958
## 107	247.60000	-0.0083859	247.60839
## 108	248.80000	0.1459730	248.65403
## 109	250.40000	0.0644823	250.33552
## 110	250.70000	0.0609100	250.63909
## 111	253.00000	-0.1380012	253.13800
## 112	253.70000	0.0710833	253.62892
## 113	255.00000	-0.0514030	255.05140

## 114	256.20000	0.1239610	256.07604
## 115	256.00000	0.0595860	255.94041
## 116	257.40000	-0.1312558	257.53126
## 117	260.40000	0.0369959	260.36300
## 118	260.00000	-0.2126444	260.21264
## 119	261.30000	0.3489488	260.95105
## 120	260.40000	0.1788367	260.22116
## 121	261.60000	-0.2019950	261.80200
## 122	260.80000	0.4569802	260.34302
## 123	259.80000	-0.3803745	260.18037
## 124	259.00000	0.0236946	258.97631
## 125	258.90000	0.0786912	258.82131
## 126	257.40000	0.2195214	257.18048
## 127	257.70000	-0.0075810	257.70758
## 128	257.90000	-0.0069357	257.90694
## 129	257.40000	0.2383026	257.16170
## 130	257.30000	-0.2490551	257.54906
## 131	257.60000	-0.3594859	257.95949
## 132	258.90000	-0.1659507	259.06595
## 133	257.80000	0.2238224	257.57618
## 134	257.70000	-0.1075581	257.80756
## 135	257.20000	-0.0689023	257.26890
## 136	257.50000	0.0150140	257.48499
## 137	256.80000	-0.2116781	257.01168
## 138	257.50000	0.0546805	257.44532
## 139	257.00000	0.2818021	256.71820
## 140	257.60000	-0.0228280	257.62283
## 141	257.30000	0.1624722	257.13753
## 142	257.50000	-0.1544433	257.65444
## 143	259.60000	-0.0798378	259.67984
## 144	261.10000	0.2777298	260.82227
## 145	262.90000	-0.3588114	263.25881
## 146	263.30000	0.1534154	263.14658
## 147	262.80000	0.1683749	262.63163
## 148	261.80000	0.1321513	261.66785
## 149	262.20000	0.0744247	262.12558
## 150	262.70000	-0.1513876	262.85139
## 151	NA	NA	NA
## 152	NA	NA	NA
## 153	NA	NA	NA
## 154	NA	NA	NA
## 155	NA	NA	NA
## 156	NA	NA	NA
## 157	NA	NA	NA
## 158	NA	NA	NA
## 159	NA	NA	NA
## 160	NA	NA	NA
##		Statistic	Value
## 1		RSQ	9.998929e-01
## 2		RMSE (VARIANCE OF ERRORS)	2.211079e-01
## 3		STD DEV OF ERRORS	0.000000e+00
## 4		MAPE	7.587822e-04
## 5		SUM OF FORECASTS	1.559859e+03
## 6		DAYS LEFT IN TRIAL PERIOD	1.600000e+01

```
## 7 NOT ACTIVE 0.000000e+00
## 8 FORECAST CONFIDENCE INTERVAL 9.500000e+01
## 9 SUM OF SQUARES OF RESIDUALS 6.844417e+00
## 10 DEGREES OF FREEDOM FOR MODEL 1.400000e+02
## 11 NUMBER OF PARAMETERS IN MODEL 5.000000e+00
## 12 SEASONAL INDICATOR (1 IF THERE ARE ANY SEASONAL ELEMENTS) 0.000000e+00
## 13 NULL 0.000000e+00
```

```
# Plot the result.
# The selection parameter selects the values to plot:
# a = Actual,
# c = Cleansed (Adjusted),
# f = Forecast,
# h = Historical,
# i = Interventions,
# n = Retained,
# r = Residual,
# t = Fitted,
# u = Future.
autoboxPlot(objBJSales,selection="acfhinrtu")
```



```
# Create a matrix of BJSales values without future data.
mBJSales <- matrix(c(col_M_IND,col_test),
  ncol=2,
  dimnames=list(c(1:(length(col_M_IND))),c("M_IND","test")))
```

```
# Create a time series from the matrix.
tsBJSales <- ts(mBJSales,start=c(1,1),frequency=1)
```

```
# Print the time series.
print(tsBJSales)
```

```
## Time Series:
## Start = 1
## End = 150
## Frequency = 1
##      M_IND test
##  1 10.01 200.1
##  2 10.07 199.5
##  3 10.32 199.4
##  4  9.75 198.9
##  5 10.33 199.0
##  6 10.13 200.2
##  7 10.36 198.6
##  8 10.32 200.0
##  9 10.13 200.3
## 10 10.16 201.2
## 11 10.58 201.6
## 12 10.62 201.5
## 13 10.86 201.5
## 14 11.20 203.5
## 15 10.74 204.9
## 16 10.56 207.1
## 17 10.48 210.5
## 18 10.77 210.5
## 19 11.33 209.8
## 20 10.96 208.8
## 21 11.16 209.5
## 22 11.70 213.2
## 23 11.39 213.7
## 24 11.42 215.1
## 25 11.94 218.7
## 26 11.24 219.8
## 27 11.59 220.5
## 28 10.96 223.8
## 29 11.40 222.8
## 30 11.02 223.8
## 31 11.01 221.7
## 32 11.23 222.3
## 33 11.33 220.8
## 34 10.83 219.4
## 35 10.84 220.1
## 36 11.14 220.6
## 37 10.38 218.9
## 38 10.90 217.8
## 39 11.05 217.7
## 40 11.11 215.0
## 41 11.01 215.3
## 42 11.22 215.9
```

## 43 11.21 216.7  
## 44 11.91 216.7  
## 45 11.69 217.7  
## 46 10.93 218.7  
## 47 10.99 222.9  
## 48 11.01 224.9  
## 49 10.84 222.2  
## 50 10.76 220.7  
## 51 10.77 220.0  
## 52 10.88 218.7  
## 53 10.49 217.0  
## 54 10.50 215.9  
## 55 11.00 215.8  
## 56 10.98 214.1  
## 57 10.61 212.3  
## 58 10.48 213.9  
## 59 10.53 214.6  
## 60 11.07 213.6  
## 61 10.61 212.1  
## 62 10.86 211.4  
## 63 10.34 213.1  
## 64 10.78 212.9  
## 65 10.80 213.3  
## 66 10.33 211.5  
## 67 10.44 212.3  
## 68 10.50 213.0  
## 69 10.75 211.0  
## 70 10.40 210.7  
## 71 10.40 210.1  
## 72 10.34 211.4  
## 73 10.55 210.0  
## 74 10.46 209.7  
## 75 10.82 208.8  
## 76 10.91 208.8  
## 77 10.87 208.8  
## 78 10.67 210.6  
## 79 11.11 211.9  
## 80 10.88 212.8  
## 81 11.28 212.5  
## 82 11.27 214.8  
## 83 11.44 215.3  
## 84 11.52 217.5  
## 85 12.10 218.8  
## 86 11.83 220.7  
## 87 12.62 222.2  
## 88 12.41 226.7  
## 89 12.43 228.4  
## 90 12.73 233.2  
## 91 13.01 235.7  
## 92 12.74 237.1  
## 93 12.73 240.6  
## 94 12.76 243.8  
## 95 12.92 245.3  
## 96 12.64 246.0

## 97 12.79 246.3  
## 98 13.05 247.7  
## 99 12.69 247.6  
## 100 13.01 247.8  
## 101 12.90 249.4  
## 102 13.12 249.0  
## 103 12.47 249.9  
## 104 12.47 250.5  
## 105 12.94 251.5  
## 106 13.10 249.0  
## 107 12.91 247.6  
## 108 13.39 248.8  
## 109 13.13 250.4  
## 110 13.34 250.7  
## 111 13.34 253.0  
## 112 13.14 253.7  
## 113 13.49 255.0  
## 114 13.87 256.2  
## 115 13.39 256.0  
## 116 13.59 257.4  
## 117 13.27 260.4  
## 118 13.70 260.0  
## 119 13.20 261.3  
## 120 13.32 260.4  
## 121 13.15 261.6  
## 122 13.30 260.8  
## 123 12.94 259.8  
## 124 13.29 259.0  
## 125 13.26 258.9  
## 126 13.08 257.4  
## 127 13.24 257.7  
## 128 13.31 257.9  
## 129 13.52 257.4  
## 130 13.02 257.3  
## 131 13.25 257.6  
## 132 13.12 258.9  
## 133 13.26 257.8  
## 134 13.11 257.7  
## 135 13.30 257.2  
## 136 13.06 257.5  
## 137 13.32 256.8  
## 138 13.10 257.5  
## 139 13.27 257.0  
## 140 13.64 257.6  
## 141 13.58 257.3  
## 142 13.87 257.5  
## 143 13.53 259.6  
## 144 13.41 261.1  
## 145 13.25 262.9  
## 146 13.50 263.3  
## 147 13.58 262.8  
## 148 13.51 261.8  
## 149 13.77 262.2  
## 150 13.40 262.7



```

# Make an autobox object with retained data.
objBJSales_retained <- autobox(tsBJSales,
    iDataType=c(2,0),
    iObjective=c(0,0,0),
    iNumberOfRetainedValues=5,
    iNumberOfForecastValues=5,
    cPath=".\\Output")

# Run the calculation.
objBJSales_retained <- autoboxRun(objBJSales_retained)

# Print the status.
print(objBJSales_retained$cStatus)

```

```
## [1] "test: Autobox calculation complete, return code = 0."
```

```

# Print the results
# The selection parameter selects the values to print:
# a = Actual,
# c = Cleansed (Adjusted),
# e = Equations,
# f = Forecast,
# h = Historical,
# i = Interventions,
# r = Residual,
# s = Statistics,
# t = Fitted.
autoboxPrint(objBJSales_retained,selection="acefhirst")

```

```

## [1] "
## [2] " AUTOMATIC FORECASTING SYSTEMS
## [3] " HATBORO PA 19040
## [4] " 215-675-0652
## [5] " VERSION: 08/10/2017 16:33
## [6] "
## [7] "
## [8] "
## [9] "MODELLING OUTPUT SERIES:test
## [10] "
## [11] "
## [12] "
## [13] "[(1-B**1)]Y(T) = 0.48949E-01 test
## [14] " +[X1(T)][(1-B**1)][(1- 0.723B** 1)]**-1 [
## [15] " (+ 4.7352B** 3) M_IND
## [16] " +[X2(T)][(1-B**1)][(- 0.577)] :PULSE 92 I~ "
## [17] " + [(1+ 0.421B** 1)]**-1 [A(T)] test
## [18] "
## [19] "
## [20] "
## [1] "test 1 1 1 3
## [2] " 1
## [3] " 0.1355D-01
## [4] " 0.1000D+01 0.0000D+00

```

```

## [5] "      1      1      0      0
## [6] "      1
## [7] "      1
## [8] "      1
## [9] " -0.4206D+00
## [10] "M_IND
## [11] "  0.1000D+01  0.0000D+00
## [12] "      1      1      1      0
## [13] "      1
## [14] "      1      1
## [15] "      1      3
## [16] "  0.7231D+00  0.4735D+01
## [17] "I~P00092test
## [18] "  0.1000D+01  0.0000D+00
## [19] "      0      1      1      0
## [20] "      1
## [21] "      1
## [22] "      0
## [23] " -0.5767D+00

```

##	Period	Actual	Adjusted	Forecast	LowerLimits	UpperLimits	M_IND
## 1	1 1	200.10000	200.10000	NA	NA	NA	10.01000
## 2	2 1	199.50000	199.50000	NA	NA	NA	10.07000
## 3	3 1	199.40000	199.40000	NA	NA	NA	10.32000
## 4	4 1	198.90000	198.90000	NA	NA	NA	9.75000
## 5	5 1	199.00000	199.00000	NA	NA	NA	10.33000
## 6	6 1	200.20000	200.20000	NA	NA	NA	10.13000
## 7	7 1	198.60000	198.60000	NA	NA	NA	10.36000
## 8	8 1	200.00000	200.00000	NA	NA	NA	10.32000
## 9	9 1	200.30000	200.30000	NA	NA	NA	10.13000
## 10	10 1	201.20000	201.20000	NA	NA	NA	10.16000
## 11	11 1	201.60000	201.60000	NA	NA	NA	10.58000
## 12	12 1	201.50000	201.50000	NA	NA	NA	10.62000
## 13	13 1	201.50000	201.50000	NA	NA	NA	10.86000
## 14	14 1	203.50000	203.50000	NA	NA	NA	11.20000
## 15	15 1	204.90000	204.90000	NA	NA	NA	10.74000
## 16	16 1	207.10000	207.10000	NA	NA	NA	10.56000
## 17	17 1	210.50000	210.50000	NA	NA	NA	10.48000
## 18	18 1	210.50000	210.50000	NA	NA	NA	10.77000
## 19	19 1	209.80000	209.80000	NA	NA	NA	11.33000
## 20	20 1	208.80000	208.80000	NA	NA	NA	10.96000
## 21	21 1	209.50000	209.50000	NA	NA	NA	11.16000
## 22	22 1	213.20000	213.20000	NA	NA	NA	11.70000
## 23	23 1	213.70000	213.70000	NA	NA	NA	11.39000
## 24	24 1	215.10000	215.10000	NA	NA	NA	11.42000
## 25	25 1	218.70000	218.70000	NA	NA	NA	11.94000
## 26	26 1	219.80000	219.80000	NA	NA	NA	11.24000
## 27	27 1	220.50000	220.50000	NA	NA	NA	11.59000
## 28	28 1	223.80000	223.80000	NA	NA	NA	10.96000
## 29	29 1	222.80000	222.80000	NA	NA	NA	11.40000
## 30	30 1	223.80000	223.80000	NA	NA	NA	11.02000
## 31	31 1	221.70000	221.70000	NA	NA	NA	11.01000
## 32	32 1	222.30000	222.30000	NA	NA	NA	11.23000
## 33	33 1	220.80000	220.80000	NA	NA	NA	11.33000
## 34	34 1	219.40000	219.40000	NA	NA	NA	10.83000

## 35	35	1	220.10000	220.10000	NA	NA	NA 10.84000
## 36	36	1	220.60000	220.60000	NA	NA	NA 11.14000
## 37	37	1	218.90000	218.90000	NA	NA	NA 10.38000
## 38	38	1	217.80000	217.80000	NA	NA	NA 10.90000
## 39	39	1	217.70000	217.70000	NA	NA	NA 11.05000
## 40	40	1	215.00000	215.00000	NA	NA	NA 11.11000
## 41	41	1	215.30000	215.30000	NA	NA	NA 11.01000
## 42	42	1	215.90000	215.90000	NA	NA	NA 11.22000
## 43	43	1	216.70000	216.70000	NA	NA	NA 11.21000
## 44	44	1	216.70000	216.70000	NA	NA	NA 11.91000
## 45	45	1	217.70000	217.70000	NA	NA	NA 11.69000
## 46	46	1	218.70000	218.70000	NA	NA	NA 10.93000
## 47	47	1	222.90000	222.90000	NA	NA	NA 10.99000
## 48	48	1	224.90000	224.90000	NA	NA	NA 11.01000
## 49	49	1	222.20000	222.20000	NA	NA	NA 10.84000
## 50	50	1	220.70000	220.70000	NA	NA	NA 10.76000
## 51	51	1	220.00000	220.00000	NA	NA	NA 10.77000
## 52	52	1	218.70000	218.70000	NA	NA	NA 10.88000
## 53	53	1	217.00000	217.00000	NA	NA	NA 10.49000
## 54	54	1	215.90000	215.90000	NA	NA	NA 10.50000
## 55	55	1	215.80000	215.80000	NA	NA	NA 11.00000
## 56	56	1	214.10000	214.10000	NA	NA	NA 10.98000
## 57	57	1	212.30000	212.30000	NA	NA	NA 10.61000
## 58	58	1	213.90000	213.90000	NA	NA	NA 10.48000
## 59	59	1	214.60000	214.60000	NA	NA	NA 10.53000
## 60	60	1	213.60000	213.60000	NA	NA	NA 11.07000
## 61	61	1	212.10000	212.10000	NA	NA	NA 10.61000
## 62	62	1	211.40000	211.40000	NA	NA	NA 10.86000
## 63	63	1	213.10000	213.10000	NA	NA	NA 10.34000
## 64	64	1	212.90000	212.90000	NA	NA	NA 10.78000
## 65	65	1	213.30000	213.30000	NA	NA	NA 10.80000
## 66	66	1	211.50000	211.50000	NA	NA	NA 10.33000
## 67	67	1	212.30000	212.30000	NA	NA	NA 10.44000
## 68	68	1	213.00000	213.00000	NA	NA	NA 10.50000
## 69	69	1	211.00000	211.00000	NA	NA	NA 10.75000
## 70	70	1	210.70000	210.70000	NA	NA	NA 10.40000
## 71	71	1	210.10000	210.10000	NA	NA	NA 10.40000
## 72	72	1	211.40000	211.40000	NA	NA	NA 10.34000
## 73	73	1	210.00000	210.00000	NA	NA	NA 10.55000
## 74	74	1	209.70000	209.70000	NA	NA	NA 10.46000
## 75	75	1	208.80000	208.80000	NA	NA	NA 10.82000
## 76	76	1	208.80000	208.80000	NA	NA	NA 10.91000
## 77	77	1	208.80000	208.80000	NA	NA	NA 10.87000
## 78	78	1	210.60000	210.60000	NA	NA	NA 10.67000
## 79	79	1	211.90000	211.90000	NA	NA	NA 11.11000
## 80	80	1	212.80000	212.80000	NA	NA	NA 10.88000
## 81	81	1	212.50000	212.50000	NA	NA	NA 11.28000
## 82	82	1	214.80000	214.80000	NA	NA	NA 11.27000
## 83	83	1	215.30000	215.30000	NA	NA	NA 11.44000
## 84	84	1	217.50000	217.50000	NA	NA	NA 11.52000
## 85	85	1	218.80000	218.80000	NA	NA	NA 12.10000
## 86	86	1	220.70000	220.70000	NA	NA	NA 11.83000
## 87	87	1	222.20000	222.20000	NA	NA	NA 12.62000
## 88	88	1	226.70000	226.70000	NA	NA	NA 12.41000

## 89	89	1	228.40000	228.40000	NA	NA	NA 12.43000
## 90	90	1	233.20000	233.20000	NA	NA	NA 12.73000
## 91	91	1	235.70000	235.70000	NA	NA	NA 13.01000
## 92	92	1	237.10000	237.67666	NA	NA	NA 12.74000
## 93	93	1	240.60000	240.60000	NA	NA	NA 12.73000
## 94	94	1	243.80000	243.80000	NA	NA	NA 12.76000
## 95	95	1	245.30000	245.30000	NA	NA	NA 12.92000
## 96	96	1	246.00000	246.00000	NA	NA	NA 12.64000
## 97	97	1	246.30000	246.30000	NA	NA	NA 12.79000
## 98	98	1	247.70000	247.70000	NA	NA	NA 13.05000
## 99	99	1	247.60000	247.60000	NA	NA	NA 12.69000
## 100	100	1	247.80000	247.80000	NA	NA	NA 13.01000
## 101	101	1	249.40000	249.40000	NA	NA	NA 12.90000
## 102	102	1	249.00000	249.00000	NA	NA	NA 13.12000
## 103	103	1	249.90000	249.90000	NA	NA	NA 12.47000
## 104	104	1	250.50000	250.50000	NA	NA	NA 12.47000
## 105	105	1	251.50000	251.50000	NA	NA	NA 12.94000
## 106	106	1	249.00000	249.00000	NA	NA	NA 13.10000
## 107	107	1	247.60000	247.60000	NA	NA	NA 12.91000
## 108	108	1	248.80000	248.80000	NA	NA	NA 13.39000
## 109	109	1	250.40000	250.40000	NA	NA	NA 13.13000
## 110	110	1	250.70000	250.70000	NA	NA	NA 13.34000
## 111	111	1	253.00000	253.00000	NA	NA	NA 13.34000
## 112	112	1	253.70000	253.70000	NA	NA	NA 13.14000
## 113	113	1	255.00000	255.00000	NA	NA	NA 13.49000
## 114	114	1	256.20000	256.20000	NA	NA	NA 13.87000
## 115	115	1	256.00000	256.00000	NA	NA	NA 13.39000
## 116	116	1	257.40000	257.40000	NA	NA	NA 13.59000
## 117	117	1	260.40000	260.40000	NA	NA	NA 13.27000
## 118	118	1	260.00000	260.00000	NA	NA	NA 13.70000
## 119	119	1	261.30000	261.30000	NA	NA	NA 13.20000
## 120	120	1	260.40000	260.40000	NA	NA	NA 13.32000
## 121	121	1	261.60000	261.60000	NA	NA	NA 13.15000
## 122	122	1	260.80000	260.80000	NA	NA	NA 13.30000
## 123	123	1	259.80000	259.80000	NA	NA	NA 12.94000
## 124	124	1	259.00000	259.00000	NA	NA	NA 13.29000
## 125	125	1	258.90000	258.90000	NA	NA	NA 13.26000
## 126	126	1	257.40000	257.40000	NA	NA	NA 13.08000
## 127	127	1	257.70000	257.70000	NA	NA	NA 13.24000
## 128	128	1	257.90000	257.90000	NA	NA	NA 13.31000
## 129	129	1	257.40000	257.40000	NA	NA	NA 13.52000
## 130	130	1	257.30000	257.30000	NA	NA	NA 13.02000
## 131	131	1	257.60000	257.60000	NA	NA	NA 13.25000
## 132	132	1	258.90000	258.90000	NA	NA	NA 13.12000
## 133	133	1	257.80000	257.80000	NA	NA	NA 13.26000
## 134	134	1	257.70000	257.70000	NA	NA	NA 13.11000
## 135	135	1	257.20000	257.20000	NA	NA	NA 13.30000
## 136	136	1	257.50000	257.50000	NA	NA	NA 13.06000
## 137	137	1	256.80000	256.80000	NA	NA	NA 13.32000
## 138	138	1	257.50000	257.50000	NA	NA	NA 13.10000
## 139	139	1	257.00000	257.00000	NA	NA	NA 13.27000
## 140	140	1	257.60000	257.60000	NA	NA	NA 13.64000
## 141	141	1	257.30000	257.30000	NA	NA	NA 13.58000
## 142	142	1	257.50000	257.50000	NA	NA	NA 13.87000

## 143	143	1	259.60000	259.60000	NA	NA	NA	13.53000
## 144	144	1	261.10000	261.10000	NA	NA	NA	13.41000
## 145	145	1	262.90000	262.90000	NA	NA	NA	13.25000
## 146	146	1	NA	NA	263.14200	262.63500	263.64900	13.50000
## 147	147	1	NA	NA	262.53100	262.01800	263.04300	13.58000
## 148	148	1	NA	NA	261.43700	260.89600	261.97700	13.51000
## 149	149	1	NA	NA	197.87300	197.32600	198.42000	13.77000
## 150	150	1	NA	NA	151.93400	151.38500	152.48300	13.40000
##			test Interventions		Residuals		Fitted	
## 1			200.10000		0.00000000		200.10000	
## 2			199.50000		0.00000000		199.50000	
## 3			199.40000		0.00000000		199.40000	
## 4			198.90000		0.00000000		198.90000	
## 5			199.00000		0.00000000		199.00000	
## 6			200.20000		0.00497193		200.19503	
## 7			198.60000		0.19775022		198.40225	
## 8			200.00000		0.03733836		199.96266	
## 9			200.30000		0.16842599		200.13157	
## 10			201.20000		-0.19909702		201.39910	
## 11			201.60000		-0.38974202		201.98974	
## 12			201.50000		0.18921410		201.31079	
## 13			201.50000		0.26824441		201.23176	
## 14			203.50000		0.16229278		203.33771	
## 15			204.90000		-0.12716617		205.02717	
## 16			207.10000		-0.15350023		207.25350	
## 17			210.50000		0.09607837		210.40392	
## 18			210.50000		-0.14078441		210.64078	
## 19			209.80000		-0.08099369		209.88099	
## 20			208.80000		-0.12302521		208.92303	
## 21			209.50000		-0.10096125		209.60096	
## 22			213.20000		0.47651275		212.72349	
## 23			213.70000		0.13547262		213.56453	
## 24			215.10000		-0.00237700		215.10238	
## 25			218.70000		0.05375094		218.64625	
## 26			219.80000		0.00280212		219.79720	
## 27			220.50000		-0.26391745		220.76392	
## 28			223.80000		0.02717600		223.77282	
## 29			222.80000		0.07383762		222.72616	
## 30			223.80000		0.07549223		223.72451	
## 31			221.70000		0.22877652		221.47122	
## 32			222.30000		0.25430194		222.04570	
## 33			220.80000		0.05060788		220.74939	
## 34			219.40000		-0.30146971		219.70147	
## 35			220.10000		0.32638099		219.77362	
## 36			220.60000		0.02484732		220.57515	
## 37			218.90000		0.10867070		218.79133	
## 38			217.80000		0.27575104		217.52425	
## 39			217.70000		-0.50477594		218.20478	
## 40			215.00000		0.28749874		214.71250	
## 41			215.30000		0.39298540		214.90701	
## 42			215.90000		-0.14486433		216.04486	
## 43			216.70000		-0.17395121		216.87395	
## 44			216.70000		-0.20983744		216.90984	
## 45			217.70000		-0.20385432		217.90385	

## 46	218.70000	0.16560259	218.53440
## 47	222.90000	0.40477987	222.49522
## 48	224.90000	0.35195523	224.54804
## 49	222.20000	-0.30462231	222.50462
## 50	220.70000	-0.29577796	220.99578
## 51	220.00000	0.13338287	219.86662
## 52	218.70000	0.21607605	218.48392
## 53	217.00000	-0.23369486	217.23369
## 54	215.90000	-0.26086914	216.16087
## 55	215.80000	0.00686665	215.79313
## 56	214.10000	0.28390124	213.81610
## 57	212.30000	-0.33412533	212.63413
## 58	213.90000	0.01890096	213.88110
## 59	214.60000	-0.13756425	214.73756
## 60	213.60000	-0.01959862	213.61960
## 61	212.10000	-0.08559648	212.18560
## 62	211.40000	0.00465498	211.39535
## 63	213.10000	-0.29877981	213.39878
## 64	212.90000	0.37168552	212.52831
## 65	213.30000	-0.06894579	213.36895
## 66	211.50000	0.04078849	211.45921
## 67	212.30000	0.19101891	212.10898
## 68	213.00000	0.15899965	212.84100
## 69	211.00000	-0.16794631	211.16795
## 70	210.70000	0.37235326	210.32765
## 71	210.10000	-0.14839069	210.24839
## 72	211.40000	0.14857645	211.25142
## 73	210.00000	-0.35747624	210.35748
## 74	209.70000	0.15314406	209.54686
## 75	208.80000	-0.00208950	208.80209
## 76	208.80000	-0.52644897	209.32645
## 77	208.80000	-0.11259844	208.91260
## 78	210.60000	0.17960616	210.42039
## 79	211.90000	-0.27139812	212.17140
## 80	212.80000	-0.24044134	213.04044
## 81	212.50000	-0.12839005	212.62839
## 82	214.80000	0.32545517	214.47454
## 83	215.30000	0.33000360	214.97000
## 84	217.50000	0.13824856	217.36175
## 85	218.80000	-0.18054597	218.98055
## 86	220.70000	-0.09163021	220.79163
## 87	222.20000	-0.26742561	222.46743
## 88	226.70000	0.35558994	226.34441
## 89	228.40000	0.24932534	228.15067
## 90	233.20000	-0.11935690	233.31936
## 91	235.70000	-0.14811189	235.84811
## 92	237.10000	Pulse -0.5767 -0.03673693	237.13674
## 93	240.60000	0.06442837	240.53557
## 94	243.80000	-0.17594348	243.97594
## 95	245.30000	0.22279427	245.07721
## 96	246.00000	0.00557726	245.99442
## 97	246.30000	-0.49967918	246.79968
## 98	247.70000	-0.09595816	247.79596
## 99	247.60000	0.30947650	247.29052

## 100	247.80000	-0.13793390	247.93793
## 101	249.40000	-0.07331353	249.47331
## 102	249.00000	0.17540536	248.82459
## 103	249.90000	-0.15061543	250.05062
## 104	250.50000	0.21044547	250.28955
## 105	251.50000	-0.13928192	251.63928
## 106	249.00000	-0.45958372	249.45958
## 107	247.60000	0.00085826	247.59914
## 108	248.80000	0.14546285	248.65454
## 109	250.40000	0.06069733	250.33930
## 110	250.70000	0.06232598	250.63767
## 111	253.00000	-0.14038416	253.14038
## 112	253.70000	0.07301112	253.62699
## 113	255.00000	-0.04864359	255.04864
## 114	256.20000	0.12681240	256.07319
## 115	256.00000	0.06676286	255.93324
## 116	257.40000	-0.12875598	257.52876
## 117	260.40000	0.03415049	260.36585
## 118	260.00000	-0.20619088	260.20619
## 119	261.30000	0.35482982	260.94517
## 120	260.40000	0.18837199	260.21163
## 121	261.60000	-0.19928402	261.79928
## 122	260.80000	0.46423087	260.33577
## 123	259.80000	-0.37317994	260.17318
## 124	259.00000	0.02839882	258.97160
## 125	258.90000	0.08149182	258.81851
## 126	257.40000	0.22488063	257.17512
## 127	257.70000	-0.00703782	257.70704
## 128	257.90000	-0.00820239	257.90820
## 129	257.40000	0.24085849	257.15914
## 130	257.30000	-0.24807228	257.54807
## 131	257.60000	-0.36076157	257.96076
## 132	258.90000	-0.16859038	259.06859
## 133	257.80000	0.22936171	257.57064
## 134	257.70000	-0.10356724	257.80357
## 135	257.20000	-0.06613754	257.26614
## 136	257.50000	0.01629450	257.48371
## 137	256.80000	-0.20899946	257.00900
## 138	257.50000	0.05488722	257.44511
## 139	257.00000	0.28532490	256.71468
## 140	257.60000	-0.02202090	257.62202
## 141	257.30000	0.16498988	257.13501
## 142	257.50000	-0.15278712	257.65279
## 143	259.60000	-0.08392989	259.68393
## 144	261.10000	0.27680908	260.82319
## 145	262.90000	-0.35961594	263.25962
## 146	263.30000	NA	NA
## 147	262.80000	NA	NA
## 148	261.80000	NA	NA
## 149	262.20000	NA	NA
## 150	262.70000	NA	NA
##		Statistic	Value
## 1		RSQ	9.998852e-01
## 2		RMSE (VARIANCE OF ERRORS)	2.234892e-01

```

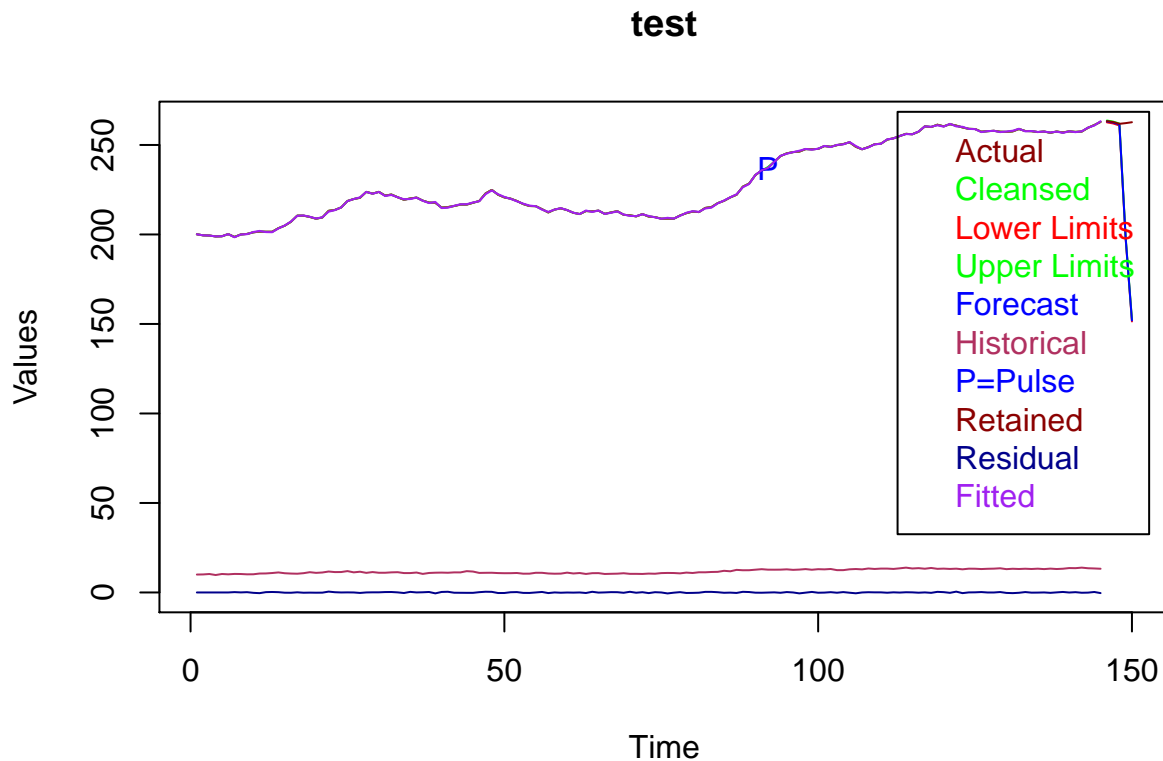
## 3          STD DEV OF ERRORS 0.000000e+00
## 4          MAPE 7.669928e-04
## 5          SUM OF FORECASTS 1.136917e+03
## 6          DAYS LEFT IN TRIAL PERIOD 5.000000e+00
## 7          NOT ACTIVE 0.000000e+00
## 8          FORECAST CONFIDENCE INTERVAL 9.500000e+01
## 9          SUM OF SQUARES OF RESIDUALS 6.742902e+00
## 10         DEGREES OF FREEDOM FOR MODEL 1.350000e+02
## 11         NUMBER OF PARAMETERS IN MODEL 5.000000e+00
## 12 SEASONAL INDICATOR (1 IF THERE ARE ANY SEASONAL ELEMENTS) 0.000000e+00
## 13         NULL 0.000000e+00

```

```

# Plot the result.
# The selection parameter selects the values to plot:
# a = Actual,
# c = Cleansed (Adjusted),
# f = Forecast,
# h = Historical,
# i = Interventions,
# n = Retained,
# r = Residual,
# t = Fitted,
# u = Future.
autoboxPlot(objBJSales_retained,selection="acfhinrtu")

```





```
# Unload the autobox library.  
unloadNamespace("autobox")  
  
# Restore the working directory.  
setwd(saveWd)
```