```
 1 "/Users/venkatanagasaisrujantallam/
   PyCharm Projects/ATA Project/.venv/bin/
   python" /Users/
   venkatanagasaisrujantallam/PyCharm
   Projects/ATA Project/src/live_loop.py
 2 Loaded 24,097 hourly observations for CH
 3
 4 Warm-up : 2017-12-31 23:00:00+00:00 →
   2018-04-30 22:00:00+00:00
 5 Live    : 2018-04-30 23:00:00+00:00
    → ...
 6
 7 Fitting initial SARIMA(3,1,2)(1,1,1)[24
   ] on 120 days...
 8
 9 Starting live simulation...
10
11 2018-05-01 → scheduled (6.266s)
12 2018-05-02 → scheduled (6.625s)
13 2018-05-03 → scheduled (6.793s)
14 2018-05-04 → scheduled (7.036s)
15 2018-05-05 → scheduled (7.121s)
16 2018-05-06 → scheduled (7.017s)
17 2018-05-07 → scheduled (7.089s)
18 2018-05-08 → scheduled (6.439s)
19 2018-05-09 → scheduled (6.424s)
20 2018-05-10 → scheduled (6.657s)
21 2018-05-11 → scheduled (6.468s)
22 2018-05-12 → scheduled (8.666s)
23 2018-05-13 → scheduled (8.472s)
24 2018-05-14 → scheduled (7.638s)
```

```
25 2018-05-15 → scheduled (8.004s)
26 2018-05-16 → scheduled (7.720s)
27 2018-05-17 → scheduled (6.513s)
28 2018-05-18 → scheduled (8.127s)
29 2018-05-19 → scheduled (9.192s)
30 2018-05-20 → scheduled (6.951s)
31 2018-05-21 → scheduled (7.282s)
32 → 500 live hours | Updates: 21 (drifts:
   0)
33 2018-05-22 → scheduled (6.900s)
34 2018-05-23 → scheduled (6.683s)
35 2018-05-24 → scheduled (7.086s)
36 2018-05-25 → scheduled (8.080s)
37 2018-05-26 → scheduled (8.619s)
38 2018-05-27 → scheduled (8.085s)
39 2018-05-28 → scheduled (9.395s)
40 2018-05-29 → scheduled (7.519s)
41 2018-05-30 → scheduled (8.316s)
42 2018-05-31 → scheduled (7.831s)
43 2018-06-01 → scheduled (8.487s)
44 2018-06-02 → scheduled (8.514s)
45 2018-06-03 → scheduled (9.721s)
46 2018-06-04 → scheduled (7.701s)
47 2018-06-05 → scheduled (7.032s)
48 2018-06-06 → scheduled (7.223s)
49 2018-06-07 → scheduled (8.259s)
50 2018-06-08 → scheduled (9.491s)
51 2018-06-09 → scheduled (8.029s)
52 2018-06-10 → scheduled (8.855s)
53 2018-06-11 → scheduled (8.530s)
54 → 1,000 live hours | Updates: 42 (drifts
```

```
54  : 0)
55  2018-06-12 → scheduled (7.936s)
56  2018-06-13 → scheduled (7.943s)
57  2018-06-14 → scheduled (9.558s)
58  2018-06-15 → scheduled (8.967s)
59  2018-06-16 → scheduled (9.114s)
60  2018-06-17 → scheduled (9.068s)
61  2018-06-18 → scheduled (11.547s)
62  2018-06-19 → scheduled (7.433s)
63  2018-06-20 → scheduled (8.741s)
64  2018-06-21 → scheduled (7.952s)
65  2018-06-22 → scheduled (8.293s)
66  2018-06-23 → scheduled (7.451s)
67  2018-06-24 → scheduled (7.610s)
68  2018-06-25 → scheduled (8.742s)
69  2018-06-26 → scheduled (8.022s)
70  2018-06-27 → scheduled (8.936s)
71  2018-06-28 → scheduled (8.291s)
72  2018-06-29 → scheduled (8.702s)
73  2018-06-30 → scheduled (7.816s)
74  2018-07-01 → scheduled (10.576s)
75  2018-07-02 → scheduled (7.796s)
76  → 1,500 live hours | Updates: 63 (drifts
    : 0)
77  2018-07-03 → scheduled (8.150s)
78  2018-07-04 → scheduled (8.376s)
79  2018-07-05 → scheduled (8.964s)
80  2018-07-06 → scheduled (8.964s)
81  2018-07-07 → scheduled (8.518s)
82  2018-07-08 → scheduled (8.096s)
83  2018-07-09 → scheduled (9.345s)
```

```
 84 2018-07-10 → scheduled (8.685s)
 85 2018-07-11 → scheduled (8.490s)
 86 2018-07-12 → scheduled (9.745s)
 87 2018-07-13 → scheduled (11.027s)
 88 2018-07-14 → scheduled (7.932s)
 89 2018-07-15 → scheduled (7.988s)
 90 2018-07-16 → scheduled (8.676s)
 91 2018-07-17 → scheduled (9.544s)
 92 2018-07-18 → scheduled (10.109s)
 93 2018-07-19 → scheduled (8.741s)
 94 2018-07-20 → scheduled (8.068s)
 95 2018-07-21 → scheduled (8.151s)
 96 2018-07-22 → scheduled (6.910s)
 97 2018-07-23 → scheduled (7.886s)
 98 → 2,000 live hours | Updates: 84 (
    drifts: 0)
 99
100 Task 4 finished!
101    Live hours simulated : 2000
102    Total updates        : 84 (drift: 0)
103    Log saved to         : ../outputs/
    CH_online_updates.csv
104
105 Last 10 updates – 7-day MASE & 80%
    coverage improvement
106 ---------------------------------------
    ---------------------------------------
    -------
107 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
```

```
107 base/model.py:607: ConvergenceWarning:
    Maximum Likelihood optimization failed
    to converge. Check mle_retvals
108   warnings.warn("Maximum Likelihood
    optimization failed to "
109 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
    base/model.py:607: ConvergenceWarning:
    Maximum Likelihood optimization failed
    to converge. Check mle_retvals
110   warnings.warn("Maximum Likelihood
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115 python3.12/site-packages/statsmodels/
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    to converge. Check mle_retvals
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    optimization failed to "
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123 /Users/venkatanagasaisrujantallam/
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123 PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
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    optimization failed to "
125 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
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    Maximum Likelihood optimization failed
    to converge. Check mle_retvals
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    optimization failed to "
127 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
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    to converge. Check mle_retvals
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    optimization failed to "
129 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
    base/model.py:607: ConvergenceWarning:
    Maximum Likelihood optimization failed
    to converge. Check mle_retvals
130   warnings.warn("Maximum Likelihood
    optimization failed to "
```

```
131 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
    base/model.py:607: ConvergenceWarning:
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137 /Users/venkatanagasaisrujantallam/
    PyCharm Projects/ATA Project/.venv/lib/
    python3.12/site-packages/statsmodels/
    base/model.py:607: ConvergenceWarning:
    Maximum Likelihood optimization failed
    to converge. Check mle_retvals
138   warnings.warn("Maximum Likelihood
```

138 optimization failed to "

139 /Users/venkatanagasaisrujantallam/
PyCharm Projects/ATA Project/.venv/lib/
python3.12/site-packages/statsmodels/
base/model.py:607: ConvergenceWarning:
Maximum Likelihood optimization failed
to converge. Check mle_retvals

140 warnings.warn("Maximum Likelihood
optimization failed to "

141 /Users/venkatanagasaisrujantallam/
PyCharm Projects/ATA Project/.venv/lib/
python3.12/site-packages/statsmodels/
base/model.py:607: ConvergenceWarning:
Maximum Likelihood optimization failed
to converge. Check mle_retvals

142 warnings.warn("Maximum Likelihood
optimization failed to "

143   date   reason MASE_before
MASE_after Cov80_before Cov80_after

144 2018-07-14 scheduled   1.458   1
.484   83.9%   96.4%

145 2018-07-15 scheduled   1.808   2
.674   99.4%   98.2%

146 2018-07-16 scheduled   2.859   2
.149   76.2%   98.2%

147 2018-07-17 scheduled   1.198   1
.003   97.6%   98.8%

148 2018-07-18 scheduled   1.107   1
.280   98.2%   98.2%

149 2018-07-19 scheduled   1.348   1
.382   98.2%   98.2%

```
150  2018-07-20 scheduled          1.231        0
     .856        99.4%       100.0%
151  2018-07-21 scheduled          3.738        2
     .317        96.4%        95.2%
152  2018-07-22 scheduled          1.246        2
     .445       100.0%       100.0%
153  2018-07-23 scheduled          2.563        3
     .017        95.2%        95.2%
154
155  Process finished with exit code 0
156
```