Programming with Python, ISGB 7990

Homework: 4 – Defining Functions

Submission: FirstNameLastNameHomework4.py file

This homework includes two parts. Please include both parts in the same py file named firstNameLastNameHomework4.py, like MichaelDeamerHomework4.py.

Part A

We would like to sing Happy Birthday to the user of our code, adjusting the song to include the user's name.

Your code must:
      1. Define a function that accepts one argument: the user's name. This function should print:

> **Happy Birthday to you,**
> **Happy Birthday to you,**
> **Happy Birthday, dear [User's name]**
> **Happy Birthday to you!**

      Note: this function does not return a value.

After the function is defined, your code should:
      2. Ask the user's name
      3. Call the function defined in step 1 using the user's response as an argument.

Part A Example:

What is your name?
>>Mohandas
Happy Birthday to you,
Happy Birthday to you,
Happy Birthday, dear Mohandas
Happy Birthday to you!

Part B

This block of code will calculate the future value of a loan where the principle is $5,000, the interest rate is %7.9, the term of the loan is 5 years, and will compound 365 times per year:

```
#Should be parameters
p = '$5,000'    #Principle
r = '%7.9'      #Annual Interest Rate
```

```
t = 5        #Term of the loan
n = 365      #Compounding per year

#Should be part of Function Definition
pFloat = float(p.replace('$', '').replace(',', ''))
rFloat = float(r.replace('%', ''))*.01
a = pFloat*(1 + rFloat/n)**(n*t)
```

After the code runs, the variable 'a' will equal the future value of the loan. Note that p and r need to be string datatypes because they contain the symbols $ and %.
You need to convert this block of code into a function so that it can process many loans, not just when p = $5,00, r = %7.9, t = 5, and n = 365.

Your code must:
1. Define a function that accepts arguments for the principle, annual interest rate, term, and how many times the loan will compound per year;
2. Because the number of times a loan compounds per year is often 365, that parameter should have a default of 365;
3. The function must return the future value (not print it).

After you have defined this function:
4. You need to call the function and print the returned value for three different loans:
   Loan 1: $5,000 principle, %7.9 interest rate, and 5 year term
   Loan 2: $12,000 principle, %3.2 interest rate, and 10 year term
   Loan 2: $1,700,000 principle, %4.8 interest rate, 30 year term, compounding 4 times per year

 Part B Example:
        7421.603745452343
        16525.301376990596
        7113943.66708043

[You can also compare the results of your function to an online future value calculator, such as this one]