Forecasting

Тест, 3 вопроса


<table>
<tr><td>1
Баллы</td></tr>
</table>

1.

Let's take a look at the data set called *sunspots* (time series spotted below)*. There isn't much of an apparent trend, but the series certainly seems to exhibit seasonality.

Monthly mean relative sunspot numbers from 1749 to 1983. Andrews, D. F. and Herzberg, A. M. (1985) Data: A Collection of Problems from Many Fields for the Student and Research Worker. New York: Springer-Verlag.
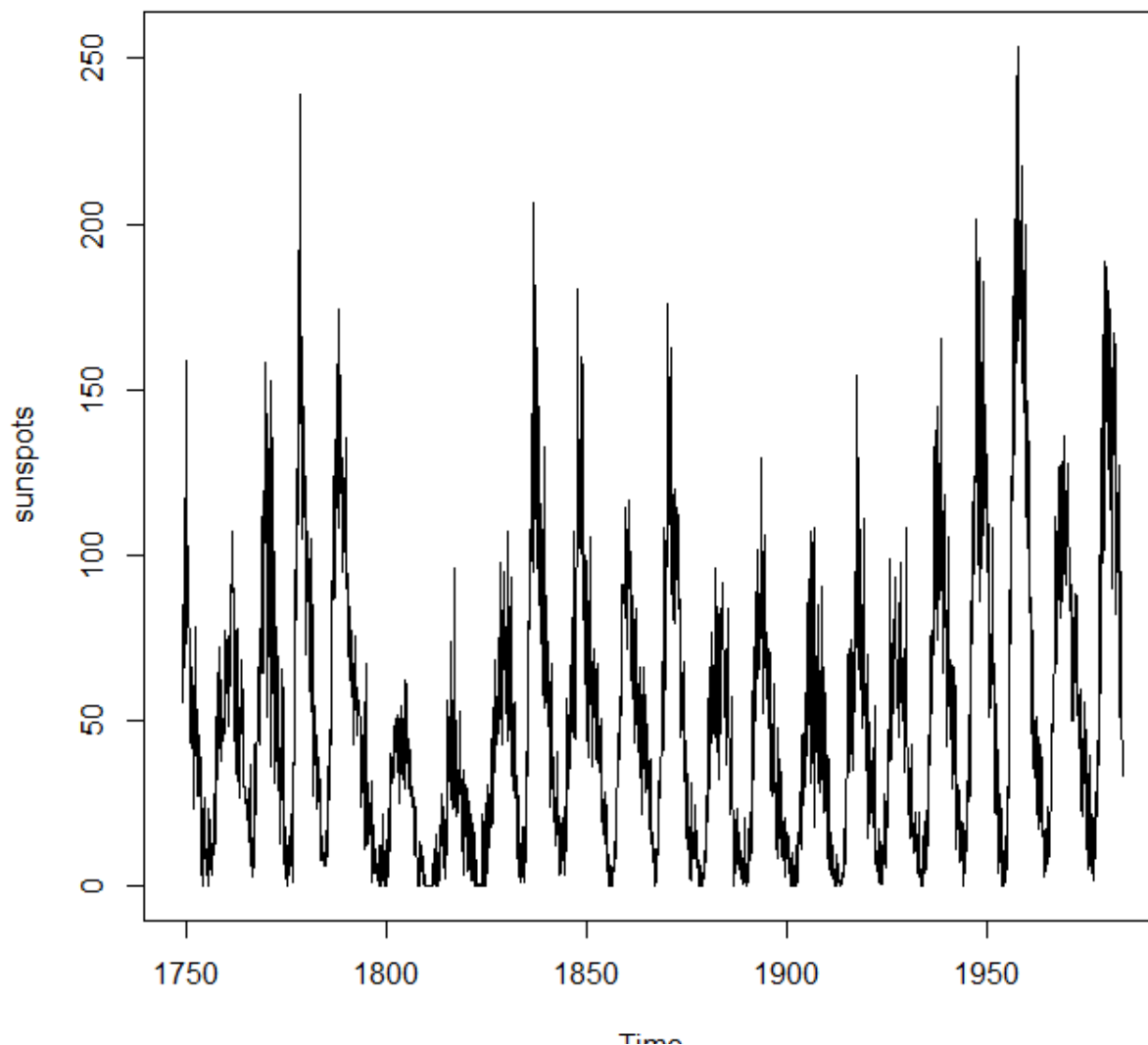
Forecasting

Тест, 3 вопроса

The last observation is for December 1983. What is your forecast for January 1984?

Please use the following code to produce your coefficients. Recall our notation and method:

$$\hat{x}_{n+h} = level_n + h * trend_n + seasonal_{n+h-m}$$

```
1   HoltWinters(sunspots)
2
3   44.44311347 -0.01320934-12.28749771
```

Выполнить

Сбросить

```
Holt-Winters exponential smoothing with trend and additive seasonal component.

Call:
HoltWinters(x = sunspots)

Smoothing parameters:
 alpha: 0.4856207
 beta : 0.001282363
 gamma: 0.1589522

Coefficients:
          [,1]
a    44.44311347
b    -0.01320934
s1  -12.28749771
s2   -7.25915090
s3  -11.10097642
s4   -8.53419032
s5   -7.33911912
s6   -7.40979651
s7   -6.07983391
s8   -5.52611869
s9    3.75858366
s10  -1.95658945
s11 -12.76605070
s12  -3.35905041
[1] 32.14241
```

○   32.14241

Forecasting 44.44311347
Тест, 3 вопроса

1
Баллы

2.
Let's stay with the data set called *sunspots.*

Monthly mean relative sunspot numbers from 1749 to 1983. Andrews, D. F. and Herzberg, A. M. (1985) Data: A Collection of Problems from Many Fields for the Student and Research Worker. New York: Springer-Verlag.

What is your forecast (using HoltWinters()) for April 1984?

```
1   library(forecast)
2   forecast.HoltWinters( HoltWinters(sunspots) )
```

Выполнить

Сбросить

```
         Point Forecast      Lo 80      Hi 80       Lo 95      Hi 95
Jan 1984        32.14241   10.548026   53.73679   -0.8833483   65.16816
Feb 1984        37.15754   13.145674   61.16941    0.4345577   73.88053
Mar 1984        33.30251    7.089819   59.51520   -6.7863413   73.39136
Apr 1984        35.85609    7.608549   64.10362   -7.3447930   79.05696
May 1984        37.03795    6.887910   67.18799   -9.0725564   83.14845
Jun 1984        36.95406    5.010205   68.89792  -11.8998514   85.80797
Jul 1984        38.27081    4.624430   71.91720  -13.1868893   89.72852
Aug 1984        38.81132    3.540472   74.08217  -15.1307873   92.75343
Sep 1984        48.08281   11.255227   84.91040   -8.2401190  104.40575
Oct 1984        42.35443    4.029575   80.67929  -16.2583776  100.96724
Nov 1984        31.53176   -8.237619   71.30114  -29.2902560   92.35378
Dec 1984        40.92555   -0.241162   82.09226  -22.0335035  103.88461
Jan 1985        31.98389  -11.013743   74.98153  -33.7753176   97.74311
Feb 1985        36.99903   -7.300679   81.29874  -30.7515295  104.74959
Mar 1985        33.14400  -12.423742   78.71174  -36.5458464  102.83384
Apr 1985        35.69757  -11.106920   82.50207  -35.8837223  107.27887
May 1985        36.87944  -11.132959   84.89183  -36.5491857  110.30806
Jun 1985        36.79555  -12.398023   85.98912  -38.4395264  112.03062
Jul 1985        38.11230  -12.237606   88.46221  -38.8912378  115.11584
Aug 1985        38.65281  -12.830275   90.13589  -40.0837726  117.38939
Sep 1985        47.92430   -4.670294  100.51890  -32.5121912  128.36079
Oct 1985        42.19592  -11.489876   95.88171  -39.9094191  124.30126
Nov 1985        31.37325  -23.384651   86.13115  -52.3717312  115.11823
Dec 1985        40.76704  -15.044972   96.57905  -44.5900658  126.12414
```

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3.
Again, stay with the data set called sunspots.

Monthly mean relative sunspot numbers from 1749 to 1983. Andrews, D. F. and Herzberg, A. M. (1985) Data: A Collection of Problems from Many Fields for the Student and Research Worker. New York: Springer-Verlag.

Do you forecast that the monthly mean relative sunspot number for August 1985 will be higher or lower than the observed number for August 1983? Note: you can recover the measured value from August 1983 by typing: sunspots on the R command line. You should see the value: August 1983 (71.8)

○ August 1985 is forecast to be higher than August 1983.

◉ August 1985 is forecast to be lower than August 1983.

☐ Я понимаю, что отправка работы, выполненной не мной, может привести к тому, что курс не будет засчитан, а аккаунт Coursera заблокирован.

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