Smoke-Test Memory Analyser Scene Test

说明：

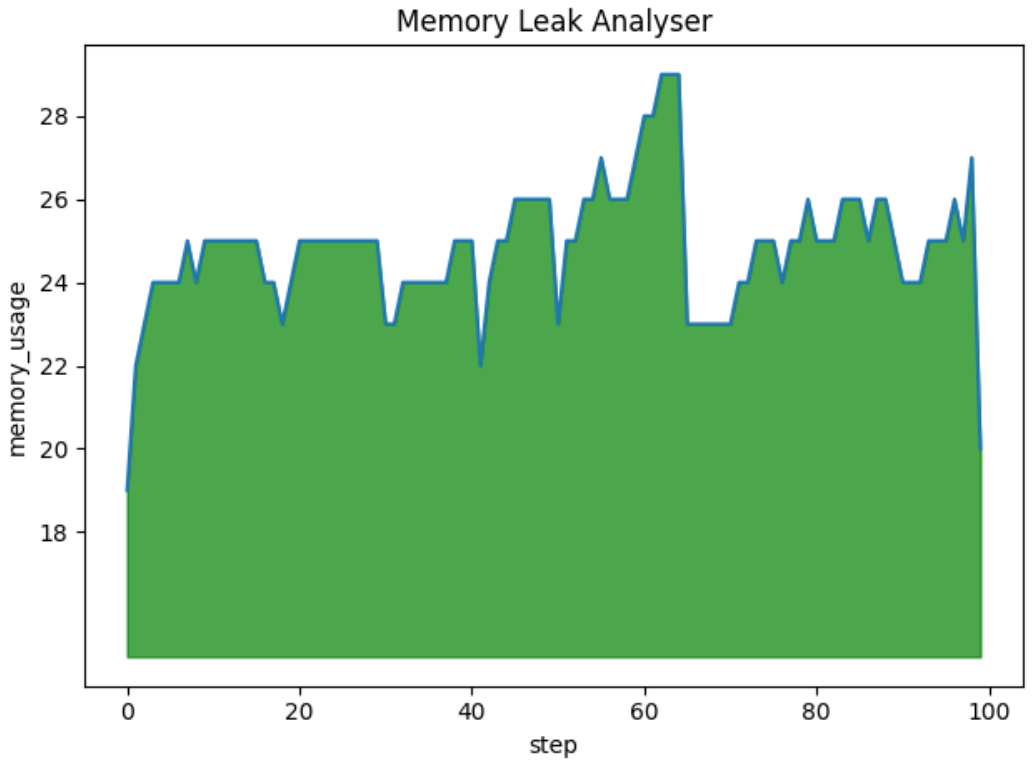
以下工作为验证 memory_leak_analyser 工具为 smoke-test 进程检测内存泄露的可行性情况，试验数据基于真实的线上环境进行改造。

调参步进的 magic number 现如下：

```
class Threshold(Enum):
    Notify_Peak = 0.0285  # Exceeding this value will notify
    Excess_Ratio = 0.2  # Rate of excess between two days
    Error_Ratio = 0.01  # Error Rate of peak value in different ways
    Overshoot_Ratio = 0.15  # Rate of overshoot at one analyser
    Invalid_Count = 300  # Number of data less than this is invalid
```

场景测试：

1st.

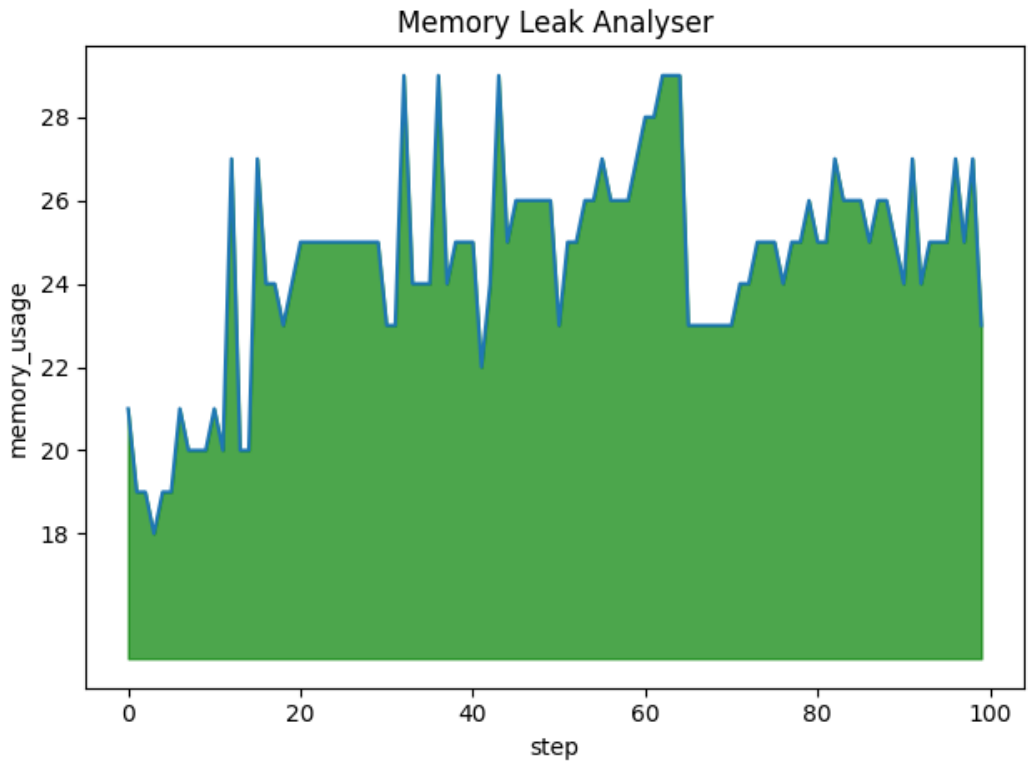


```
proc_mem = [19, 22, 23, 24, 24, 24, 24, 25, 24, 25, 25, 25, 25, 25, 25, 25, 24, 24, 23, 24, 25, 25
, 25, 25, 25, 25,
            25, 25, 25, 25, 23, 23, 24, 24, 24, 24, 24, 24, 25, 25, 25, 22, 24, 25, 25, 26, 26, 26
, 26, 26, 23, 25,
            25, 26, 26, 27, 26, 26, 26, 27, 28, 28, 29, 29, 29, 23, 23, 23, 23, 23, 23, 24, 24, 25
, 25, 25, 24, 25,
            25, 26, 25, 25, 25, 26, 26, 26, 25, 26, 26, 25, 24, 24, 24, 25, 25, 25, 26, 25, 27, 20
```

```
[Number of test data]: 100
[Peak Value]: 0.013
[if_overshoot]: False
 -- 4 0.034768
 -- 8 0.042254
[if_notify_wechat]: False
```

Meet Expectation : True

2nd.

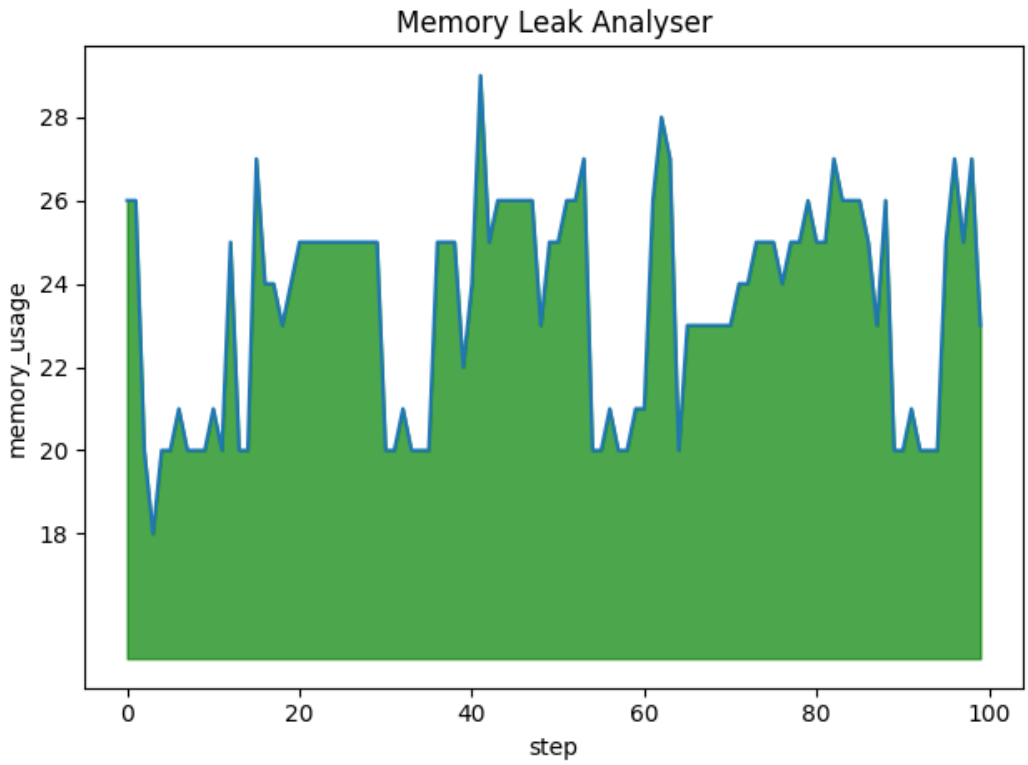



```
proc_mem = [21, 19, 19, 18, 19, 19, 21, 20, 20, 20, 21, 20, 27, 20, 20, 27, 24, 24, 23, 24, 25, 25
, 25, 25, 25, 25,
            25, 25, 25, 25, 23, 23, 29, 24, 24, 24, 29, 24, 25, 25, 25, 22, 24, 29, 25, 26, 26, 26
, 26, 26, 23, 25,
            25, 26, 26, 27, 26, 26, 26, 27, 28, 28, 29, 29, 29, 23, 23, 23, 23, 23, 23, 24, 24, 25
, 25, 25, 24, 25,
            25, 26, 25, 25, 27, 26, 26, 26, 25, 26, 26, 25, 24, 27, 24, 25, 25, 25, 27, 25, 27, 23
```

```
[Number of test data]: 100
[Peak Value]: 0.0424
[if_overshoot]: True
-- 4 0.150635
-- 8 0.278481
[if_notify_wechat]: Ture
```

Meet Expectation : True

3rd.

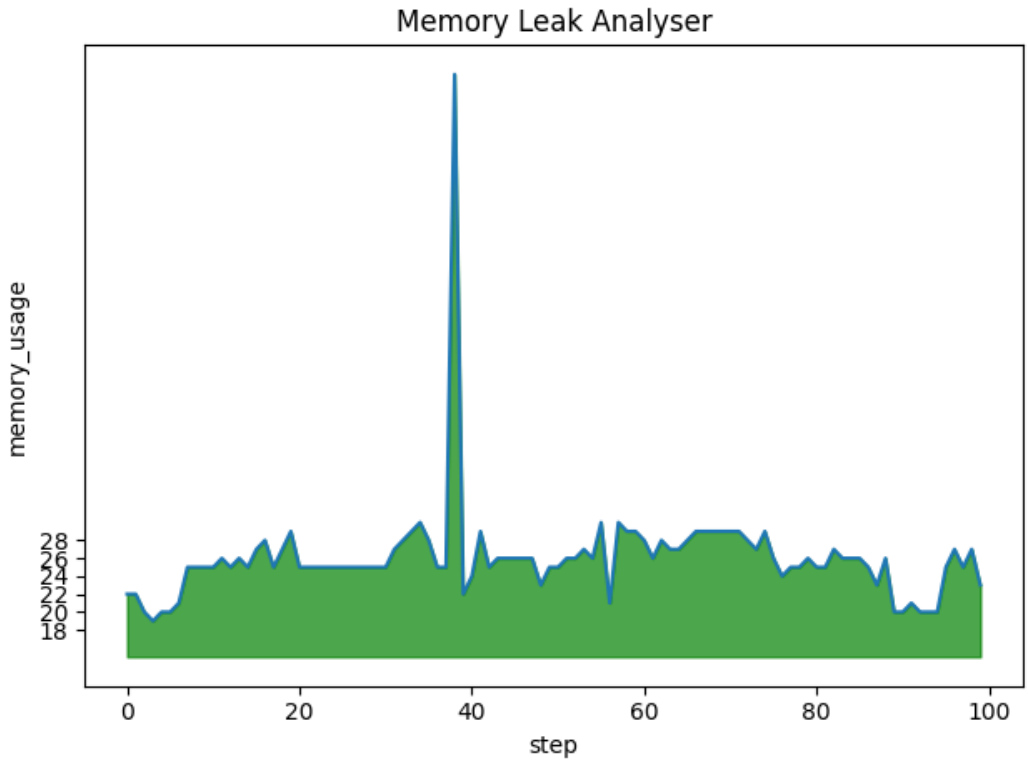



```
proc_mem = [26, 26, 20, 18, 20, 20, 21, 20, 20, 20, 21, 20, 25, 20, 20, 27, 24, 24, 23, 24, 25, 25
, 25, 25, 25, 25,
            25, 25, 25, 25, 20, 20, 21, 20, 20, 20, 25, 25, 25, 22, 24, 29, 25, 26, 26, 26, 26, 26
, 23, 25, 25, 26,
            26, 27, 20, 20, 21, 20, 20, 21, 21, 26, 28, 27, 20, 23, 23, 23, 23, 23, 23, 24, 24, 25
, 25, 25,
            24, 25, 25, 26, 25, 25, 27, 26, 26, 26, 25, 23, 26, 20, 20, 21, 20, 20, 20, 25, 27, 25
, 27, 23]

[Number of test data]: 100
[Peak Value]: 0.0182
[if_overshoot]: False
-- 4 0.067376
-- 8 0.087302
[if_notify_wechat]: False

Meet Expectation : True
```

4th.

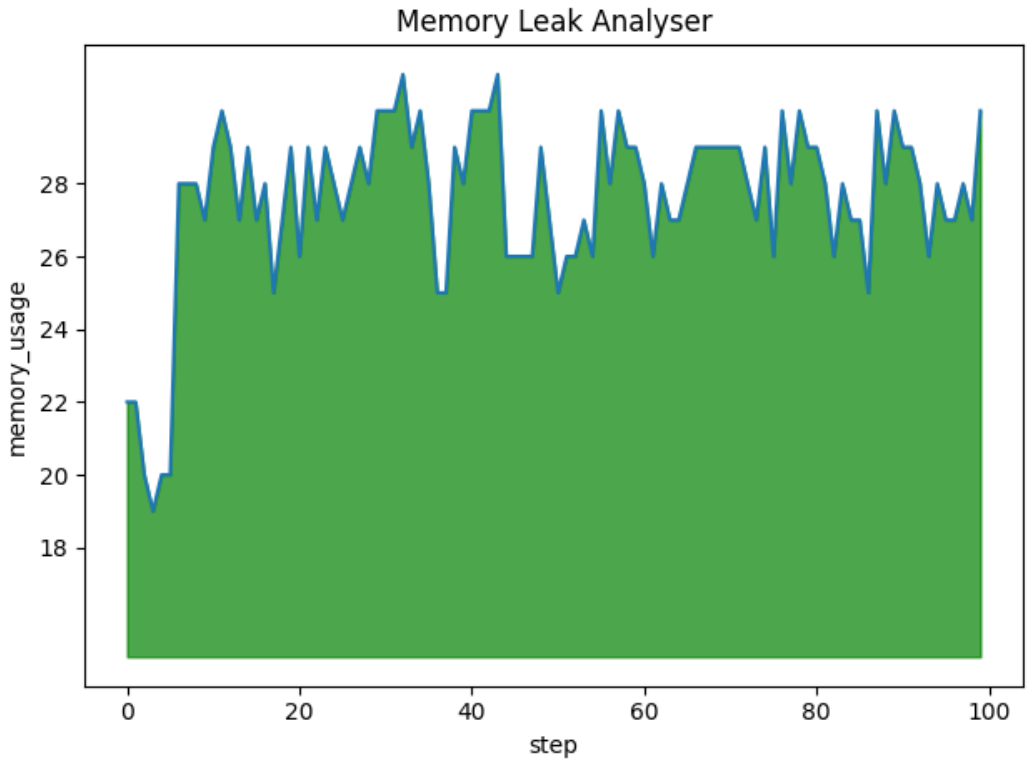



```
proc_mem = [22, 22, 20, 19, 20, 20, 21, 25, 25, 25, 25, 26, 25, 26, 25, 27, 28, 25, 27, 29, 25, 25
, 25, 25, 25, 25,
            25, 25, 25, 25, 25, 27, 28, 29, 30, 28, 25, 25, 80, 22, 24, 29, 25, 26, 26, 26, 26, 26
, 23, 25, 25, 26,
            26, 27, 26, 30, 21, 30, 29, 29, 28, 26, 28, 27, 27, 28, 29, 29, 29, 29, 29, 29, 28, 27
, 29, 26,
            24, 25, 25, 26, 25, 25, 27, 26, 26, 26, 25, 23, 26, 20, 20, 21, 20, 20, 20, 25, 27, 25
, 27, 23]

[Number of test data]: 100
[Peak Value]: 0.0011
[if_overshoot]: False
-- 4 0.00659
-- 8 0.014815
[if_notify_wechat]: False
```

Meet Expectation : True

5th.

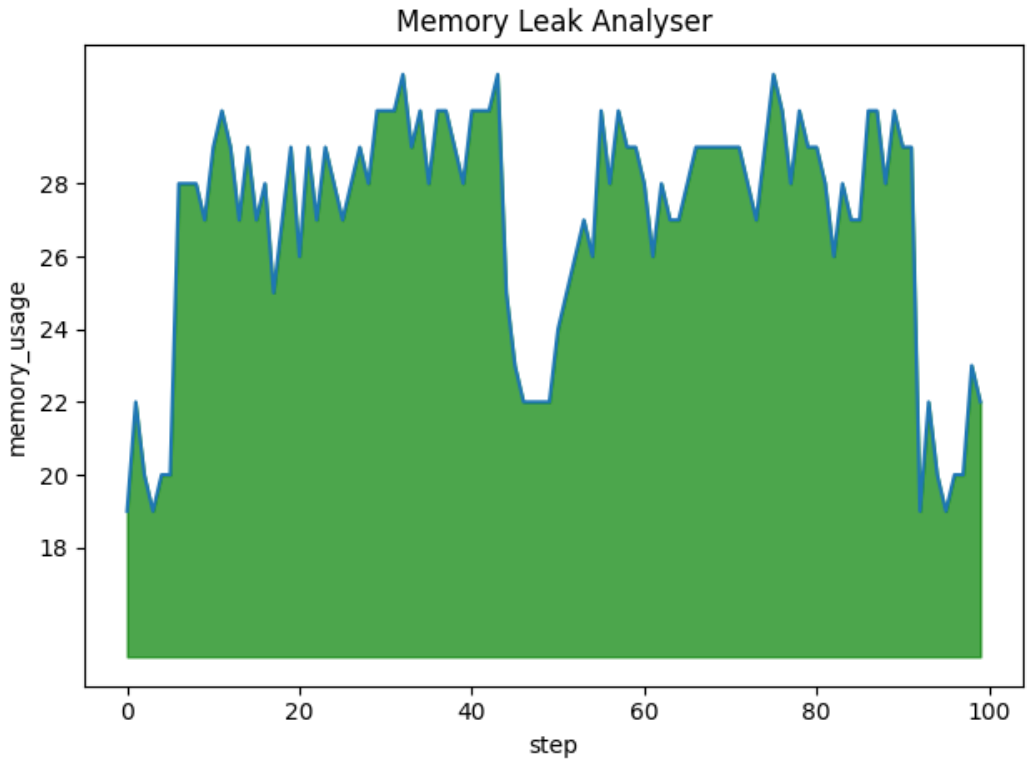



```
proc_mem = [22, 22, 20, 19, 20, 20, 28, 28, 28, 27, 29, 30, 29, 27, 29, 27, 28, 25, 27, 29, 26, 29
, 27, 29, 28, 27,
            28, 29, 28, 30, 30, 30, 31, 29, 30, 28, 25, 25, 29, 28, 30, 30, 30, 31, 26, 26, 26, 26
, 29, 27, 25, 26,
            26, 27, 26, 30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 28, 29, 29, 29, 29, 29, 29, 28, 27
, 29, 26,
            30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 25, 30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 28
, 27, 30]

[Number of test data]: 100
[Peak Value]: 0.0245
[if_overshoot]: True
-- 4 0.071975
-- 8 0.150171
[if_notify_wechat]: Ture

Meet Expectation : True
```

6th.

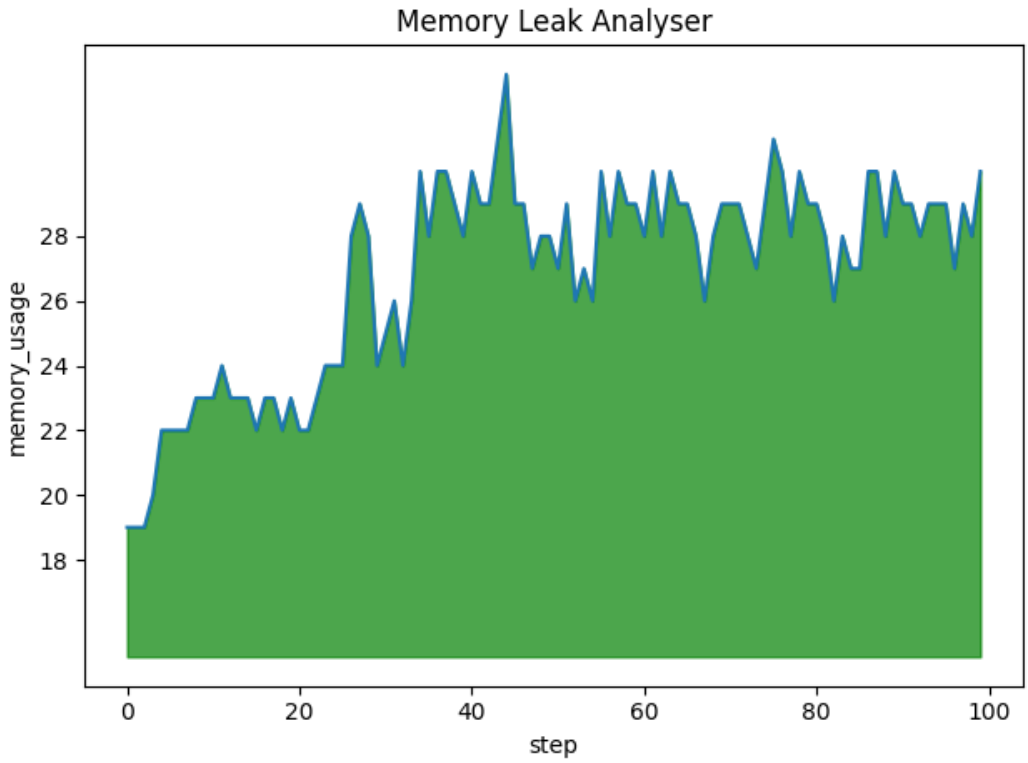



```
proc_mem = [19, 22, 20, 19, 20, 20, 28, 28, 28, 27, 29, 30, 29, 27, 29, 27, 28, 25, 27, 29, 26, 29
, 27, 29, 28, 27,
            28, 29, 28, 30, 30, 30, 31, 29, 30, 28, 30, 30, 29, 28, 30, 30, 30, 31, 25, 23, 22, 22
, 22, 22, 24, 25,
            26, 27, 26, 30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 28, 29, 29, 29, 29, 29, 29, 28, 27
, 29, 31,
            30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 30, 30, 28, 30, 29, 29, 19, 22, 20, 19, 20, 20
, 23, 22]

[Number of test data]: 100
[Peak Value]: -0.0018
[if_overshoot]: False
-- 4 0.006154
-- 8 0.031034
[if_notify_wechat]: False

Meet Expectation : True
```

7th.

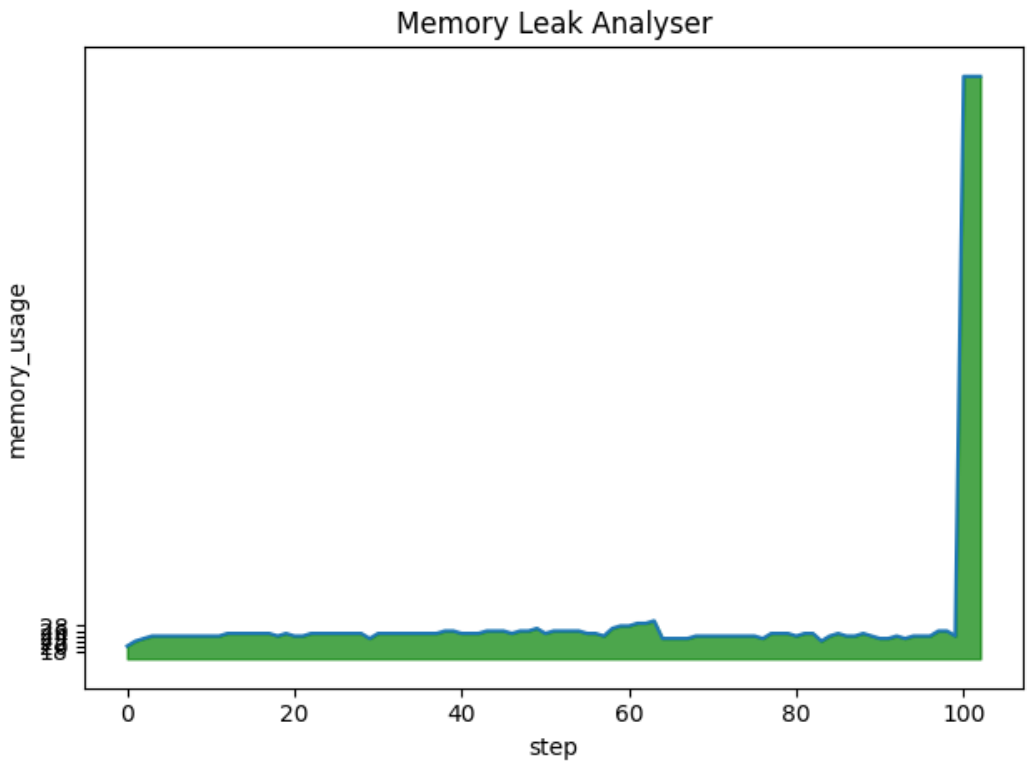



```
proc_mem = [19, 19, 19, 20, 22, 22, 22, 22, 23, 23, 23, 24, 23, 23, 23, 22, 23, 23, 22, 23, 22, 22
, 23, 24, 24, 24,
            28, 29, 28, 24, 25, 26, 24, 26, 30, 28, 30, 30, 29, 28, 30, 29, 29, 31, 33, 29, 29, 27
, 28, 28, 27, 29,
            26, 27, 26, 30, 28, 30, 29, 29, 28, 30, 28, 30, 29, 29, 28, 26, 28, 29, 29, 29, 28, 27
, 29, 31,
            30, 28, 30, 29, 29, 28, 26, 28, 27, 27, 30, 30, 28, 30, 29, 29, 28, 29, 29, 29, 27, 29
, 28, 30]

[Number of test data]: 100
[Peak Value]: 0.079
[if_overshoot]: True
-- 4 0.293694
-- 8 0.337209
[if_notify_wechat]: Ture

Meet Expectation : True
```

8th.

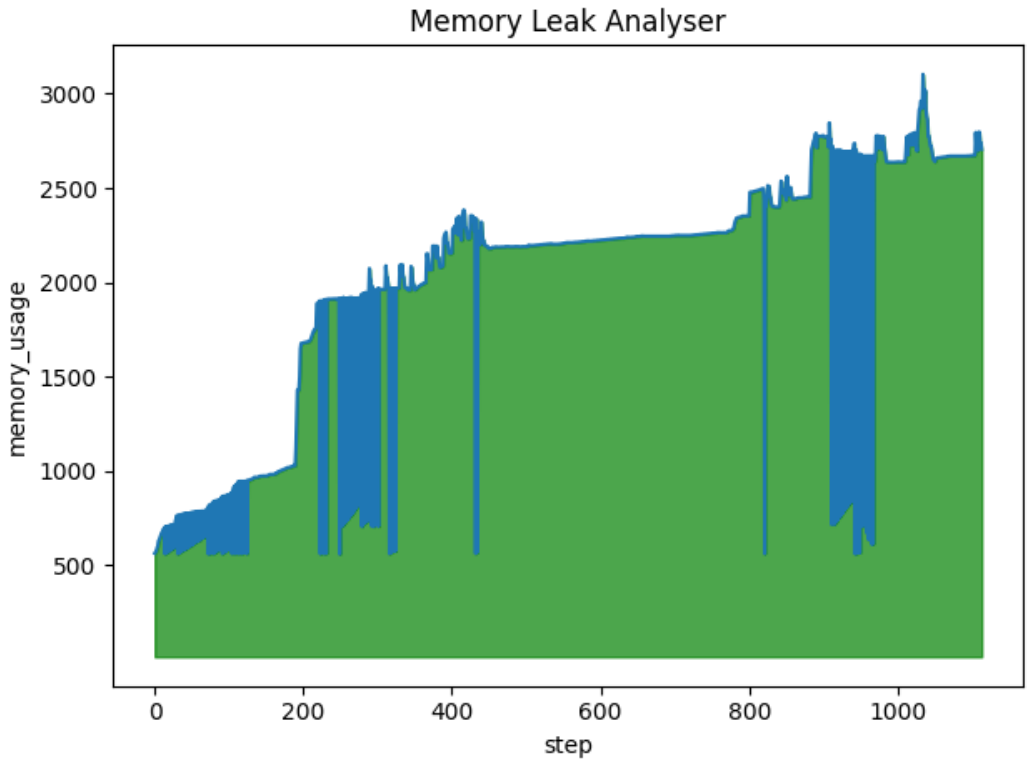



```
    proc_mem = [20, 22, 23, 24, 24, 24, 24, 24, 24, 24, 24, 24, 25, 25, 25, 25, 25, 25, 24, 25, 24, 24, 25
, 25, 25, 25, 25, 25, 25,
  23, 25, 25, 25, 25, 25, 25, 25, 25, 26, 26, 25, 25, 25, 26, 26, 26, 25, 26, 26, 27, 25, 26, 26, 26, 26, 25
, 25, 24,
           27, 28, 28, 29, 29, 30, 23, 23, 23, 23, 24, 24, 24, 24, 24, 24, 24, 24, 23, 25, 25, 25, 24, 25, 25
, 22, 24, 25, 24,
                24, 25, 24, 23, 23, 24, 23, 24, 24, 24, 26, 26, 24, 245, 245, 245]
```

```
[Number of test data]: 103
r: 0.29267880792542134
[Peak Value]: 0.3649
[if_overshoot]: True
-- 4 1.102819
-- 8 2.391459
r: 0.29267880792542134
[if_notify_wechat]: Ture

Meet Expectation : True
```

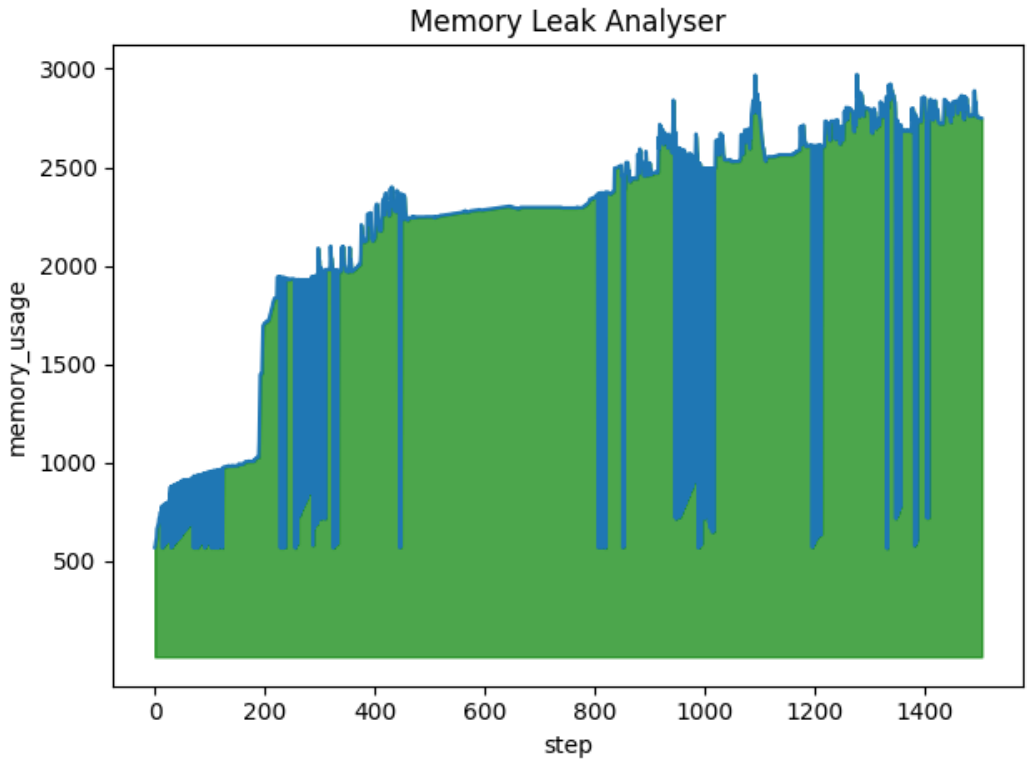
9th. 自造了 memory leak 的情况：

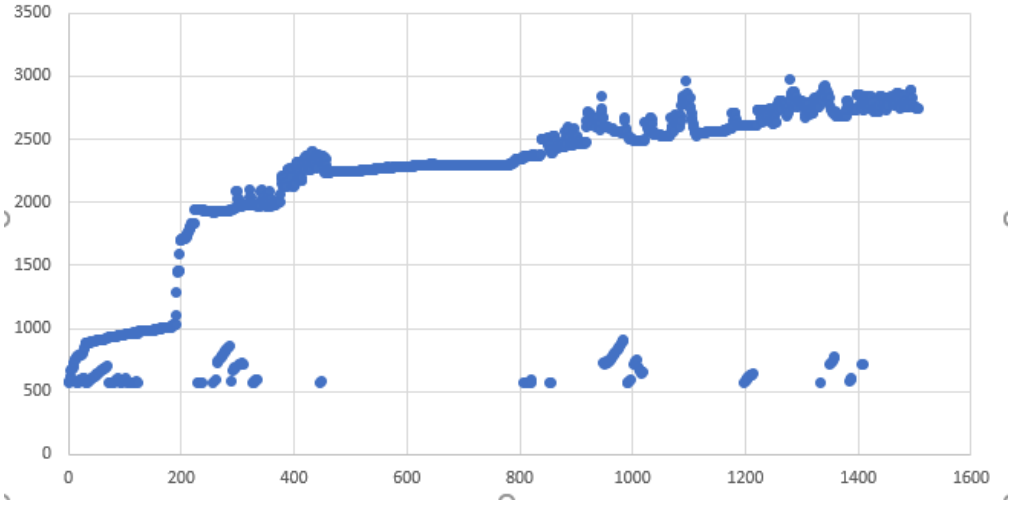


[Number of test data]: 1114
[Peak Value]: 1.6545
[if_overshoot]: True
-- 4 1.361661
-- 8 2.701364
[if_notify_wechat]: Ture

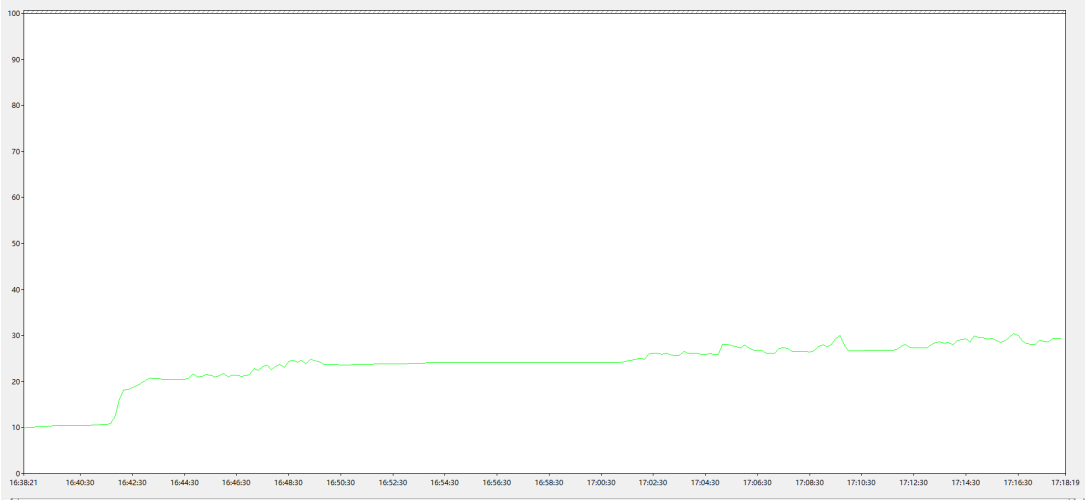
Meet Expectation : True

10th. 没有自造 memory leak，线上 branch 编出的 smoke-test enable 打点功能图：





使用 performance monitor 打点图：


100
90
80
70
60
50
40
30
20
10
0
16:38:21
16:40:30
16:42:30
16:44:30
16:46:30
16:48:30
16:50:30
16:52:30
16:54:30
16:56:30
16:58:30
17:00:30
17:02:30
17:04:30
17:06:30
17:08:30
17:10:30
17:12:30
17:14:30
17:16:30
17:18:19