```
# %%
print("isom assignment 2")
TASK: Develop Mortgage Payment Calculator in Python

# %%
### Calculating APR from FICO

fico=input("enter your fico score:")
fico=float(fico)
if 760<= fico <=850:
    print("apr is 5.61")
if 700<= fico <= 759:
    print("apr is 5.832")
if 680<= fico <= 699:
    print("apr is 6.009")
if 660<= fico <= 679:
    print("apr is 6.224")
if 640 <= fico <= 659:
    print("apr is 6.655")
if 620<=fico<=639:
    print("apr is 7.202")
else:
    print("Fico score out of range, please enter agian")


# %%
#####Total Mortgage Payment

loan_amount=input("Enter the principal payment: ")
loan_amount=float(loan_amount)
print(loan_amount)
loan_duration=input("Enter the number of years: ")
loan_duration=float(loan_duration)
print(loan_duration)
interest=input("enter your APR:")
interest=float(interest)
print(interest)

totalmorgage=loan_amount*((interest*(1+interest)**loan_duration))//
(((1+interest)**loan_duration-1))
print("total mortgage payment: ", totalmorgage,"$")

# %%
###Monthly Mortgage Payment

loan_amountt=input("add principal payment: ")
loan_amountt=float(loan_amountt)
print(loan_amountt)
Loan_durantionn=input("number of years")
Loan_durantionn=float(Loan_durantionn)*12
```

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print(Loan_durantionn)
interest_rate=input("enter your APR:")
interest_rate=float(interest_rate)/100/12
print(interest_rate)

total=loan_amountt*(interest_rate*(1+interest_rate)**Loan_durantionn)/
/((1+interest_rate)**Loan_durantionn-1)

print("Your monthly payment is $",total)

# %%
#how much will a customer pay/month and pay/loan-term more/less if
their credit score was 50 points higher or 50 points lower
# The change will be completely dependent on what their original score
was. An individual could experience a 50 point decrease in score at
850, but have no change to their apr since its within the FICO range.
Therefore there would be no change to their monthly and total
payments. That said, if a person experiences a 50 point drop from 680
to 650, their apr would change from 5.997 to 6.661. This change would
cause around a 20,000 increase in total interest payments. The total
interest paid is higher for those who have a lower FICO score. For
those with a low fico score initially, a 50 point increase would least
10,000 of savings.


#how much will a customer pay more/less and pay/loan-term if they put
a 0%, 10%, 20%, 30% down payment (change their loan amount)
#A customer will pay less monthly and overall when they put more %
down. With more principal payment, interest has a longer time to
accrue and that significantly increases the price. For a 15 year GA
loan on a 200,000 house with about a 5% apr, the total with no down
payment would b 1897/month, and with a 20% downpayment it would 1519/
month. That is a 375$ difference per month for 15 years, making about
a 68,000 dollar difference in total costs. The 20% downpay would be
40,000, so if we subtract that amount as it would have to be paid to
put 20% down, there is a 28.000 difference due to interest.

# %%
#Calculating BMR
#Create Basal Metabolic Rate (BMR) Calorie Calculator based on
Mifflin-St Jeor equation

gender=input("please enter your assigned sex at birth")
age=input("please enter your age")
age=float(age)
weight=input("please enter your weight in pounds")
weight=float(weight)/2.2
height=input("please enter your height in CM")
height=float(height)*2.54
```

```
if gender=="female":
    age
    weight
    height
    print("BMR=", 10*weight + 6.25*height- 5* age+5, "calories/day")
elif gender=="Female":
    age
    weight
    height
    print("BMR=", 10*weight + 6.25*height- 5* age+5, "calories/day")
elif gender=="male":
    age
    weight
    height
    print("BMR=", 10*weight + 6.25*height- 5* age-161, "calories/day")
elif gender=="Male":
    age
    weight
    height
    print("BMR=", 10*weight + 6.25*height- 5* age-161, "calories/day")
else:
    print("Please enter numbers only and try agian")


# %%
###Calories needed when weight increases by 10%

gender=input("please enter your assigned sex at birth")
age=input("please enter your age")
age=float(age)
weight=input("please enter your weight in pounds")
weight=float(weight)/2.2
height=input("please enter your height in CM")
height=float(height)*2.54



if gender=="female":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)+5
    raised=((10*weight)*1.1 + (6.25*height)- (5* age)+5)
    new=(10*weight + 6.25*height-( 5* age)+5)+(raised-original)
    print("Old BMR=", (10*weight) + 6.25*height- 5* age+5, "calories/
day")
elif gender=="Female":
    print("age=",age)
    weight
    height
```

```
    original=10*weight + 6.25*height-( 5* age)+5
    raised=((10*weight)*1.1 + (6.25*height)- (5* age)+5)
    new=(10*weight + 6.25*height-( 5* age)+5)+(raised-original)
    print("Old BMR=", (10*weight)+ 6.25*height- 5* age+5, "calories/
day")
elif gender=="male":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)-161
    raised=((10*weight)*1.1 + (6.25*height)- (5* age)-161)
    new=(10*weight + 6.25*height-( 5* age)-161)+(raised-original)
    print("Old BMR=", (10*weight) + 6.25*height- 5* age-161,
"calories/day")
elif gender=="Male":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)-161
    raised=((10*weight)*1.1 + (6.25*height)- (5* age)-161)
    new=(10*weight + 6.25*height-( 5* age)-161)+(raised-original)
    print("Old BMR=", (10*weight) + 6.25*height- 5* age-161,
"calories/day")
else:
    print("Please enter numbers only and try again")

print("Calories when increasing by 10%:",new,"calories/day")


# %%
####when decreasing by 10%

gender=input("please enter your assigned sex at birth")
age=input("please enter your age")
age=float(age)
weight=input("please enter your weight in pounds")
weight=float(weight)/2.2
height=input("please enter your height in CM")
height=float(height)*2.54



if gender=="female":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)+5
    lowered=((10*weight)*.9 + (6.25*height)- (5* age)+5)
    new=(10*weight + 6.25*height-( 5* age)+5)+(lowered-original)
elif gender=="Female":
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```
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)+5
    lowered=((10*weight)*.9 + (6.25*height)- (5* age)+5)
    new=(10*weight + 6.25*height-( 5* age)+5)+(lowered-original)
elif gender=="male":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)-161
    lowered=((10*weight)*.9 + (6.25*height)- (5* age)-161)
    new=(10*weight + 6.25*height-( 5* age)-161)+(lowered-original)
elif gender=="Male":
    print("age=",age)
    weight
    height
    original=10*weight + 6.25*height-( 5* age)-161
    lowered=((10*weight)*.9 + (6.25*height)- (5* age)-161)
    new=(10*weight + 6.25*height-( 5* age)-161)+(lowered-original)
else:
    print("Please enter numbers only and try agian")

print("New Calorie amount when decreasing by 10%:",new ,"calories/
day")
```

```
# %%
#Provide (print) a result on how many calories that individual should
consume/day and an analysis on what would be the weight if that user
consumes 10% more or 10% less calories.

#the two about functions show how many calories a person would need
with the increase or decrease
#i took my original BMR function and added a "lowered" or "raised"
variable by multiplying the weight equation by 1.1 or .9
#from there I labeled 2 new variables: original and new. Original is
the BMR with no changes, and the new is the BMR with no changes added
to the difference between the old and new
#in both cases I could add them since lowered-original produced a
negative number
#weight was only one variable that did not change much by the +/- 10%,
so BMR remained within 50 calories (when avg weight, height, and ages
are entered))
```