```python
In [1]: class loan(object):
            def __init__(self, name):
                self._name = name

            def who(self):
                print(self._name)

            def setPV(self, PV):
                self._PV = PV
                print("Present Value = ", self._PV)

            def setRate(self, ratePct):
                self._ratePct = ratePct
                print("Rate = {:.2f}%".format(self._ratePct))

            def setMonths(self, months):
                self._months = months
                print(self._months, "Months")

            def computePmt(self):
                r = self._ratePct/100/12
                self._Pmt = self._PV * (r * (1 + r)**self._months) / ((1 + r)**self._months - 1)
                print("Payment = ${:.2f}".format(self._Pmt))
                return self._Pmt

            def computeRate(self, Pmt, PV, months, acc):
                self._topR = 100
                self._botR = 0
                self.setPV(PV)
                self.setMonths(months)

                while(True):
                    self._currRate = (self._topR + self._botR) / 2
                    self.setRate(self._currRate)
                    self._currPmt = self.computePmt()
                    if(abs(self._currPmt - Pmt) < 1*10**-acc):
                        self._currRate = round(self._currRate, acc)
                        print("Rate = {:.2f}%".format(self._currRate))
                        return self._currRate
                    elif(self._currPmt > Pmt):
                        self._topR = self._currRate
                    else:
                        self._botR = self._currRate
```

```python
In [2]: loan_test = loan("Jim")
```

```python
In [3]: loan_test.setPV(10000)
        loan_test.setRate(5)
        loan_test.setMonths(48)
        loan_test.computePmt()
```

```
Present Value =  10000
Rate = 5.00%
48 Months
Payment = $230.29
```

Out[3]: 230.29293570646587

```python
In [4]: loan_test.computeRate(Pmt=0.10, PV=1, months=12, acc=6)
```

```
Present Value =  1
12 Months
Rate = 50.00%
Payment = $0.11
Rate = 25.00%
Payment = $0.10
Rate = 37.50%
Payment = $0.10
Rate = 31.25%
Payment = $0.10
Rate = 34.38%
Payment = $0.10
Rate = 35.94%
Payment = $0.10
Rate = 35.16%
Payment = $0.10
Rate = 34.77%
Payment = $0.10
Rate = 34.96%
Payment = $0.10
Rate = 35.06%
Payment = $0.10
Rate = 35.11%
Payment = $0.10
Rate = 35.08%
Payment = $0.10
Rate = 35.07%
Payment = $0.10
Rate = 35.08%
Payment = $0.10
Rate = 35.07%
Payment = $0.10
Rate = 35.07%
```

Out[4]: 35.073853

```python
In [ ]:
```