```
In [68]:
import pandas as pd
import numpy as np
import warnings
warnings.filterwarnings("ignore")
```

```
In [69]:
df = pd.read_excel('Exercise Data1.xlsx', index_col= 0)
```

```
In [70]:
df.shape
```

Out[70]:

```
(26, 5)
```

```
In [71]:
new_header = df.iloc[0]
```

```
In [72]:
df = df[1:]
```

```
In [73]:
df.columns = new_header
```

```
In [82]:
df['Net Contibution'] = df['Contribution'] - df['Amount returned to everyone in the group']
```

```
In [75]:
df
```

Out[75]:

Month	Contribution	Amount won by the bidder	Chit fund organizer commission	Net amount recd by Bid winner	Amount returned to everyone in the group	Net Contibution
1	2000	40000	2500	37500	400	1600
2	2000	42000	2500	39500	320	1680
3	2000	45000	2500	42500	200	1800
4	2000	48000	2500	45500	80	1920
5	2000	40000	2500	37500	400	1600
6	2000	42000	2500	39500	320	1680
7	2000	43000	2500	40500	280	1720
8	2000	44000	2500	41500	240	1760
9	2000	40000	2500	37500	400	1600
10	2000	42000	2500	39500	320	1680
11	2000	45000	2500	42500	200	1800
12	2000	48000	2500	45500	80	1920
13	2000	40000	2500	37500	400	1600
14	2000	42000	2500	39500	320	1680
15	2000	43000	2500	40500	280	1720

Month	Contribution	Amount won by the bidder	Chit fund organizer commission	Net amount recd by Bid winner	Amount returned to everyone in the group	Net Contibution
17	2000	41000	2500	38500	360	1640
18	2000	42000	2500	39500	320	1680
19	2000	45000	2500	42500	200	1800
20	2000	45000	2500	42500	200	1800
21	2000	44000	2500	41500	240	1760
22	2000	46000	2500	43500	160	1840
23	2000	47000	2500	44500	120	1880
24	2000	48000	2500	45500	80	1920
25	2000	50000	2500	47500	0	2000

In [76]:

```python
Total_net_contribution = df['Net Contibution'].sum()
Total_net_contribution
```

Out[76]:

```
43800
```

In [77]:

```python
df['Total Return'] = (df['Net amount recd by Bid winner'] - Total_net_contribution)/ Total_net_contribution
df
```

Out[77]:

Month	Contribution	Amount won by the bidder	Chit fund organizer commission	Net amount recd by Bid winner	Amount returned to everyone in the group	Net Contibution	Total Return
1	2000	40000	2500	37500	400	1600	-0.143836
2	2000	42000	2500	39500	320	1680	-0.0981735
3	2000	45000	2500	42500	200	1800	-0.0296804
4	2000	48000	2500	45500	80	1920	0.0388128
5	2000	40000	2500	37500	400	1600	-0.143836
6	2000	42000	2500	39500	320	1680	-0.0981735
7	2000	43000	2500	40500	280	1720	-0.0753425
8	2000	44000	2500	41500	240	1760	-0.0525114
9	2000	40000	2500	37500	400	1600	-0.143836
10	2000	42000	2500	39500	320	1680	-0.0981735
11	2000	45000	2500	42500	200	1800	-0.0296804
12	2000	48000	2500	45500	80	1920	0.0388128
13	2000	40000	2500	37500	400	1600	-0.143836
14	2000	42000	2500	39500	320	1680	-0.0981735
15	2000	43000	2500	40500	280	1720	-0.0753425
16	2000	43000	2500	40500	280	1720	-0.0753425
17	2000	41000	2500	38500	360	1640	-0.121005
18	2000	42000	2500	39500	320	1680	-0.0981735
19	2000	45000	2500	42500	200	1800	-0.0296804
20	2000	45000	2500	42500	200	1800	-0.0296804
21	2000	44000	2500	41500	240	1760	-0.0525114
22	2000	46000	2500	43500	160	1840	-0.00684932
23	2000	47000	2500	44500	120	1880	0.0159817
24	2000	48000	2500	45500	80	1920	0.0388128

In [78]:

```python
df['Annualized Return'] = (((1 + df['Total Return'])**(12/25)) -1)*100
df
```

Out[78]:

Month	Contribution	Amount won by the bidder	Chit fund organizer commission	Net amount recd by Bid winner	Amount returned to everyone in the group	Net Contibution	Total Return	Annualized Return
1	2000	40000	2500	37500	400	1600	-0.143836	-7.18302
2	2000	42000	2500	39500	320	1680	-0.0981735	-4.83899
3	2000	45000	2500	42500	200	1800	-0.0296804	-1.43582
4	2000	48000	2500	45500	80	1920	0.0388128	1.84457
5	2000	40000	2500	37500	400	1600	-0.143836	-7.18302
6	2000	42000	2500	39500	320	1680	-0.0981735	-4.83899
7	2000	43000	2500	40500	280	1720	-0.0753425	-3.69012
8	2000	44000	2500	41500	240	1760	-0.0525114	-2.55591
9	2000	40000	2500	37500	400	1600	-0.143836	-7.18302
10	2000	42000	2500	39500	320	1680	-0.0981735	-4.83899
11	2000	45000	2500	42500	200	1800	-0.0296804	-1.43582
12	2000	48000	2500	45500	80	1920	0.0388128	1.84457
13	2000	40000	2500	37500	400	1600	-0.143836	-7.18302
14	2000	42000	2500	39500	320	1680	-0.0981735	-4.83899
15	2000	43000	2500	40500	280	1720	-0.0753425	-3.69012
16	2000	43000	2500	40500	280	1720	-0.0753425	-3.69012
17	2000	41000	2500	38500	360	1640	-0.121005	-6.00309
18	2000	42000	2500	39500	320	1680	-0.0981735	-4.83899
19	2000	45000	2500	42500	200	1800	-0.0296804	-1.43582
20	2000	45000	2500	42500	200	1800	-0.0296804	-1.43582
21	2000	44000	2500	41500	240	1760	-0.0525114	-2.55591
22	2000	46000	2500	43500	160	1840	-0.00684932	-0.329355
23	2000	47000	2500	44500	120	1880	0.0159817	0.763961
24	2000	48000	2500	45500	80	1920	0.0388128	1.84457
25	2000	50000	2500	47500	0	2000	0.0844749	3.96936

In [79]:

```python
last_person_bid = df.at[25,'Annualized Return']
print("Annualized Return of the person who bids in the last month is: {0} {1}
".format(last_person_bid,'%'))


#for i,j in df['Annualized Return']:
 #   print(i)
```

Annualized Return of the person who bids in the last month is: 3.969357358648673 %

In [80]:

```python
first_person_bid = df.at[1,'Annualized Return']
print("Annualized Return of the person who bids in the first month is: {0}
{1}".format(last_person_bid, '%'))
```

Annualized Return of the person who bids in the first month is: 3.969357358648673 %

```
annualised_return = df.iloc[:,7:8]
print("Annualized return of each month's bid winner in % is:")
annualised_return
```

Annualized return of each month's bid winner in % is:

Month	Annualized Return
1	-7.18302
2	-4.83899
3	-1.43582
4	1.84457
5	-7.18302
6	-4.83899
7	-3.69012
8	-2.55591
9	-7.18302
10	-4.83899
11	-1.43582
12	1.84457
13	-7.18302
14	-4.83899
15	-3.69012
16	-3.69012
17	-6.00309
18	-4.83899
19	-1.43582
20	-1.43582
21	-2.55591
22	-0.329355
23	0.763961
24	1.84457
25	3.96936