

Csci 1020 January 9, 2016 Program 1

Write a program in Python which finds out a user's name, asks for some numbers, then gives the user a friendly greeting demonstrating a fascinating (in your opinion) mathematical feat.

For programs in this class, you should submit your program as a plain text file with a “.py” extension and a name to help me know that is it from you and which program assignment it is for. A name like “bob\_hanson\_p1.py” is fine. Email me ( ted@fdl.tcc.edu ) with your program as an attachment.

Your program itself should include commented lines at the very top within showing:

- 1) Your name
- 2) The date
- 3) A description of what the program does

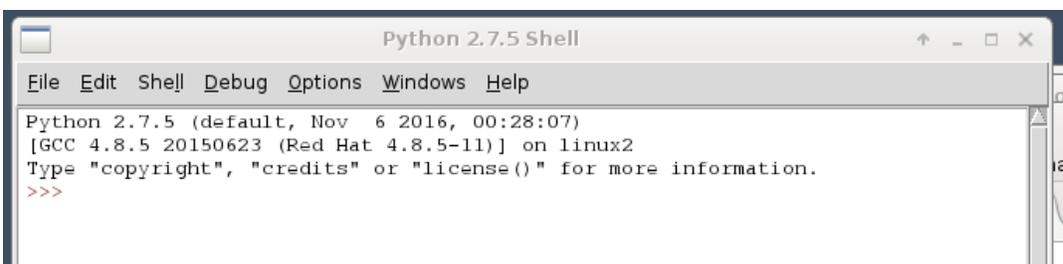
Your program itself must run correctly. If you have trouble, you can show me your code in class or email code to me with your questions.

Here is a sample program which exercises Python elements needed for the assignment.

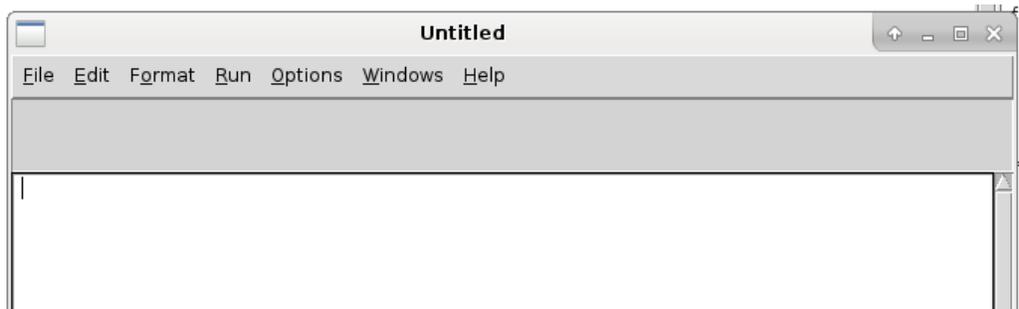
```
# My Name January 9, 2017 Program 1
# Calculate bank balance with monthly interest compounding
from math import *
name = raw_input("What is your name? ")
p = input("What is the amount of your deposit? ")
y = input("How many years do you want to keep the account? ")
r_percent = input("What is the annual percentage interest rate? ")
k = input("How many compounding periods per year? ")
r = r_percent/100.0 # convert percent APR to a decimal
balance = p*(1+r/k)**(k*y)
print "====="
print name, ", you end up with ", balance
```

Here is how you enter, save, and run your code using IDLE. The above code is used as an example.

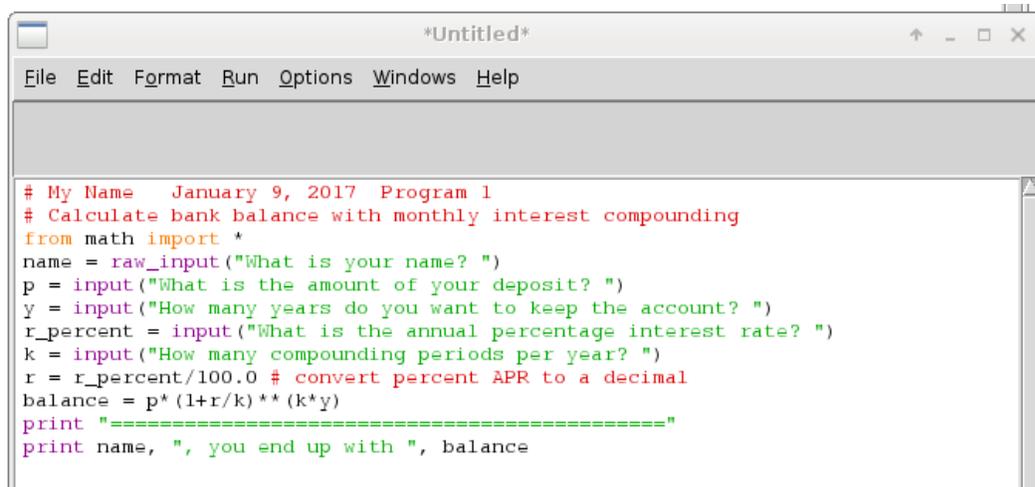
- 1) Open IDLE from: Windows>>Python2.7>>IDLE (lower left corner in Windows)  
This is about what you see:



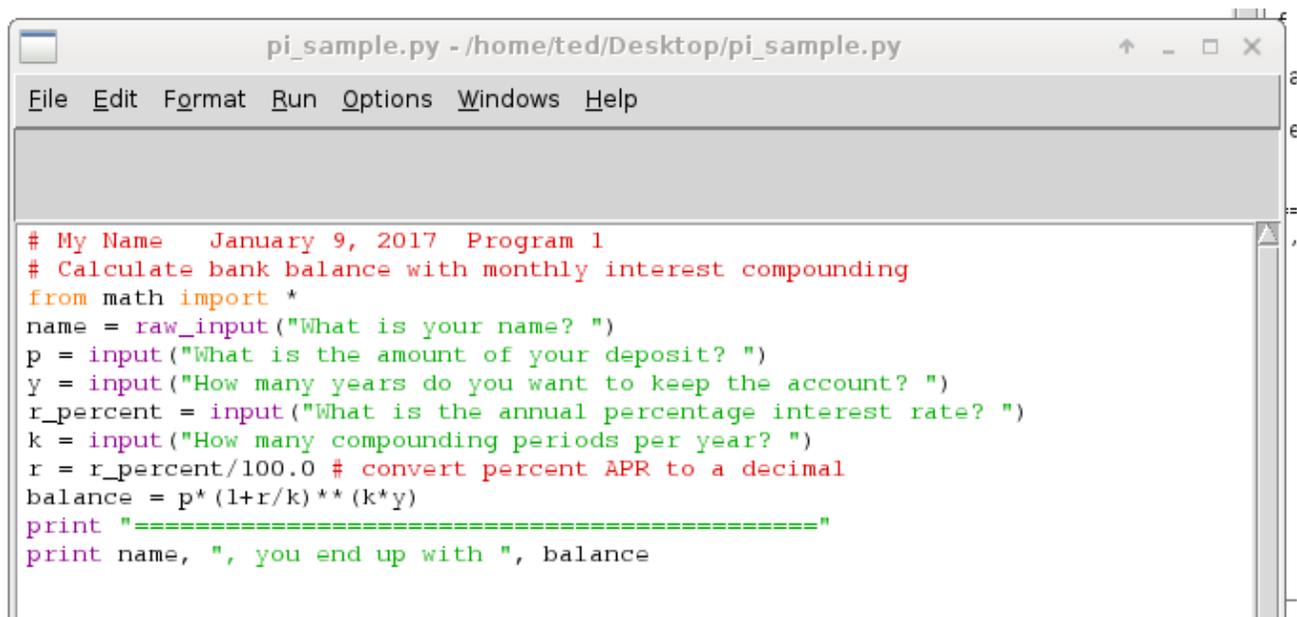
- 2) Select: File>>New Window  
Below is what you see now.



- 3) Enter in your code  
Below is what you see now.

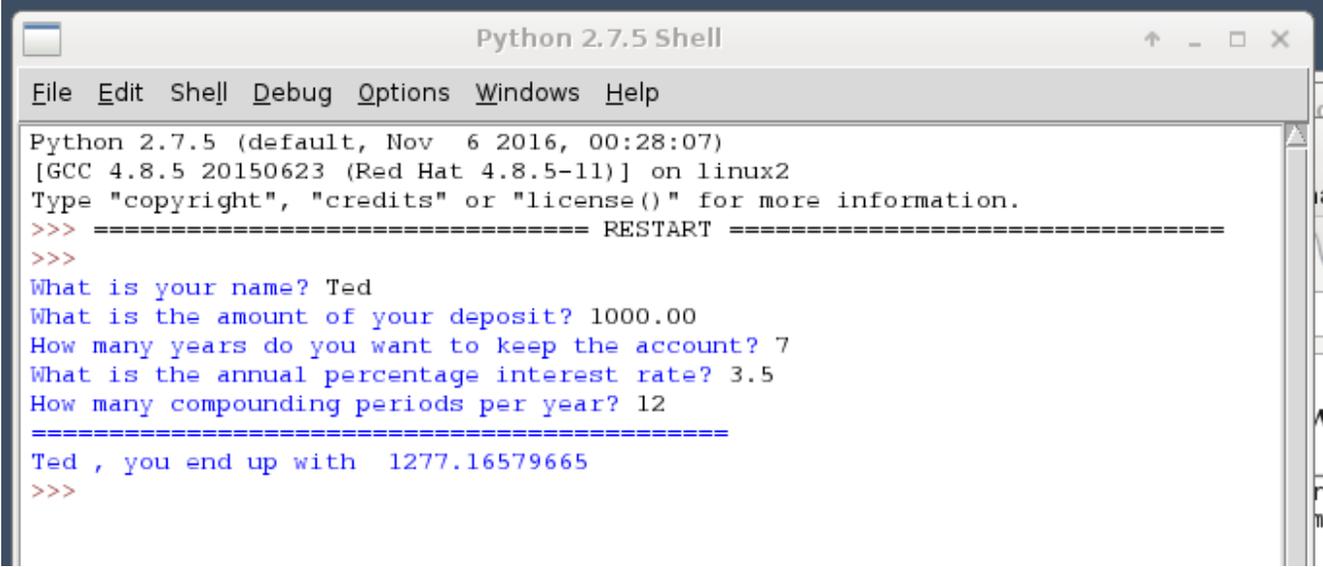


- 4) Save this on the Desktop or other location, such as in a USB Drive, using "Save as".



5) In the editor, run the program using: Run>>Run Module (F5)

The program executes in the shell, and you must answer the prompts using the shell. You enter name, amount, years, interest rate, and compounding periods, then the results are printed.



```
Python 2.7.5 Shell
File Edit Shell Debug Options Windows Help
Python 2.7.5 (default, Nov 6 2016, 00:28:07)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-11)] on linux2
Type "copyright", "credits" or "license()" for more information.
>>> ===== RESTART =====
>>>
What is your name? Ted
What is the amount of your deposit? 1000.00
How many years do you want to keep the account? 7
What is the annual percentage interest rate? 3.5
How many compounding periods per year? 12
=====
Ted, you end up with 1277.16579665
>>>
```

## NOTES

1) You will use your own formula and calculation for your program. Pick one which requires at least two numerical inputs. You can look around for scientific or financial formulas, and you can ask me (your instructor) about your ideas.

2) The `raw_input()` function is used for strings, and `input()` is used for numbers.

3) There are two kinds of numbers in Python: integers and "floating point". The practical difference is that floating point numbers (also called "real") will always use a decimal, and integers will not use a decimal. Python will do automatic conversion/promotion from integer to floating point as needed, but some care is necessary else surprising/erroneous results occur. We will cover these in more detail later.

However, we will assume that program users (us) will obey directions which the program itself gives! In short, if you require an integer, or a floating point with a decimal, instruct the user thusly. Numbers entered with a decimal are floating point, and numbers without decimals are integers.