```
In [1]: import pandas as pd
In [2]: df = pd.read csv(r"C:\Users\user\Downloads\Assignment 1 2 (2)\Assignment 1 2\chit fund exercise.csv")
         df.head(5)
Out[2]:
             Month Contribution Amount won by the bidder Chit fund organizer commission Net amount recd by Bid winner Amount returned to everyone in the group
                        2000
                                                                       2500
                                                                                               37500
                                                                                                                                  400
                                            40000
              2
                        2000
                                            42000
                                                                       2500
                                                                                               39500
                                                                                                                                  320
                        2000
                                            45000
                                                                       2500
                                                                                               42500
                                                                                                                                  200
             3
         3 4
                        2000
                                            48000
                                                                       2500
                                                                                               45500
                                                                                                                                   80
                        2000
                                            40000
                                                                       2500
                                                                                               37500
                                                                                                                                  400
In [3]: #Adding a column for days per month by apply function
         df['Days'] = df.apply(lambda add:add.Month*30.417,axis=1)
         df.head(5)
Out[3]:
                                                                                                       Amount returned to everyone in the
                                                                                Net amount recd by Bid
                                  Amount won by the
                                                           Chit fund organizer
             Month Contribution
                                                                                                                                     Days
                                                                commission
                                                                                             winner
                                                                                                                              group
                                                                     2500
                                                                                             37500
                                                                                                                               400 30.417
                        2000
                                           40000
              2
                        2000
                                            42000
                                                                     2500
                                                                                             39500
                                                                                                                               320 60.834
                        2000
                                           45000
                                                                     2500
                                                                                             42500
                                                                                                                               200 91.251
         2 3
                        2000
                                            48000
                                                                     2500
                                                                                             45500
                                                                                                                                80 121.668
         3
              4
         4 5
                        2000
                                            40000
                                                                      2500
                                                                                             37500
                                                                                                                               400 152.085
In [4]: df.describe()
Out[4]:
                                                             Chit fund organizer
                                       Amount won by the
                                                                                Net amount recd by Bid Amount returned to everyone in the
                   Month Contribution
                                                                                                                                      Days
                                                                  commission
                                                bidder
                                                                                             winner
          count 25.000000
                               25.0
                                             25.000000
                                                                        25.0
                                                                                          25.000000
                                                                                                                       25.000000 25.000000
                                           43800.000000
                             2000.0
                                                                       2500.0
                                                                                       41300.000000
                                                                                                                      248.000000 395.421000
          mean 13.000000
            std 7.359801
                                0.0
                                           2857.738033
                                                                         0.0
                                                                                        2857.738033
                                                                                                                       114.309521 223.863059
           min 1.000000
                             2000.0
                                           40000.000000
                                                                      2500.0
                                                                                       37500.000000
                                                                                                                        0.000000 30.417000
           25% 7.000000
                             2000.0
                                           42000.000000
                                                                      2500.0
                                                                                       39500.000000
                                                                                                                      200.000000 212.919000
                                                                                       40500.000000
           50% 13.000000
                             2000.0
                                           43000.000000
                                                                      2500.0
                                                                                                                      280.000000 395.421000
                                                                      2500.0
                                                                                       42500.000000
                                                                                                                      320.000000 577.923000
                             2000.0
                                           45000.000000
           75% 19.000000
           max 25.000000
                             2000.0
                                           50000.000000
                                                                      2500.0
                                                                                       47500.000000
                                                                                                                       400.000000 760.425000
In [5]: df.info()
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 25 entries, 0 to 24
         Data columns (total 7 columns):
         Month
                                                       25 non-null int64
                                                       25 non-null int64
         Contribution
                                                       25 non-null int64
         Amount won by the bidder
         Chit fund organizer commission
                                                       25 non-null int64
         Net amount recd by Bid winner
                                                       25 non-null int64
                                                       25 non-null int64
         Amount returned to everyone in the group
                                                       25 non-null float64
         dtypes: float64(1), int64(6)
         memory usage: 1.4 KB
In [6]: df.isnull().sum()
Out[6]: Month
         Contribution
         Amount won by the bidder
         Chit fund organizer commission
         Net amount recd by Bid winner
         Amount returned to everyone in the group
         dtype: int64
In [7]: df.corr()
Out[7]:
                                                                                         Net amount recd by Amount returned to everyone
                                                                        Chit fund organizer
                                                        Amount won by
                                      Month Contribution
                                                                                                                                      Days
                                                            the bidder
                                                                                                 Bid winner
                            Month 1.000000
                                                                                                  0.475457
                                                                                                                         -0.475457 1.000000
                                                 NaN
                                                             0.475457
                                                                                   NaN
                                                                 NaN
                                                                                                     NaN
                        Contribution
                                      NaN
                                                 NaN
                                                                                   NaN
                                                                                                                             NaN
                                                                                                                                      NaN
```

Amount won by the bidder 0.475457

Chit fund organizer

NaN

1.000000

NaN

1.000000

-1.000000 0.475457

NaN

```
commission
         Net amount recd by Bid winner 0.475457
                                                        1.000000
                                                                                        1.000000
                                                                                                             -1.000000 0.475457
          Amount returned to everyone
                               -0.475457
                                                       -1.000000
                                                                                                              1.000000 -0.475457
                                             NaN
                                                                           NaN
                                                                                        -1.000000
                      in the group
                           Days 1.000000
                                             NaN
                                                       0.475457
                                                                            NaN
                                                                                        0.475457
                                                                                                             -0.475457 1.000000
In [8]: #Annualized Return for First month
         #Intially calculate absolute value
        present_NAV = 37500
        initial_NAV = 2000
        Absolute_returns = ((present_NAV-initial_NAV)/initial_NAV)*100
        print('Absolute_returns', Absolute_returns)
         #Convert months into days
        AR_person_first_month = (1+Absolute_returns) ** (365/df['Days'][0]) -1
        print('Annualized return for first month:',AR person first month,'%')
        Absolute_returns 1775.0
        Annualized return for first month: 9.837578661015391e+38 %
In [9]: #Annualized Return for First month is calculated by => ((principal+gain)/principal)^(1/years)-1
        present_NAV = 47500
        initial_NAV = 2000
        Absolute_returns = ((present_NAV-initial_NAV)/initial_NAV)*100
        print('Absolute_returns', Absolute_returns)
         #Convert months into days
        AR_person_first_month = (1+Absolute_returns) ** (365/df['Days'][24])-1
        print('Annualized return for last month:',AR_person_first_month,'%')
        Absolute_returns 2275.0
        Annualized return for last month: 39.87191855436604 %
In [ ]:
In [10]: initial NAV = 2000
        present_NAV = df['Net amount recd by Bid winner']
        days = df['Days']
         for i in present_NAV:
            Absolute_return = round(((present_NAV-initial_NAV)/initial_NAV)*100)
            print(Absolute_return)
              1775.0
              1875.0
              2025.0
              2175.0
              1775.0
              1875.0
              1925.0
              1975.0
              1775.0
              1875.0
        10 2025.0
        11 2175.0
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        18 2025.0
        19 2025.0
        20 1975.0
        21 2075.0
              2125.0
        22
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              2175.0
        24 2275.0
        Name: Net amount recd by Bid winner, dtype: float64
              1775.0
              1875.0
              2025.0
              2175.0
              1775.0
              1875.0
              1925.0
              1975.0
              1775.0
        9
              1875.0
        10 2025.0
        11 2175.0
        12 1775.0
        13
              1875.0
        14
              1925.0
        15 1925.0
        16 1825.0
        17 1875.0
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        19 2025.0
        20 1975.0
        21 2075.0
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2125 0

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23 2175.0
24 2275.0
Name: Net amount recd by Bid winner, dtype: float64
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1 1875.0
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Name: Net amount recd by Bid winner, dtype: float64
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Name: Net amount recd by Bid winner, dtype: float64
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        Name: Net amount recd by Bid winner, dtype: float64
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             2025.0
        19
             2025.0
        20 1975.0
        21 2075.0
        22 2125.0
        23 2175.0
        24 2275.0
        Name: Net amount recd by Bid winner, dtype: float64
In [11]: for Absolute_return in Absolute_return:
            AR_for_every_month_bid_winner = (1+Absolute_return) ** (365/760) -1
            print(AR_for_every_month_bid_winner,'%')
        35.35697470697645 %
        36.32614487787625 %
        37.73085639473705 %
        39.08248133262048 %
        35.35697470697645 %
        36.32614487787625 %
        36.800661417020464 %
        37.268817576469345 %
        35.35697470697645 %
        36.32614487787625 %
        37.73085639473705 %
        39.08248133262048 %
        35.35697470697645 %
        36.32614487787625 %
        36.800661417020464 %
        36.800661417020464 %
        35.8450084799326 %
        36.32614487787625 %
        37.73085639473705 %
        37.73085639473705 %
        37.268817576469345 %
        38.18700588924367 %
        38.6374803221869 %
        39.08248133262048 %
        39.956812514922085 %
In [ ]:
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1775.0