In [11]:

```
import datetime
import numpy as np
import pandas as pd
from dateutil.relativedelta import relativedelta


"""taking inputs from user"""

annual_interest_rate = float(input('Annual Interest Rate(in decimals): '))
years = int(input('No. of years: '))
yearly_installments = int(input('Number of installments per year: '))
principal = float(input('Principal: '))
additional_principal = float(input('Additional Principal: '))
start_date = input('Start Date(Jan 1 2016): ')

"""Creation of table content"""

installment_date = datetime.datetime.strptime(start_date, '%b %d %Y').date()

installment_interest_rate = annual_interest_rate / yearly_installments
each_installment = -np.round(np.pmt(installment_interest_rate, yearly_installmen
ts * years, principal), 2)

final_unpaid_balance = principal

schedule_table = []
iteration = 1

while final_unpaid_balance > 0:

    """part of installment amount that goes towards interest"""
    interest_amount = round(installment_interest_rate * final_unpaid_balance, 2)

    """calculating this installment amount"""
    this_installment = round(min(each_installment, interest_amount + final_unpai
d_balance), 2)

    """part of installment that goes to main loan amount"""
    principal_amount = round(this_installment - interest_amount, 2)

    """adjustment with additional principal"""
    this_additional_principal = min(additional_principal, final_unpaid_balance -
principal_amount)

    """ final loan balance"""
    final_unpaid_balance = round(final_unpaid_balance - (this_additional_princip
al + principal_amount), 2)

    """adding details of current installment payment"""
    installment_date_formatted = datetime.datetime.strftime(installment_date, '%
Y-%m-%d')

    new_entry = [iteration, installment_date_formatted, this_installment, princi
pal_amount, interest_amount,
                 this_additional_principal, final_unpaid_balance]

    schedule_table.append(new_entry)

    iteration += 1
```

```
    installment_date = installment_date + relativedelta(months=int(12 / yearly_i
nstallments))



column= ['Period','Payment_Date', 'Payment', 'Principal', 'Interest', 'Addl_Prin
cipal', 'Balance']

df= pd.DataFrame(schedule_table, columns= column)
df
```

```
Annual Interest Rate(in decimals): 0.04
No. of years: 30
Number of installments per year: 12
Principal: 200000
Additional Principal: 50
Start Date(Jan 1 2016): Jan 1 2016
```

Out[11]:

	Period	Payment_Date	Payment	Principal	Interest	Addl_Principal	Balance
0	1	2016-01-01	954.83	288.16	666.67	50.0	199661.84
1	2	2016-02-01	954.83	289.29	665.54	50.0	199322.55
2	3	2016-03-01	954.83	290.42	664.41	50.0	198982.13
3	4	2016-04-01	954.83	291.56	663.27	50.0	198640.57
4	5	2016-05-01	954.83	292.69	662.14	50.0	198297.88
5	6	2016-06-01	954.83	293.84	660.99	50.0	197954.04
6	7	2016-07-01	954.83	294.98	659.85	50.0	197609.06
7	8	2016-08-01	954.83	296.13	658.70	50.0	197262.93
8	9	2016-09-01	954.83	297.29	657.54	50.0	196915.64
9	10	2016-10-01	954.83	298.44	656.39	50.0	196567.20
10	11	2016-11-01	954.83	299.61	655.22	50.0	196217.59
11	12	2016-12-01	954.83	300.77	654.06	50.0	195866.82
12	13	2017-01-01	954.83	301.94	652.89	50.0	195514.88
13	14	2017-02-01	954.83	303.11	651.72	50.0	195161.77
14	15	2017-03-01	954.83	304.29	650.54	50.0	194807.48
15	16	2017-04-01	954.83	305.47	649.36	50.0	194452.01
16	17	2017-05-01	954.83	306.66	648.17	50.0	194095.35
17	18	2017-06-01	954.83	307.85	646.98	50.0	193737.50
18	19	2017-07-01	954.83	309.04	645.79	50.0	193378.46
19	20	2017-08-01	954.83	310.24	644.59	50.0	193018.22
20	21	2017-09-01	954.83	311.44	643.39	50.0	192656.78
21	22	2017-10-01	954.83	312.64	642.19	50.0	192294.14
22	23	2017-11-01	954.83	313.85	640.98	50.0	191930.29
23	24	2017-12-01	954.83	315.06	639.77	50.0	191565.23
24	25	2018-01-01	954.83	316.28	638.55	50.0	191198.95
25	26	2018-02-01	954.83	317.50	637.33	50.0	190831.45
26	27	2018-03-01	954.83	318.73	636.10	50.0	190462.72
27	28	2018-04-01	954.83	319.95	634.88	50.0	190092.77
28	29	2018-05-01	954.83	321.19	633.64	50.0	189721.58
29	30	2018-06-01	954.83	322.42	632.41	50.0	189349.16
...	...	...	...	...	...	...	...
298	299	2040-11-01	954.83	861.61	93.22	50.0	27054.84
299	300	2040-12-01	954.83	864.65	90.18	50.0	26140.19
300	301	2041-01-01	954.83	867.70	87.13	50.0	25222.49
301	302	2041-02-01	954.83	870.76	84.07	50.0	24301.73
302	303	2041-03-01	954.83	873.82	81.01	50.0	23377.91

	Period	Payment_Date	Payment	Principal	Interest	Addl_Principal	Balance
303	304	2041-04-01	954.83	876.90	77.93	50.0	22451.01
304	305	2041-05-01	954.83	879.99	74.84	50.0	21521.02
305	306	2041-06-01	954.83	883.09	71.74	50.0	20587.93
306	307	2041-07-01	954.83	886.20	68.63	50.0	19651.73
307	308	2041-08-01	954.83	889.32	65.51	50.0	18712.41
308	309	2041-09-01	954.83	892.46	62.37	50.0	17769.95
309	310	2041-10-01	954.83	895.60	59.23	50.0	16824.35
310	311	2041-11-01	954.83	898.75	56.08	50.0	15875.60
311	312	2041-12-01	954.83	901.91	52.92	50.0	14923.69
312	313	2042-01-01	954.83	905.08	49.75	50.0	13968.61
313	314	2042-02-01	954.83	908.27	46.56	50.0	13010.34
314	315	2042-03-01	954.83	911.46	43.37	50.0	12048.88
315	316	2042-04-01	954.83	914.67	40.16	50.0	11084.21
316	317	2042-05-01	954.83	917.88	36.95	50.0	10116.33
317	318	2042-06-01	954.83	921.11	33.72	50.0	9145.22
318	319	2042-07-01	954.83	924.35	30.48	50.0	8170.87
319	320	2042-08-01	954.83	927.59	27.24	50.0	7193.28
320	321	2042-09-01	954.83	930.85	23.98	50.0	6212.43
321	322	2042-10-01	954.83	934.12	20.71	50.0	5228.31
322	323	2042-11-01	954.83	937.40	17.43	50.0	4240.91
323	324	2042-12-01	954.83	940.69	14.14	50.0	3250.22
324	325	2043-01-01	954.83	944.00	10.83	50.0	2256.22
325	326	2043-02-01	954.83	947.31	7.52	50.0	1258.91
326	327	2043-03-01	954.83	950.63	4.20	50.0	258.28
327	328	2043-04-01	259.14	258.28	0.86	0.0	0.00

328 rows × 7 columns

In [ ]: