Homework #5 - SOLUTIONS

The following programs are due at the beginning of class on Thursday, October 17. You can submit your programs online via NYU Classes. Please put your name and the problem/assignment number in a comment at the top of the program.

1. Write a program that asks the user to enter the amount that he or she has budgeted for a month. A loop should then prompt the user to enter each of his or her expenses for the month, and keep a running total. When the loop finishes, the program should display the amount that the user is over or under budget.

# SOLUTIONS: Homework 5 – Problem 1

def check_budget(expenses, budget):
    if expenses < budget:
        difference = format(budget - expenses, ',.2f')
        print("You were $", difference, " under budget.", sep="")
    elif expenses > budget:
        difference = format(expenses - budget, ',.2f')
        print("You were $", difference, " over budget.", sep="")
    else:
        print("You were right on budget. Impressive!")

budget = float(input("What’s your budget this month? "))
print("Please enter each of your expenses from this month:")

total_expenses = 0
keep_going = 'y'

while keep_going == 'y':
    expense = float(input("How much was the expense? $"))
    total_expenses = total_expenses + expense
    keep_going = input("Do you have any additional expenses? (Enter y for yes.) ")

check_budget(total_expenses, budget)

2. Rewrite your color mixer program from homework #4 so that it will repeatedly display an error message and request another answer until the user gives it a primary color.
Problem 2

def get_primary_color():
    primary = ""
    while primary != 'red' and primary != 'blue' and primary != 'yellow':
        primary = input("Please enter a primary color: ")
        if primary != 'red' and primary != 'blue' and primary != 'yellow':
            print("That's not a primary color, please try again.")
    return primary

def mix_colors(primary1, primary2):
    if primary1 == primary2:
        return primary1
    elif primary1 == "red" and primary2 == "blue" or primary1 == "blue" and primary2 == "red":
        return "purple"
    elif primary1 == "red" and primary2 == "yellow" or primary1 == "yellow" and primary2 == "red":
        return "orange"
    elif primary1 == "yellow" and primary2 == "blue" or primary1 == "blue" and primary2 == "yellow":
        return "green"

global_primary1 = get_primary_color()
print("We need one more primary color ...")
global_primary2 = get_primary_color()
secondary_color = mix_colors(global_primary1, global_primary2)
print("When you mix the primary colors, " , global_primary1 , " and " , global_primary2 , " , you get the secondary color , " , secondary_color , ".", sep='')

3. Write a program that asks the user to guess a number between 1 and 100. If they guess too high, the program should tell them "Lower!" If they guess too low, it should tell them "Higher!" Your program should let the user keep guessing until they get the correct number, at which point it tells them the total number of guesses made.

# SOLUTIONS: Homework 5 - Problem 3

secret_number = 42
count = 1
guess = int(input("I'm thinking of a number between 1 and 100. Can you guess what it is? "))
while guess != secret_number:
    count += 1
    if guess < secret_number:
        print("Higher!")
        guess = int(input("What number am I thinking of? "))
    elif guess > secret_number:
        print("Lower!")
        guess = int(input("What number am I thinking of? "))

if count > 1:
    print("You guessed it! And it only took you", count, "tries .")
else:
    print("You guessed it! And it only took you", count, "try."

4. Design a program that asks the user for their five favorite movies, stores them in a list, and then prints the list back to the user.

# SOLUTIONS: Homework 5 – Problem 4

movies = []
i = 1
print("Please list your five favorite movies.")
while i <= 5:
    query = str(i) + ". "
    next_movie = input(query)
    movies = movies + [next_movie]
    i += 1
print(movies)