In [1]:
```
import os
```

In [2]:
```
os.makedirs("./glo/mtn", exist_ok=True)
```

In [5]:
```
"mtn" in os.listdir("./glo")
```

Out[5]: True

In [9]:
```
import urllib.request
```

In [7]:
```
from urllib.request import urlretrieve
```

In [8]:
```
url1 = 'https://gist.githubusercontent.com/aakashns/257f6e6c8719c17d0e498ea287d1a
url2 = 'https://gist.githubusercontent.com/aakashns/257f6e6c8719c17d0e498ea287d1a
url3 = 'https://gist.githubusercontent.com/aakashns/257f6e6c8719c17d0e498ea287d1a
```

In [10]:
```
urllib.request.urlretrieve(url1, "./glo/mtn/first_loan.txt")
```

Out[10]: ('./glo/mtn/first_loan.txt', <http.client.HTTPMessage at 0x715e788>)

In [11]:
```
urllib.request.urlretrieve(url2, "./glo/mtn/second_loan.txt")
```

Out[11]: ('./glo/mtn/second_loan.txt', <http.client.HTTPMessage at 0x716c688>)

In [12]:
```
urllib.request.urlretrieve(url3, "./glo/mtn/third_loan.txt")
```

Out[12]: ('./glo/mtn/third_loan.txt', <http.client.HTTPMessage at 0x716a4c8>)

In [32]:
```
with open("./glo/mtn/first_loan.txt", mode="r") as f:
    the_first_loan = f.readlines()
```

In [33]:
```
with open("./glo/mtn/second_loan.txt", mode="r") as f1:
    the_second_loan = f1.readlines()
```

In [34]:
```
with open("./glo/mtn/third_loan.txt", mode="r") as f2:
    the_third_loan = f2.readlines()
```

In [47]:
```
the_second_loan[1].strip().split(",")
```

Out[47]: ['828400', '120', '0.11', '100000']

In [39]:
```
the_first_loan
```

Out[39]:
```
['amount,duration,rate,down_payment\n',
 '100000,36,0.08,20000\n',
 '200000,12,0.1,\n',
 '628400,120,0.12,100000\n',
 '4637400,240,0.06,\n',
 '42900,90,0.07,8900\n',
 '916000,16,0.13,\n',
 '45230,48,0.08,4300\n',
 '991360,99,0.08,\n',
 '423000,27,0.09,47200']
```

In [68]:
```
def parse_headers(header_line):
    return header_line.strip().split(",")
```

In [63]:
```
headers = parse_header(the_first_loan[0])
```

In [50]:
```
headers
```

Out[50]:
```
['amount', 'duration', 'rate', 'down_payment']
```

In [64]:
```
headers = parse_header(the_first_loan[1])
```

In [85]:
```
def parse_values(data_lines):
    values = []
    for item in data_lines.strip().split(","):
        if item == "":
            values.append(0.0)
        else:
            values.append(float(item))
    return values
```

In [86]:
```
parse_values(the_first_loan[2])
```

Out[86]:
```
[200000.0, 12.0, 0.1, 0.0]
```

In [87]:
```
def create_dictionary(values, headers):
    result = {}
    for value, header in zip(values, headers):
        result[header] = value
    return result
```

In [82]:
```
def read_csv(path):
    result = []
    # Open the file in read mode
    with open(path, 'r') as f:
        # Get a list of lines
        lines = f.readlines()
        # Parse the header
        headers = parse_headers(lines[0])
        # Loop over the remaining lines
        for data_lines in lines[1:]:
            # Parse the values
            values = parse_values(data_lines)
            # Create a dictionary using values & headers
            item_dict = create_dictionary(values, headers)
            # Add the dictionary to the result
            result.append(item_dict)
    return result
```

In [91]:
```
loan1 = read_csv("./glo/mtn/first_loan.txt")
```

In [92]:
```
loan1
```

Out[92]:
```
[{'amount': 100000.0, 'duration': 36.0, 'rate': 0.08, 'down_payment': 20000.0},
 {'amount': 200000.0, 'duration': 12.0, 'rate': 0.1, 'down_payment': 0.0},
 {'amount': 628400.0,
  'duration': 120.0,
  'rate': 0.12,
  'down_payment': 100000.0},
 {'amount': 4637400.0, 'duration': 240.0, 'rate': 0.06, 'down_payment': 0.0},
 {'amount': 42900.0, 'duration': 90.0, 'rate': 0.07, 'down_payment': 8900.0},
 {'amount': 916000.0, 'duration': 16.0, 'rate': 0.13, 'down_payment': 0.0},
 {'amount': 45230.0, 'duration': 48.0, 'rate': 0.08, 'down_payment': 4300.0},
 {'amount': 991360.0, 'duration': 99.0, 'rate': 0.08, 'down_payment': 0.0},
 {'amount': 423000.0, 'duration': 27.0, 'rate': 0.09, 'down_payment': 47200.0}]
```

In [90]:
```
import math

def loan_emi(amount, duration, rate, down_payment=0):
    loan_amount = amount - down_payment
    try:
        emi = loan_amount * rate * ((1 + rate) ** duration) / (((1 + rate) ** dur
    except zerodivisionerror:
        emi = loan_amount / duration
    emi = math.ceil(emi)
    return emi
```

In [95]:
```
def comp_emi(loans):
    for loan in loan1:
        loan["emi"] = loan_emi(loan["amount"],
                               loan["duration"],
                               loan["rate"] / 12,
                               loan["down_payment"])
```

In [96]:
```
loan1
```

Out[96]:
```
[{'amount': 100000.0,
  'duration': 36.0,
  'rate': 0.08,
  'down_payment': 20000.0,
  'emi': 2507},
 {'amount': 200000.0,
  'duration': 12.0,
  'rate': 0.1,
  'down_payment': 0.0,
  'emi': 17584},
 {'amount': 628400.0,
  'duration': 120.0,
  'rate': 0.12,
  'down_payment': 100000.0,
  'emi': 7582},
 {'amount': 4637400.0,
  'duration': 240.0,
  'rate': 0.06,
  'down_payment': 0.0,
  'emi': 33224},
 {'amount': 42900.0,
  'duration': 90.0,
  'rate': 0.07,
  'down_payment': 8900.0,
  'emi': 487},
 {'amount': 916000.0,
  'duration': 16.0,
  'rate': 0.13,
  'down_payment': 0.0,
  'emi': 62664},
 {'amount': 45230.0,
  'duration': 48.0,
  'rate': 0.08,
  'down_payment': 4300.0,
  'emi': 1000},
 {'amount': 991360.0,
  'duration': 99.0,
  'rate': 0.08,
  'down_payment': 0.0,
  'emi': 13712},
 {'amount': 423000.0,
  'duration': 27.0,
  'rate': 0.09,
  'down_payment': 47200.0,
  'emi': 15428}]
```

In [98]:
```
loan1 = read_csv("./glo/mtn/first_loan.txt")
```

In [100]:
```
comp_emi(loan1)
```

In [101]:
```
with open("./glo/mtn/first_emi.txt", "w") as f:
    for loan in loan1:
        f.write("{},{},{},{},{}\n".format(
        loan["amount"],
        loan["duration"],
        loan["rate"],
        loan["down_payment"]))
```

Out[101]:
```
[{'amount': 100000.0,
  'duration': 36.0,
  'rate': 0.08,
  'down_payment': 20000.0,
  'emi': 2507},
 {'amount': 200000.0,
  'duration': 12.0,
  'rate': 0.1,
  'down_payment': 0.0,
  'emi': 17584},
 {'amount': 628400.0,
  'duration': 120.0,
  'rate': 0.12,
  'down_payment': 100000.0,
  'emi': 7582},
 {'amount': 4637400.0,
  'duration': 240.0,
  'rate': 0.06,
  'down_payment': 0.0,
  'emi': 33224},
 {'amount': 42900.0,
  'duration': 90.0,
  'rate': 0.07,
  'down_payment': 8900.0,
  'emi': 487},
 {'amount': 916000.0,
  'duration': 16.0,
  'rate': 0.13,
  'down_payment': 0.0,
  'emi': 62664},
 {'amount': 45230.0,
  'duration': 48.0,
  'rate': 0.08,
  'down_payment': 4300.0,
  'emi': 1000},
 {'amount': 991360.0,
  'duration': 99.0,
  'rate': 0.08,
  'down_payment': 0.0,
  'emi': 13712},
 {'amount': 423000.0,
  'duration': 27.0,
  'rate': 0.09,
  'down_payment': 47200.0,
  'emi': 15428}]
```

In [102]:
```
def write_csv(items, path):
    # Open the file in write mode
    with open(path, 'w') as f:
        # Return if there's nothing to write
        if len(items) == 0:
            return

        # Write the headers in the first line
        headers = list(items[0].keys())
        f.write(','.join(headers) + '\n')

        # Write one item per line
        for item in items:
            values = []
            for header in headers:
                values.append(str(item.get(header, "")))
            f.write(','.join(values) + "\n")
```

In [103]:
```
loan1 = read_csv("./glo/mtn/first_loan.txt")
```

In [104]:
```
comp_emi(loan1)
```

In [105]:
```
write_csv(loan1, "./glo/mtn/first_emi.txt")
```

In [ ]:
```

```