Richard Hayes Crowley

06/08/2021  
CSC\_157\_LAB\_01   
  
**Source code:**

*import* decimal

*# Had some trouble with Python's native "round" and formatting functions when dealing with rounding up floating points such as 3.025, had to do some googling to find a solution*

*# round\_up def is taken from https://stackoverflow.com/questions/9232256/round-up-to-second-decimal-place-in-python*

def round\_up(*x*, *place*=0):

context = decimal.getcontext()

*# get the original setting so we can put it back when we're done*

original\_rounding = context.rounding

*# change context to act like ceil()*

context.rounding = decimal.ROUND\_CEILING

rounded = round(decimal.Decimal(str(*x*)), *place*)

context.rounding = original\_rounding

*return* float(rounded)

print("Program: Target GPA")

print("Programmer: Richard Hayes Crowley")

print("-------------------------")

*# ---------------------------------------------------*

*# variables declared and initialized*

msg1 = ""

msg2 = ""

msg3 = ""

msg4 = ""

totalHours = 0

creditsEarned = 0

creditsCurrent = 0

currentGPA = 0

targetGPA = 0

targetGradePoints = 0

requiredGPA = 0

bestPossibleGPA = 0

*# ... declare and assign any additional variables here ...*

*# ---------------------------------------------------*

print("----- INPUTING Data -----")

msg1 = "GPA credit hours already completed ( Credits Earned ) "

creditsEarned = int(input("Enter " + msg1))

msg2 = "current GPA ( Cumulative ) "

currentGPA = float(input("Enter " + msg2))

msg3 = "credit hours currently enrolled ( Remaining / Planned Credits )"

creditsCurrent = int(input("Enter " + msg3))

msg4 = "the desired Target GPA"

targetGPA = float(input("Enter " + msg4))

*# ---------------------------------------------------*

print("----- PROCESSING Data -----")

totalHours = creditsEarned + creditsCurrent

targetGradePoints = targetGPA \* totalHours

targetGradePoints -= creditsEarned \* currentGPA

requiredGPA = targetGradePoints / creditsCurrent

bestPossibleGPA = ((creditsEarned \* currentGPA +

creditsCurrent \* 4) / (creditsEarned + creditsCurrent))

*# ---------------------------------------------------*

print("----- OUTPUTTING Data -----")

*# ... complete the output section of this program ...*

print("\n\*\*\*\* GPA REPORT \*\*\*\*\n")

print(f"Current GPA: {currentGPA:0.2f}")

print(f"Credits Earned: {creditsEarned}")

print(f"Target (desired) GPA: {targetGPA:0.2f}")

print(f"Remaining Credits: {creditsCurrent}\n")

print(

f"To attain the desired GPA of {targetGPA} , you will require {creditsCurrent} credit hours with a GPA of {round\_up(requiredGPA,2):0.2f}")

print(

f"Your best possible GPA will be {round\_up(bestPossibleGPA,2):0.2f} ( assuming all A's for your remaining credits )")

**Output:**

Text

Description automatically generated