

[5-2. 매출 모델링]

```
In [1]: import pandas as pd
        from pandas import DataFrame, Series
        import cafile as cf
        from cafile import Index, Account
        from cafile import Setattr
```

```
In [2]: from practice.astn0_overview import overview, idx
```

1. 분양매출 테이블 작성

```
In [3]: 분양_오피스텔 = DataFrame({
        "호실면적" : [10, 11, 12, 13], #평
        "호실수"   : [120, 30, 120, 50], #실
        "평단가"   : [20.0, 20.0, 20.0, 20.0], #백만원/평
        }, index = ['A', 'B', 'C', 'D'])
```

```
In [4]: 분양_오피스텔
```

Out[4]:

| | 호실면적 | 호실수 | 평단가 |
|---|------|-----|------|
| A | 10 | 120 | 20.0 |
| B | 11 | 30 | 20.0 |
| C | 12 | 120 | 20.0 |
| D | 13 | 50 | 20.0 |

```
In [6]: B = 분양_오피스텔
        B['호실면적m2'] = round(B['호실면적'] * cf.PY, 2)
        B['면적소계'] = B['호실면적'] * B['호실수']
        B['면적소계m2'] = round(B['호실면적m2'] * B['호실수'], 2)
        B['호실단가'] = B['호실면적'] * B['평단가']
        B['매출소계'] = B['면적소계'] * B['평단가']
```

In [7]: 분양_오피스텔

Out[7]:

| | 호실면적 | 호실수 | 평단가 | 호실면적m2 | 면적소계 | 면적소계m2 | 호실단가 | 매출소계 |
|---|------|-----|------|--------|------|--------|-------|---------|
| A | 10 | 120 | 20.0 | 3.03 | 1200 | 363.6 | 200.0 | 24000.0 |
| B | 11 | 30 | 20.0 | 3.33 | 330 | 99.9 | 220.0 | 6600.0 |
| C | 12 | 120 | 20.0 | 3.63 | 1440 | 435.6 | 240.0 | 28800.0 |
| D | 13 | 50 | 20.0 | 3.93 | 650 | 196.5 | 260.0 | 13000.0 |

In [8]: 분양_오피스텔.sum()

Out[8]: 호실면적 46.00
호실수 320.00
평단가 80.00
호실면적m2 13.92
면적소계 3620.00
면적소계m2 1095.60
호실단가 920.00
매출소계 72400.00
dtype: float64

In [9]: print(f"오피스텔 매출액 : {sum(분양_오피스텔['매출소계']):,.0f}백만원")

오피스텔 매출액 : 72,400백만원

In []:

In [10]: 분양_근생 = DataFrame({
 "면적" : [140], #평
 "평단가" : [40.0], #백만원/평
}, index = ['F1'])

In [12]: B = 분양_근생
B['면적m2'] = round(B['면적'] * cf.PY, 2)
B['매출소계'] = B['면적'] * B['평단가']

In [13]: 분양_근생

Out[13]:

| | 면적 | 평단가 | 면적m2 | 매출소계 |
|----|-----|------|-------|--------|
| F1 | 140 | 40.0 | 42.35 | 5600.0 |

```
In [14]: print(f"오피스텔 매출액 : {sum(분양_오피스텔['매출소계']):,.0f}백만원")
print(f"근생 매출액 : {sum(분양_근생['매출소계']):,.0f}백만원")
print(f"총 매출액 : {sum(분양_오피스텔['매출소계']) + sum(분양_근생['매출소계']):,.0f}백만원")
```

오피스텔 매출액 : 72,400백만원
 근생 매출액 : 5,600백만원
 총 매출액 : 78,000백만원

In []:

```
In [15]: 분양테이블 = {
        "오피" : 분양_오피스텔,
        "근생" : 분양_근생,
    }
```

In [16]: 분양테이블

```
Out[16]: {'오피':      호실면적  호실수   평단가  호실면적m2  면적소계  면적소계m2  호실단가
매출소계
A      10   120   20.0    3.03   1200    363.6   200.0   24000.0
B      11    30   20.0    3.33    330    99.9   220.0    6600.0
C      12   120   20.0    3.63   1440   435.6   240.0   28800.0
D      13    50   20.0    3.93    650   196.5   260.0   13000.0,
'근생':      면적  평단가  면적m2   매출소계
F1   140   40.0  42.35  5600.0}
```

In [17]: 분양테이블['오피']

```
Out[17]:      호실면적  호실수  평단가  호실면적m2  면적소계  면적소계m2  호실단가  매출소계
A      10    120   20.0    3.03    1200    363.6   200.0   24000.0
B      11     30   20.0    3.33     330    99.9   220.0    6600.0
C      12   120   20.0    3.63   1440   435.6   240.0   28800.0
D      13    50   20.0    3.93     650   196.5   260.0   13000.0
```

In [18]: 분양테이블['근생']

```
Out[18]:      면적  평단가  면적m2  매출소계
F1   140   40.0  42.35  5600.0
```

In []:

```
In [19]: 분양매출 = {
    "오피" : 분양테이블[ '오피' ][ '매출소계' ].sum(),
    "근생" : 분양테이블[ '근생' ][ '매출소계' ].sum(),
    "합계" : 분양테이블[ '오피' ][ '매출소계' ].sum() + 분양테이블[ '근생' ][ '매출소계'
].sum()
}
```

```
In [20]: 분양매출
```

```
Out[20]: {'오피': 72400.0, '근생': 5600.0, '합계': 78000.0}
```

```
In [ ]:
```

2. 분양대금 납입 일정

```
In [21]: 대금납입일정 = DataFrame({
    '구분' : [ '계약금', '중도금1', '중도금2', '중도금3', '중도금4', '잔금' ],
    '오피' : [ 0.1, 0.1, 0.1, 0.1, 0.1, 0.5 ],
    '근생' : [ 0.1, 0.1, 0.1, 0.1, 0.0, 0.6 ],
}, index= [idx.sales[0], idx.sales[5], idx.sales[10], idx.sales[15],
idx.sales[20], idx.sales[-1]])
```

```
In [22]: 대금납입일정
```

```
Out[22]:
```

| | 구분 | 오피 | 근생 |
|------------|------|-----|-----|
| 2023-04-30 | 계약금 | 0.1 | 0.1 |
| 2023-09-30 | 중도금1 | 0.1 | 0.1 |
| 2024-02-29 | 중도금2 | 0.1 | 0.1 |
| 2024-07-31 | 중도금3 | 0.1 | 0.1 |
| 2024-12-31 | 중도금4 | 0.1 | 0.0 |
| 2025-04-30 | 잔금 | 0.5 | 0.6 |

```
In [23]: 대금납입일정[ '납입오피' ] = 대금납입일정[ '오피' ] * 분양테이블[ '오피' ][ '매출소계' ].su
m()
대금납입일정[ '납입근생' ] = 대금납입일정[ '근생' ] * 분양테이블[ '근생' ][ '매출소계' ].su
m()
대금납입일정[ '납입소계' ] = 대금납입일정[ '납입오피' ] + 대금납입일정[ '납입근생' ]
```

In [24]: 대금납입일정

Out[24]:

| | 구분 | 오피 | 근생 | 납입오피 | 납입근생 | 납입소계 |
|------------|------|-----|-----|---------|--------|---------|
| 2023-04-30 | 계약금 | 0.1 | 0.1 | 7240.0 | 560.0 | 7800.0 |
| 2023-09-30 | 중도금1 | 0.1 | 0.1 | 7240.0 | 560.0 | 7800.0 |
| 2024-02-29 | 중도금2 | 0.1 | 0.1 | 7240.0 | 560.0 | 7800.0 |
| 2024-07-31 | 중도금3 | 0.1 | 0.1 | 7240.0 | 560.0 | 7800.0 |
| 2024-12-31 | 중도금4 | 0.1 | 0.0 | 7240.0 | 0.0 | 7240.0 |
| 2025-04-30 | 잔금 | 0.5 | 0.6 | 36200.0 | 3360.0 | 39560.0 |

In []:

3. 분양률 가정

```
In [25]: 분양률가정 = DataFrame({
    '오피': [ 0.2, 0.2, 0.2, 0.2, 0.2],
    '근생': [ 0.0, 0.0, 0.0, 0.0, 1.0],
}, index= [idx.sales[0], idx.sales[6], idx.sales[12], idx.sales[18], idx.sales[-1]])
```

```
In [26]: 분양률가정['계약오피'] = 분양률가정['오피'] * 분양테이블['오피']['매출소계'].sum()
분양률가정['계약근생'] = 분양률가정['근생'] * 분양테이블['근생']['매출소계'].sum()
분양률가정['계약소계'] = 분양률가정['계약오피'] + 분양률가정['계약근생']
```

In [27]: 분양률가정

Out[27]:

| | 오피 | 근생 | 계약오피 | 계약근생 | 계약소계 |
|------------|-----|-----|---------|--------|---------|
| 2023-04-30 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2023-10-31 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2024-04-30 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2024-10-31 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2025-04-30 | 0.2 | 1.0 | 14480.0 | 5600.0 | 20080.0 |

In [28]: 분양률가정.cumsum()

Out[28]:

| | 오피 | 근생 | 계약오피 | 계약근생 | 계약소계 |
|------------|-----|-----|---------|--------|---------|
| 2023-04-30 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2023-10-31 | 0.4 | 0.0 | 28960.0 | 0.0 | 28960.0 |
| 2024-04-30 | 0.6 | 0.0 | 43440.0 | 0.0 | 43440.0 |
| 2024-10-31 | 0.8 | 0.0 | 57920.0 | 0.0 | 57920.0 |
| 2025-04-30 | 1.0 | 1.0 | 72400.0 | 5600.0 | 78000.0 |

In []:

4. Sales Account 설정

1) 최초 100% 분양 가정

In [29]: sales = Account(idx)
sales.오피 = sales.subacc('오피')
sales.근생 = sales.subacc('근생')

In [30]: sales

Out[30]: Account(main, len 30, dct: ['오피', '근생'])

In [31]: sales.오피

Out[31]: Account(오피, len 30)

In [32]: sales.근생

Out[32]: Account(근생, len 30)

In [33]: sales.오피.subscd(대금납입일정.index, 대금납입일정['납입오피'])
sales.근생.subscd(대금납입일정.index, 대금납입일정['납입근생'])

In [34]: sales.오피.dfall

Out[34]:

| | scd_in | scd_in_cum | scd_out | scd_out_cum | bal_strt | amt_in | amt_in_cum | amt_out |
|------------|--------|------------|---------|-------------|----------|--------|------------|---------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023- | | | | | | | | |

| | | | | | | | | |
|-------------------|-----|-----|--------|---------|-----|-----|-----|-----|
| 02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-04-30 | 0.0 | 0.0 | 7240.0 | 7240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-05-31 | 0.0 | 0.0 | 0.0 | 7240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-06-30 | 0.0 | 0.0 | 0.0 | 7240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-07-31 | 0.0 | 0.0 | 0.0 | 7240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-08-31 | 0.0 | 0.0 | 0.0 | 7240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-09-30 | 0.0 | 0.0 | 7240.0 | 14480.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-10-31 | 0.0 | 0.0 | 0.0 | 14480.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-11-30 | 0.0 | 0.0 | 0.0 | 14480.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-12-31 | 0.0 | 0.0 | 0.0 | 14480.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-01-31 | 0.0 | 0.0 | 0.0 | 14480.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-02-29 | 0.0 | 0.0 | 7240.0 | 21720.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-03-31 | 0.0 | 0.0 | 0.0 | 21720.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-04-30 | 0.0 | 0.0 | 0.0 | 21720.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-05-31 | 0.0 | 0.0 | 0.0 | 21720.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-06-30 | 0.0 | 0.0 | 0.0 | 21720.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-07-31 | 0.0 | 0.0 | 7240.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-08-31 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-09-30 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-10-31 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-11-30 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | | |
|-------------------|-----|-----|---------|---------|-----|-----|-----|-----|
| 2024-12-31 | 0.0 | 0.0 | 7240.0 | 36200.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-01-31 | 0.0 | 0.0 | 0.0 | 36200.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-02-28 | 0.0 | 0.0 | 0.0 | 36200.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-03-31 | 0.0 | 0.0 | 0.0 | 36200.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-04-30 | 0.0 | 0.0 | 36200.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-05-31 | 0.0 | 0.0 | 0.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-06-30 | 0.0 | 0.0 | 0.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |

In [35]: `sales.근생.dfall`

Out[35]:

| | scd_in | scd_in_cum | scd_out | scd_out_cum | bal_strt | amt_in | amt_in_cum | amt_out |
|-------------------|--------|------------|---------|-------------|----------|--------|------------|---------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-04-30 | 0.0 | 0.0 | 560.0 | 560.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-05-31 | 0.0 | 0.0 | 0.0 | 560.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-06-30 | 0.0 | 0.0 | 0.0 | 560.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-07-31 | 0.0 | 0.0 | 0.0 | 560.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-08-31 | 0.0 | 0.0 | 0.0 | 560.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-09-30 | 0.0 | 0.0 | 560.0 | 1120.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-10-31 | 0.0 | 0.0 | 0.0 | 1120.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-11-30 | 0.0 | 0.0 | 0.0 | 1120.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-12-31 | 0.0 | 0.0 | 0.0 | 1120.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024- | | | | | | | | |

| | | | | | | | | |
|------------|-----|-----|--------|--------|-----|-----|-----|-----|
| 01-31 | 0.0 | 0.0 | 0.0 | 1120.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-02-29 | 0.0 | 0.0 | 560.0 | 1680.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-03-31 | 0.0 | 0.0 | 0.0 | 1680.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-04-30 | 0.0 | 0.0 | 0.0 | 1680.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-05-31 | 0.0 | 0.0 | 0.0 | 1680.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-06-30 | 0.0 | 0.0 | 0.0 | 1680.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-07-31 | 0.0 | 0.0 | 560.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-08-31 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-09-30 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-10-31 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-11-30 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-12-31 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-01-31 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-02-28 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-03-31 | 0.0 | 0.0 | 0.0 | 2240.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-04-30 | 0.0 | 0.0 | 3360.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-05-31 | 0.0 | 0.0 | 0.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-06-30 | 0.0 | 0.0 | 0.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |

In []:

2) 분양률 가정 적용

```
In [36]: sales = Account(idx)
sales.오피 = sales.subacc('오피')
sales.근생 = sales.subacc('근생')
```

```
In [ ]:
```

```
In [37]: 현금스케줄_오피 = DataFrame(index = idx)
현금스케줄_오피['계약율'] = 분양률가정['오피']
현금스케줄_오피['납입율'] = 대금납입일정['오피']
현금스케줄_오피 = 현금스케줄_오피.fillna(0.0)
```

```
In [38]: 현금스케줄_오피
```

Out[38]:

| | 계약율 | 납입율 |
|------------|-----|-----|
| 2023-01-31 | 0.0 | 0.0 |
| 2023-02-28 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 |
| 2023-04-30 | 0.2 | 0.1 |
| 2023-05-31 | 0.0 | 0.0 |
| 2023-06-30 | 0.0 | 0.0 |
| 2023-07-31 | 0.0 | 0.0 |
| 2023-08-31 | 0.0 | 0.0 |
| 2023-09-30 | 0.0 | 0.1 |
| 2023-10-31 | 0.2 | 0.0 |
| 2023-11-30 | 0.0 | 0.0 |
| 2023-12-31 | 0.0 | 0.0 |
| 2024-01-31 | 0.0 | 0.0 |
| 2024-02-29 | 0.0 | 0.1 |
| 2024-03-31 | 0.0 | 0.0 |
| 2024-04-30 | 0.2 | 0.0 |
| 2024-05-31 | 0.0 | 0.0 |
| 2024-06-30 | 0.0 | 0.0 |
| 2024-07-31 | 0.0 | 0.1 |
| 2024-08-31 | 0.0 | 0.0 |
| 2024-09-30 | 0.0 | 0.0 |
| 2024-10-31 | 0.2 | 0.0 |
| 2024-11-30 | 0.0 | 0.0 |
| 2024-12-31 | 0.0 | 0.1 |
| 2025-01-31 | 0.0 | 0.0 |
| 2025-02-28 | 0.0 | 0.0 |
| 2025-03-31 | 0.0 | 0.0 |
| 2025-04-30 | 0.2 | 0.5 |
| 2025-05-31 | 0.0 | 0.0 |
| 2025-06-30 | 0.0 | 0.0 |

```
In [39]: 현금스케줄_오피[ ['계약율누적', '납입율누적']] = 현금스케줄_오피.cumsum()  
현금스케줄_오피[ '현금율누적' ] = 현금스케줄_오피[ '계약율누적' ] * 현금스케줄_오피[ '납입  
율누적' ]  
현금스케줄_오피[ '현금율유입' ] = 현금스케줄_오피[ '현금율누적' ].diff()  
현금스케줄_오피 = 현금스케줄_오피.fillna(0.0)
```

```
In [40]: 현금스케줄_오피
```

Out[40]:

| | 계약율 | 납입율 | 계약율누적 | 납입율누적 | 현금율누적 | 현금율유입 |
|------------|-----|-----|-------|-------|-------|-------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-04-30 | 0.2 | 0.1 | 0.2 | 0.1 | 0.02 | 0.02 |
| 2023-05-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-06-30 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-07-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-08-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-09-30 | 0.0 | 0.1 | 0.2 | 0.2 | 0.04 | 0.02 |
| 2023-10-31 | 0.2 | 0.0 | 0.4 | 0.2 | 0.08 | 0.04 |
| 2023-11-30 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2023-12-31 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2024-01-31 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2024-02-29 | 0.0 | 0.1 | 0.4 | 0.3 | 0.12 | 0.04 |
| 2024-03-31 | 0.0 | 0.0 | 0.4 | 0.3 | 0.12 | 0.00 |
| 2024-04-30 | 0.2 | 0.0 | 0.6 | 0.3 | 0.18 | 0.06 |
| 2024-05-31 | 0.0 | 0.0 | 0.6 | 0.3 | 0.18 | 0.00 |
| 2024-06-30 | 0.0 | 0.0 | 0.6 | 0.3 | 0.18 | 0.00 |
| 2024-07-31 | 0.0 | 0.1 | 0.6 | 0.4 | 0.24 | 0.06 |
| 2024-08-31 | 0.0 | 0.0 | 0.6 | 0.4 | 0.24 | 0.00 |
| 2024-09-30 | 0.0 | 0.0 | 0.6 | 0.4 | 0.24 | 0.00 |
| 2024-10-31 | 0.2 | 0.0 | 0.8 | 0.4 | 0.32 | 0.08 |
| 2024-11-30 | 0.0 | 0.0 | 0.8 | 0.4 | 0.32 | 0.00 |
| 2024-12-31 | 0.0 | 0.1 | 0.8 | 0.5 | 0.40 | 0.08 |
| 2025-01-31 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-02-28 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-03-31 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-04-30 | 0.2 | 0.5 | 1.0 | 1.0 | 1.00 | 0.60 |
| 2025-05-31 | 0.0 | 0.0 | 1.0 | 1.0 | 1.00 | 0.00 |
| 2025-06-30 | 0.0 | 0.0 | 1.0 | 1.0 | 1.00 | 0.00 |

```
In [41]: sales.오피.subscd(현금스케줄_오피.index, 현금스케줄_오피[ '현금유입' ] * 분양테이블[ '오피' ][ '매출소계' ].sum( ) )
```

```
In [42]: sales.오피.dfall
```

```
Out[42]:
```

| | scd_in | scd_in_cum | scd_out | scd_out_cum | bal_strt | amt_in | amt_in_cum | amt_out |
|------------|--------|------------|---------|-------------|----------|--------|------------|---------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-04-30 | 0.0 | 0.0 | 1448.0 | 1448.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-05-31 | 0.0 | 0.0 | 0.0 | 1448.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-06-30 | 0.0 | 0.0 | 0.0 | 1448.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-07-31 | 0.0 | 0.0 | 0.0 | 1448.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-08-31 | 0.0 | 0.0 | 0.0 | 1448.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-09-30 | 0.0 | 0.0 | 1448.0 | 2896.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-10-31 | 0.0 | 0.0 | 2896.0 | 5792.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-11-30 | 0.0 | 0.0 | 0.0 | 5792.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-12-31 | 0.0 | 0.0 | 0.0 | 5792.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-01-31 | 0.0 | 0.0 | 0.0 | 5792.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-02-29 | 0.0 | 0.0 | 2896.0 | 8688.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-03-31 | 0.0 | 0.0 | 0.0 | 8688.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-04-30 | 0.0 | 0.0 | 4344.0 | 13032.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-05-31 | 0.0 | 0.0 | 0.0 | 13032.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-06-30 | 0.0 | 0.0 | 0.0 | 13032.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024- | | | | | | | | |

| | | | | | | | | |
|------------|-----|-----|---------|---------|-----|-----|-----|-----|
| 07-31 | 0.0 | 0.0 | 4344.0 | 17376.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-08-31 | 0.0 | 0.0 | 0.0 | 17376.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-09-30 | 0.0 | 0.0 | 0.0 | 17376.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-10-31 | 0.0 | 0.0 | 5792.0 | 23168.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-11-30 | 0.0 | 0.0 | 0.0 | 23168.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-12-31 | 0.0 | 0.0 | 5792.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-01-31 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-02-28 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-03-31 | 0.0 | 0.0 | 0.0 | 28960.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-04-30 | 0.0 | 0.0 | 43440.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-05-31 | 0.0 | 0.0 | 0.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-06-30 | 0.0 | 0.0 | 0.0 | 72400.0 | 0.0 | 0.0 | 0.0 | 0.0 |

In []:

```

In [43]: 현금스케줄_근생 = DataFrame(index = idx)
현금스케줄_근생[ '계약율' ] = 분양률가정[ '근생' ]
현금스케줄_근생[ '납입율' ] = 대금납입일정[ '근생' ]
현금스케줄_근생 = 현금스케줄_근생.fillna(0.0)

현금스케줄_근생[ [ '계약율누적' , '납입율누적' ] ] = 현금스케줄_근생.cumsum()
현금스케줄_근생[ '현금율누적' ] = 현금스케줄_근생[ '계약율누적' ] * 현금스케줄_근생[ '납입
율누적' ]
현금스케줄_근생[ '현금율유입' ] = 현금스케줄_근생[ '현금율누적' ].diff()
현금스케줄_근생 = 현금스케줄_근생.fillna(0.0)

```

```

In [44]: sales.근생.subscd(현금스케줄_근생.index, 현금스케줄_근생[ '현금율유입' ] * 분양테이
블[ '근생' ][ '매출소계' ].sum())

```

In [45]: sales.근생.dfall

Out[45]:

| | scd_in | scd_in_cum | scd_out | scd_out_cum | bal_strt | amt_in | amt_in_cum | amt_out |
|------------|--------|------------|---------|-------------|----------|--------|------------|---------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-04-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-05-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-06-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-07-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-08-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-09-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-10-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-11-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-12-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-02-29 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-04-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-05-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-06-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-07-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-08-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-09-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-10-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2024-11-30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | | |
|------------|-----|-----|--------|--------|-----|-----|-----|-----|
| 2024-12-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-04-30 | 0.0 | 0.0 | 5600.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-05-31 | 0.0 | 0.0 | 0.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2025-06-30 | 0.0 | 0.0 | 0.0 | 5600.0 | 0.0 | 0.0 | 0.0 | 0.0 |

In []:

3) 분양 현금흐름 계산 함수 만들기

```
In [46]: def 현금스케줄(분양률가정, 대금납입일정):
    rslt = DataFrame(index = idx)
    rslt['계약율'] = 분양률가정
    rslt['납입율'] = 대금납입일정
    rslt = rslt.fillna(0.0)

    rslt[['계약율누적', '납입율누적']] = rslt.cumsum()
    rslt['현금율누적'] = rslt['계약율누적'] * rslt['납입율누적']
    rslt['현금율유입'] = rslt['현금율누적'].diff()
    rslt = rslt.fillna(0.0)

    return rslt
```

```
In [47]: 현금스케줄_오피2 = 현금스케줄(분양률가정['오피'], 대금납입일정['오피'])
```

```
In [48]: 현금스케줄_오피2
```

Out [48] :

| | 계약율 | 납입율 | 계약율누적 | 납입율누적 | 현금율누적 | 현금율유입 |
|------------|-----|-----|-------|-------|-------|-------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 |
| 2023-04-30 | 0.2 | 0.1 | 0.2 | 0.1 | 0.02 | 0.02 |
| 2023-05-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-06-30 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-07-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-08-31 | 0.0 | 0.0 | 0.2 | 0.1 | 0.02 | 0.00 |
| 2023-09-30 | 0.0 | 0.1 | 0.2 | 0.2 | 0.04 | 0.02 |
| 2023-10-31 | 0.2 | 0.0 | 0.4 | 0.2 | 0.08 | 0.04 |
| 2023-11-30 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2023-12-31 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2024-01-31 | 0.0 | 0.0 | 0.4 | 0.2 | 0.08 | 0.00 |
| 2024-02-29 | 0.0 | 0.1 | 0.4 | 0.3 | 0.12 | 0.04 |
| 2024-03-31 | 0.0 | 0.0 | 0.4 | 0.3 | 0.12 | 0.00 |
| 2024-04-30 | 0.2 | 0.0 | 0.6 | 0.3 | 0.18 | 0.06 |
| 2024-05-31 | 0.0 | 0.0 | 0.6 | 0.3 | 0.18 | 0.00 |
| 2024-06-30 | 0.0 | 0.0 | 0.6 | 0.3 | 0.18 | 0.00 |
| 2024-07-31 | 0.0 | 0.1 | 0.6 | 0.4 | 0.24 | 0.06 |
| 2024-08-31 | 0.0 | 0.0 | 0.6 | 0.4 | 0.24 | 0.00 |
| 2024-09-30 | 0.0 | 0.0 | 0.6 | 0.4 | 0.24 | 0.00 |
| 2024-10-31 | 0.2 | 0.0 | 0.8 | 0.4 | 0.32 | 0.08 |
| 2024-11-30 | 0.0 | 0.0 | 0.8 | 0.4 | 0.32 | 0.00 |
| 2024-12-31 | 0.0 | 0.1 | 0.8 | 0.5 | 0.40 | 0.08 |
| 2025-01-31 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-02-28 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-03-31 | 0.0 | 0.0 | 0.8 | 0.5 | 0.40 | 0.00 |
| 2025-04-30 | 0.2 | 0.5 | 1.0 | 1.0 | 1.00 | 0.60 |
| 2025-05-31 | 0.0 | 0.0 | 1.0 | 1.0 | 1.00 | 0.00 |
| 2025-06-30 | 0.0 | 0.0 | 1.0 | 1.0 | 1.00 | 0.00 |

In [] :

4) 분양률 시나리오 분석

```
In [49]: 분양률가정시나리오 = {}

분양률가정시나리오[1] = DataFrame({
    '오피': [ 0.2, 0.2, 0.2, 0.2, 0.2],
    '근생': [ 0.0, 0.0, 0.0, 0.0, 1.0],
}, index= [idx.sales[0], idx.sales[6], idx.sales[12], idx.sales[18], idx.sales[-1]])

분양률가정시나리오[2] = DataFrame({
    '오피': [ 1.0, 0.0, 0.0, 0.0, 0.0],
    '근생': [ 1.0, 0.0, 0.0, 0.0, 0.0],
}, index= [idx.sales[0], idx.sales[6], idx.sales[12], idx.sales[18], idx.sales[-1]])

분양률가정시나리오[3] = DataFrame({
    '오피': [ 0.0, 0.0, 0.0, 0.0, 1.0],
    '근생': [ 0.0, 0.0, 0.0, 0.0, 1.0],
}, index= [idx.sales[0], idx.sales[6], idx.sales[12], idx.sales[18], idx.sales[-1]])
```

```
In [50]: 분양률가정 = 분양률가정시나리오[1]
분양률가정['계약오피'] = 분양률가정['오피'] * 분양테이블['오피']['매출소계'].sum()
분양률가정['계약근생'] = 분양률가정['근생'] * 분양테이블['근생']['매출소계'].sum()
분양률가정['계약소계'] = 분양률가정['계약오피'] + 분양률가정['계약근생']
```

```
In [51]: 분양률가정
```

```
Out[51]:
```

| | 오피 | 근생 | 계약오피 | 계약근생 | 계약소계 |
|-------------------|-----|-----|---------|--------|---------|
| 2023-04-30 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2023-10-31 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2024-04-30 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2024-10-31 | 0.2 | 0.0 | 14480.0 | 0.0 | 14480.0 |
| 2025-04-30 | 0.2 | 1.0 | 14480.0 | 5600.0 | 20080.0 |

```
In [ ]:
```

5. Sales Account 함수 설정

```
In [52]: @Setattr(sales.dct)
def get_salesamt(sls, acc, idxno):
    amt = sls.scd_out[idxno]
    sls.send(idxno, amt, acc, note=f"분양매출({sls.name})")
    return amt
```

```
In [53]: oprtg = Account(idx)
```

```
In [54]: sales.오피.get_salesamt(oprtg, idx[3])
```

```
Out[54]: 1448.0000000000002
```

```
In [55]: oprtg.df
```

Out[55]:

| | bal_strt | amt_in | amt_out | bal_end |
|------------|----------|--------|---------|---------|
| 2023-01-31 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-02-28 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-03-31 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2023-04-30 | 0.0 | 1448.0 | 0.0 | 1448.0 |
| 2023-05-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-06-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-07-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-08-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-09-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-10-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-11-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2023-12-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-01-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-02-29 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-03-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-04-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-05-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-06-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-07-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-08-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-09-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-10-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-11-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2024-12-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-01-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-02-28 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-03-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-04-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-05-31 | 1448.0 | 0.0 | 0.0 | 1448.0 |
| 2025-06-30 | 1448.0 | 0.0 | 0.0 | 1448.0 |

In []: