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import os
from terminaltables import AsciiTable

os.system("cls")

Months_Of_The_Year = ["January", "February", "March", "April", "May", "June",
"July", "August", "September", "October", "November", "December"]

def Monthly_Payment_Function(P, r, n):
    M = (P * (r * (1 + r) ** n)) / (((1 + r) ** n) - 1)
    print("Your monthly payments are {:0.2f} dollars.".format(M))
    return M

def Monthly_Interest_Function(Balance, Interest_Rate):
    Interest = (Balance * Interest_Rate)
    return Interest

def Monthly_Principal_Function(Monthly_Payment, Monthly_Interest, Month, Year,
Extra1, Extra2, Extra2Month, Extra3, Extra3Month, Extra3Year):
    if Year == Extra3Year:
        if Month == Extra3Month:
            if Month == Extra2Month:
                Principal = (Monthly_Payment - Monthly_Interest + Extra1 + Extra2 +
Extra3)
            else:
                Principal = (Monthly_Payment - Monthly_Interest + Extra1 + Extra3)
        else:
            if Month == Extra2Month:
                Principal = (Monthly_Payment - Monthly_Interest + Extra1 + Extra2)
            else:
                Principal = (Monthly_Payment - Monthly_Interest + Extra1)
    else:
        if Month == Extra2Month:
            Principal = (Monthly_Payment - Monthly_Interest + Extra1 + Extra2)
        else:
            Principal = (Monthly_Payment - Monthly_Interest + Extra1)
    return Principal

def Monthly_Balance_Remaining_Function(Previous_Balance, Principal):
    Balance = Previous_Balance - Principal
    return Balance

def Total_Interest_Paid_Function(Previous_Total_Interest, Interest):
    Total_Interest = (Previous_Total_Interest + Interest)
    return Total_Interest

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def Extras():
    Extra1 = 0
    Extra2 = 0
    Extra2_Month = None
    Extra3 = 0
    Extra3_Month = None
    Extra3_Year = None
    Extras_Loop = True
    while Extras_Loop:
        print("\nDo you want to add any extra payments??")
        Extra_Payments_Choice = int(input("Options: \n1 = Add money to your monthly
mortgage payment \n2 = Add money as an extra yearly mortgage payment occurring in
every (month of your choice) \n3 = Add money as a one time mortgage payment in
(month and year of your choice) \n4 = No extra payments \nChoose one: "))

        if Extra_Payments_Choice == 1:
            Extra1 = float(input("Add amount of money: "))
            print("Perfect. Every month, you will make an extra payment of", Extra1,
"dollars.")

            elif Extra_Payments_Choice == 2:
                Extra2_Month = int(
                    input("Which month do you want to make an extra payment every year?
\nType the month number: "))
                if Extra2_Month <= 12:
                    Extra2 = float(input("Add amount of money: "))
                    print("Perfect. Every year in", Months_Of_The_Year[Extra2_Month -
1],", you will make an extra payment of", Extra2, "dollars.")
                else:
                    print("The month number should be in the range of 1 to 12.")

            elif Extra_Payments_Choice == 3:
                Extra3_Year = int(input("Which year do you want to make an extra
payment? \nType the year: "))
                Extra3_Month = int(input("Which month do you want to make an extra
payment? \nType the month number: "))
                if Extra3_Month <= 12:
                    Extra3 = float(input("Add amount of money: "))
                    print("Perfect. In the year", Extra3_Year, ", and month",
Months_Of_The_Year[Extra3_Month - 1], "you will make an extra payment of", Extra3,
"dollars.")
                else:
                    print("The month number should be in the range of 1 to 12.")

            elif Extra_Payments_Choice == 4:
                Extras_Loop = False

        else:

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        print("Please select an option between 1 to 4")
    return Extra1, Extra2, Extra2_Month, Extra3, Extra3_Month, Extra3_Year

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amortization_schedule = [{"Month", "Year", "Monthly Payment", "Interest",
"Principal", "Total Interest Paid", "Balance"},]

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def Create_amrt_schedule(Balance_Remaining, Interest_Rate, Monthly_Payment,
Total_Interest_Paid, Month, Year, amrt_output):
    Extra1, Extra2, Extra2_Month, Extra3, Extra3_Month, Extra3_Year = Extras()
    while Balance_Remaining > 0.1:
        Monthly_Interest = Monthly_Interest_Function(Balance_Remaining,
Interest_Rate)
        Total_Interest_Paid = Total_Interest_Paid_Function(Total_Interest_Paid,
Monthly_Interest)
        if Monthly_Payment > Balance_Remaining:
            Monthly_Principal = Balance_Remaining
            Monthly_Payment = Monthly_Principal + Monthly_Interest
        else:
            Monthly_Principal = Monthly_Principal_Function(Monthly_Payment,
Monthly_Interest, Month, Year, Extra1, Extra2, Extra2_Month, Extra3, Extra3_Month,
Extra3_Year)
            Balance_Remaining = Monthly_Balance_Remaining_Function(Balance_Remaining,
Monthly_Principal)

        amortization_schedule.append([Months_Of_The_Year[Month - 1], Year,
round(Monthly_Payment, 2), round(Monthly_Interest, 2),round(Monthly_Principal, 2),
round(Total_Interest_Paid, 2), round(Balance_Remaining, 2)])
        if Month >= 12:
            Month = 0
            Year += 1
        Month += 1
    print("Your monthly payment amount is:", round(Monthly_Payment, 2), "dollars")
    print("Your total interest to be paid is", round(Total_Interest_Paid, 2),
"dollars")
    print("Your estimated payoff date is", Months_Of_The_Year[Month - 2], Year)
    table = AsciiTable(amortization_schedule)
    if amrt_output == 'VIEW':
        print(table.table)
    elif amrt_output == 'SAVE':
        f = open(Name_File + ".txt", "w")
        f.write(table.table)
    else:
        f = open(Name_File + ".txt", "w")
        f.write(table.table)
        print(table.table)

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def main():

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global Name_File
Mortgage_Amount = float(input("Enter the mortgage amount: "))
Mortgage_Term = (float(input("Enter the mortgage term in years: "))) * 12
Interest_Rate = (float(input("Enter the annual interest rate percentage (numbers
only): "))) / (12 * 100)

Month = int(input("Enter the month number between 1 to 12 from when your
mortgage will start: "))
Year = int(input('Enter the year from when your mortgage will start: '))

Monthly_Payment = Monthly_Payment_Function(Mortgage_Amount, Interest_Rate,
Mortgage_Term)

Balance_Remaining = Mortgage_Amount
Total_Interest_Paid = 0

print("Do you want to view the amortization schedule, save it in a text file, or
do both?")
Schedule_type = int(input("1 = view, 2 = save, 3 = both \nChoose one: "))
if Schedule_type == 1:
    Create_amrt_schedule(Balance_Remaining, Interest_Rate, Monthly_Payment,
Total_Interest_Paid, Month, Year,"VIEW")
elif Schedule_type == 2:
    Name_File = input("Type the name of the file you want to save the schedule
as: ")
    Create_amrt_schedule(Balance_Remaining, Interest_Rate, Monthly_Payment,
Total_Interest_Paid, Month, Year,"SAVE")
elif Schedule_type == 3:
    Name_File = input("Type the name of the file you want to save the schedule
as: ")
    Create_amrt_schedule(Balance_Remaining, Interest_Rate, Monthly_Payment,
Total_Interest_Paid, Month, Year,"BOTH")

if __name__ == "__main__":
    main()

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