# Vanier College

## Faculty of Careers and Technical Programs

## Department of Computer Science Technology

# Advanced UNIX

## Lab #3A

## Title: Python Tutorial (Part I)

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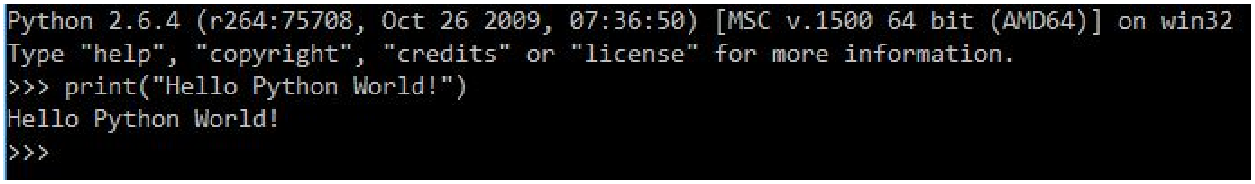
**Submitted to Florin Pilat**

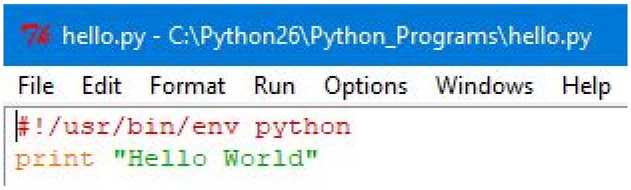
**September 18, 2020**

*Please type into your computer the code for each of the following programs listed below and submit your screenshots with the source code and the corresponding outcomes for each program, individually.*

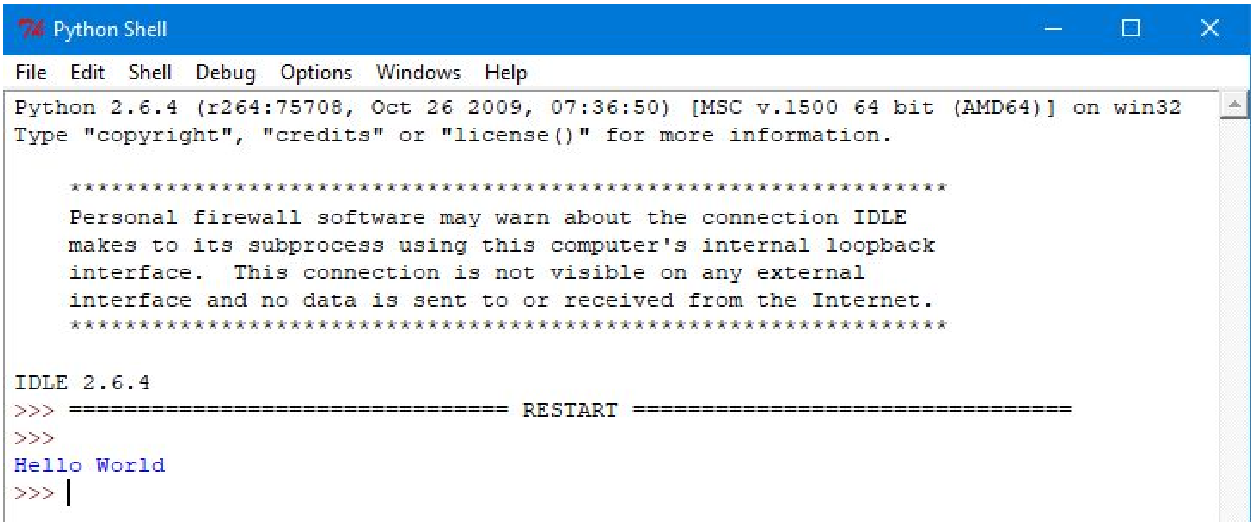
1. `<hello.py>`



```
Python 2.6.4 (r264:75708, Oct 26 2009, 07:36:50) [MSC v.1500 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello Python World!")
Hello Python World!
>>>
```

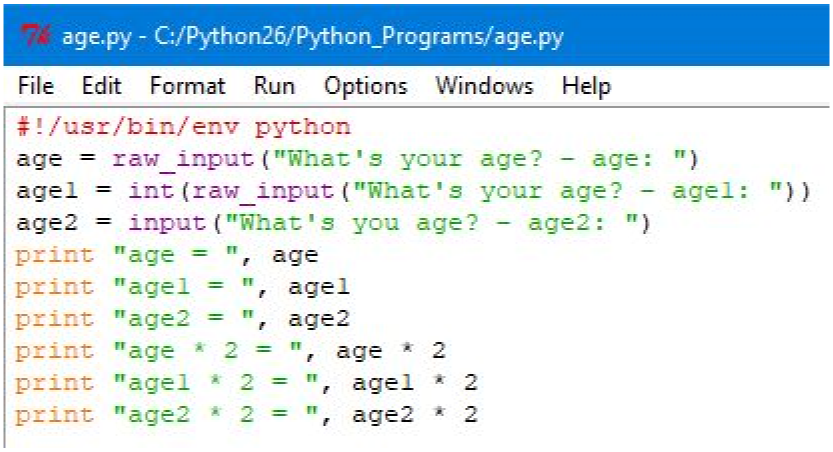


```
#!/usr/bin/env python
print "Hello World"
```

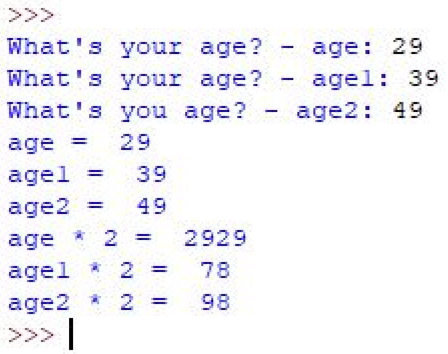


```
Python 2.6.4 (r264:75708, Oct 26 2009, 07:36:50) [MSC v.1500 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.

    ****************************************************************
    Personal firewall software may warn about the connection IDLE
    makes to its subprocess using this computer's internal loopback
    interface.  This connection is not visible on any external
    interface and no data is sent to or received from the Internet.
    ****************************************************************

IDLE 2.6.4
>>> ================================ RESTART ================================
>>>
Hello World
>>>
```

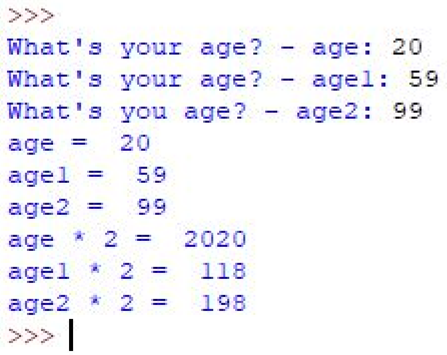
2. <age.py>


age.py - C:/Python26/Python_Programs/age.py
File Edit Format Run Options Windows Help

```
#!/usr/bin/env python
age = raw_input("What's your age? - age: ")
age1 = int(raw_input("What's your age? - age1: "))
age2 = input("What's you age? - age2: ")
print "age = ", age
print "age1 = ", age1
print "age2 = ", age2
print "age * 2 = ", age * 2
print "age1 * 2 = ", age1 * 2
print "age2 * 2 = ", age2 * 2
```

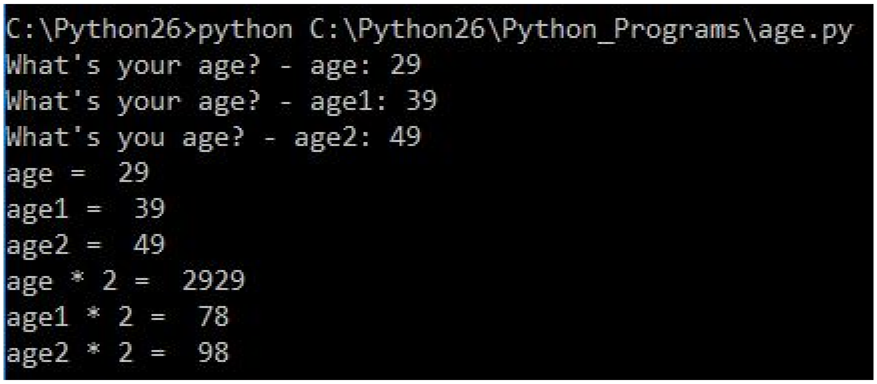


```
>>> 
What's your age? - age: 29
What's your age? - age1: 39
What's you age? - age2: 49
age =  29
age1 =  39
age2 =  49
age * 2 =  2929
age1 * 2 =  78
age2 * 2 =  98
>>> 
```



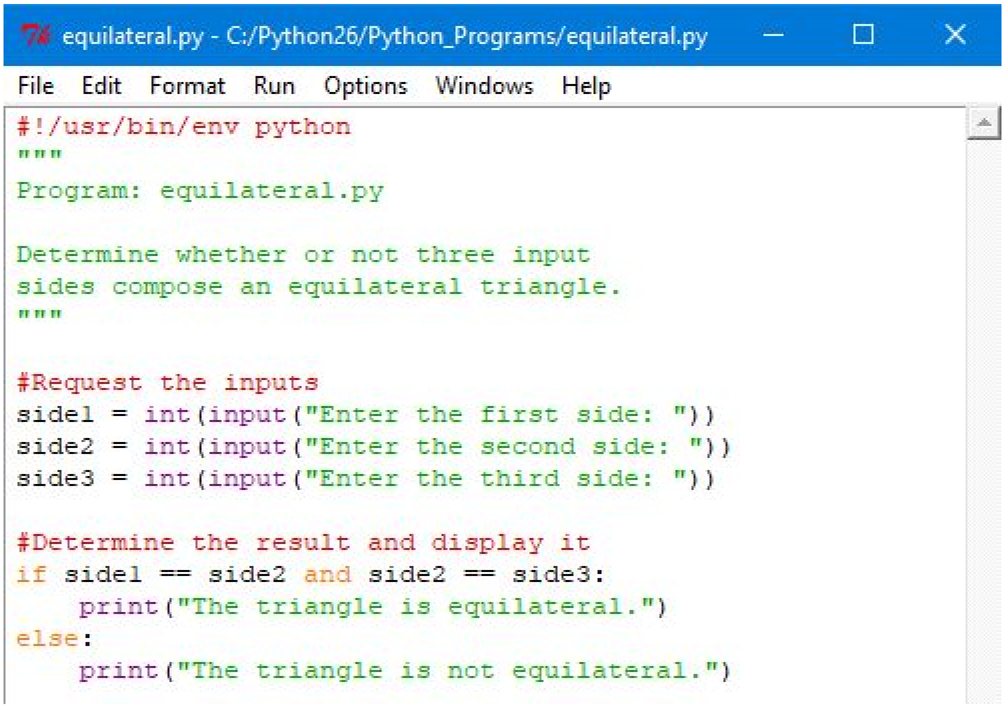
```
>>> 
What's your age? - age: 20
What's your age? - age1: 59
What's you age? - age2: 99
age =  20
age1 =  59
age2 =  99
age * 2 =  2020
age1 * 2 =  118
age2 * 2 =  198
>>> 
```

3. <age1.py>

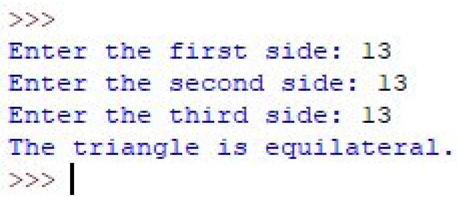


```
C:\Python26>python C:\Python26\Python_Programs\age.py
What's your age? - age: 29
What's your age? - age1: 39
What's you age? - age2: 49
age =  29
age1 =  39
age2 =  49
age * 2 =  2929
age1 * 2 =  78
age2 * 2 =  98
```

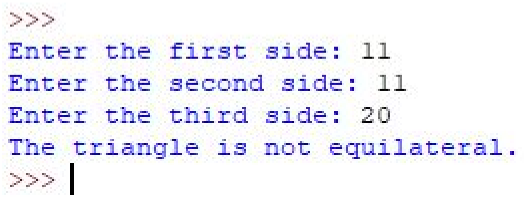
4. <equilateral.py>



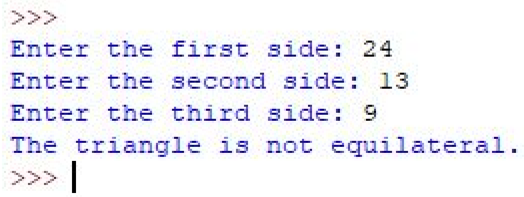
```python
#!/usr/bin/env python
"""
Program: equilateral.py

Determine whether or not three input
sides compose an equilateral triangle.
"""

#Request the inputs
side1 = int(input("Enter the first side: "))
side2 = int(input("Enter the second side: "))
side3 = int(input("Enter the third side: "))

#Determine the result and display it
if side1 == side2 and side2 == side3:
    print("The triangle is equilateral.")
else:
    print("The triangle is not equilateral.")
```



```
>>>
Enter the first side: 13
Enter the second side: 13
Enter the third side: 13
The triangle is equilateral.
>>>
```

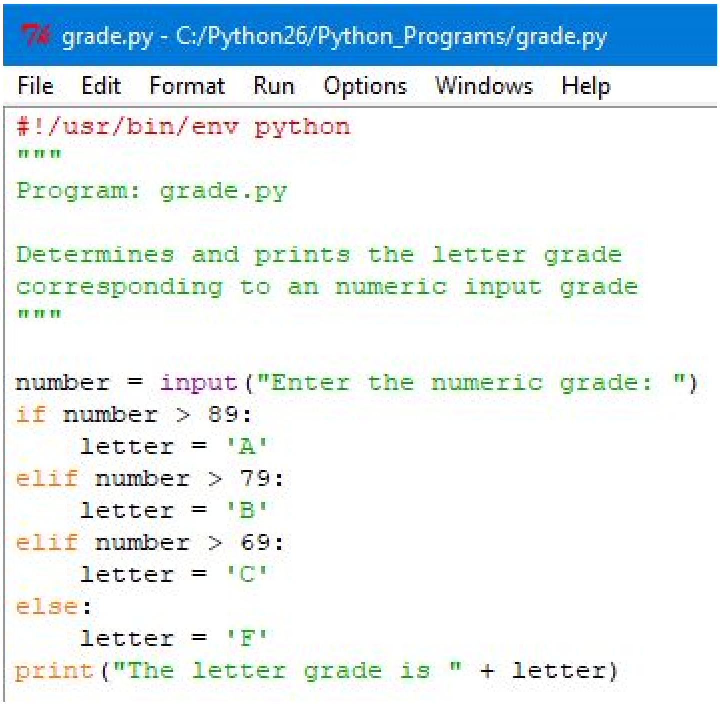


```
>>>
Enter the first side: 11
Enter the second side: 11
Enter the third side: 20
The triangle is not equilateral.
>>>
```

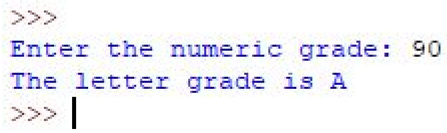


```
>>>
Enter the first side: 24
Enter the second side: 13
Enter the third side: 9
The triangle is not equilateral.
>>>
```

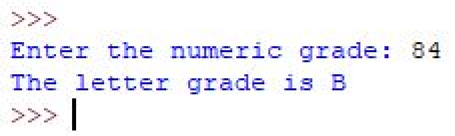
5. <grade.py>


grade.py - C:/Python26/Python_Programs/grade.py
File Edit Format Run Options Windows Help

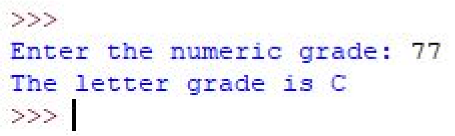
```
#!/usr/bin/env python
"""
Program: grade.py

Determines and prints the letter grade
corresponding to an numeric input grade
"""

number = input("Enter the numeric grade: ")
if number > 89:
    letter = 'A'
elif number > 79:
    letter = 'B'
elif number > 69:
    letter = 'C'
else:
    letter = 'F'
print("The letter grade is " + letter)
```



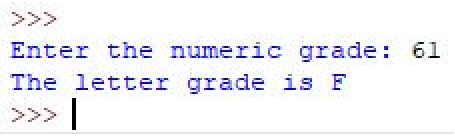
```
>>>
Enter the numeric grade: 90
The letter grade is A
>>>
```



```
>>>
Enter the numeric grade: 84
The letter grade is B
>>>
```

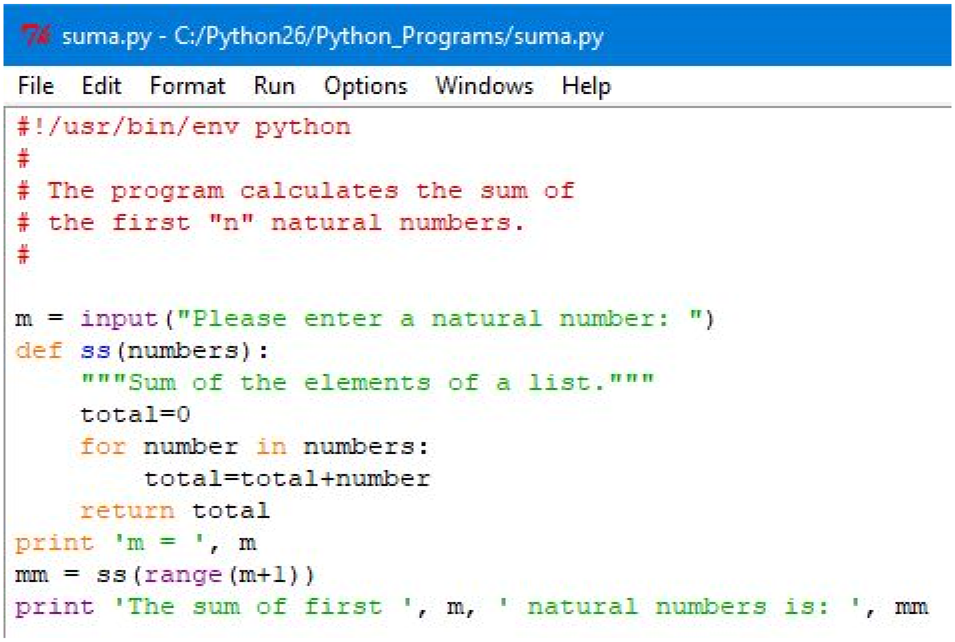


```
>>>
Enter the numeric grade: 77
The letter grade is C
>>>
```



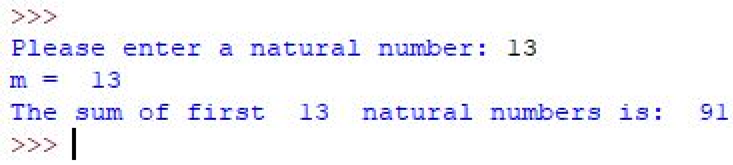
```
>>>
Enter the numeric grade: 61
The letter grade is F
>>>
```

6. `<suma.py>`

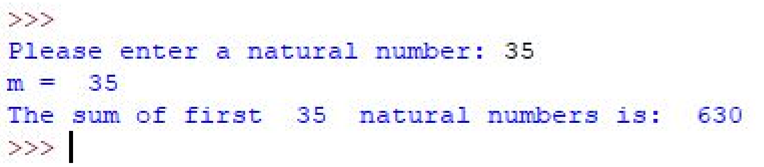


suma.py - C:/Python26/Python_Programs/suma.py
File Edit Format Run Options Windows Help

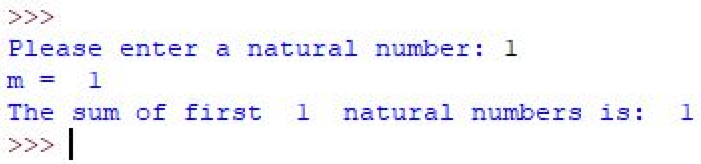
```
#!/usr/bin/env python
#
# The program calculates the sum of
# the first "n" natural numbers.
#

m = input("Please enter a natural number: ")
def ss(numbers):
    """Sum of the elements of a list."""
    total=0
    for number in numbers:
        total=total+number
    return total
print 'm = ', m
mm = ss(range(m+1))
print 'The sum of first ', m, ' natural numbers is: ', mm
```



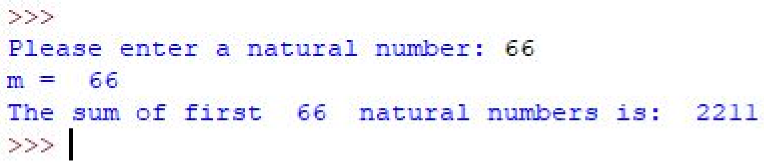
```
>>>
Please enter a natural number: 13
m =  13
The sum of first  13  natural numbers is:  91
>>>
```



```
>>>
Please enter a natural number: 35
m =  35
The sum of first  35  natural numbers is:  630
>>>
```

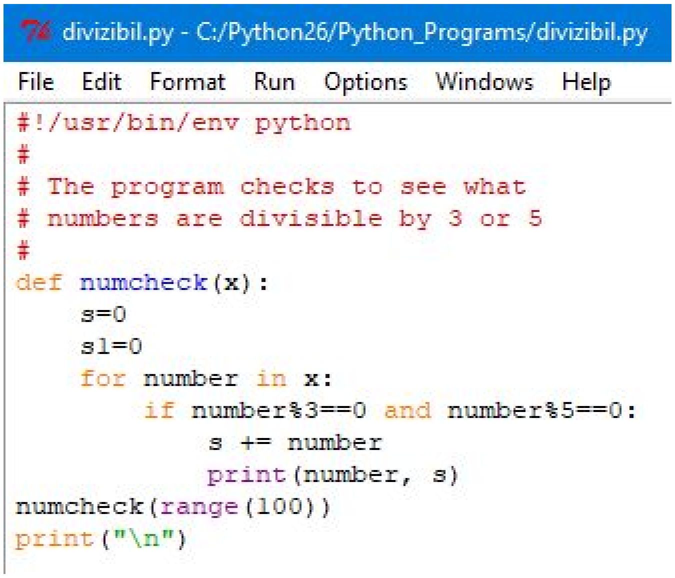


```
>>>
Please enter a natural number: 1
m =  1
The sum of first  1  natural numbers is:  1
>>>
```

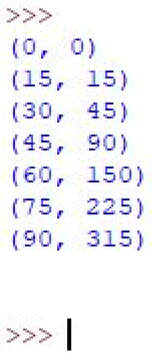


```
>>>
Please enter a natural number: 66
m =  66
The sum of first  66  natural numbers is:  2211
>>>
```

7. <divizibil.py>

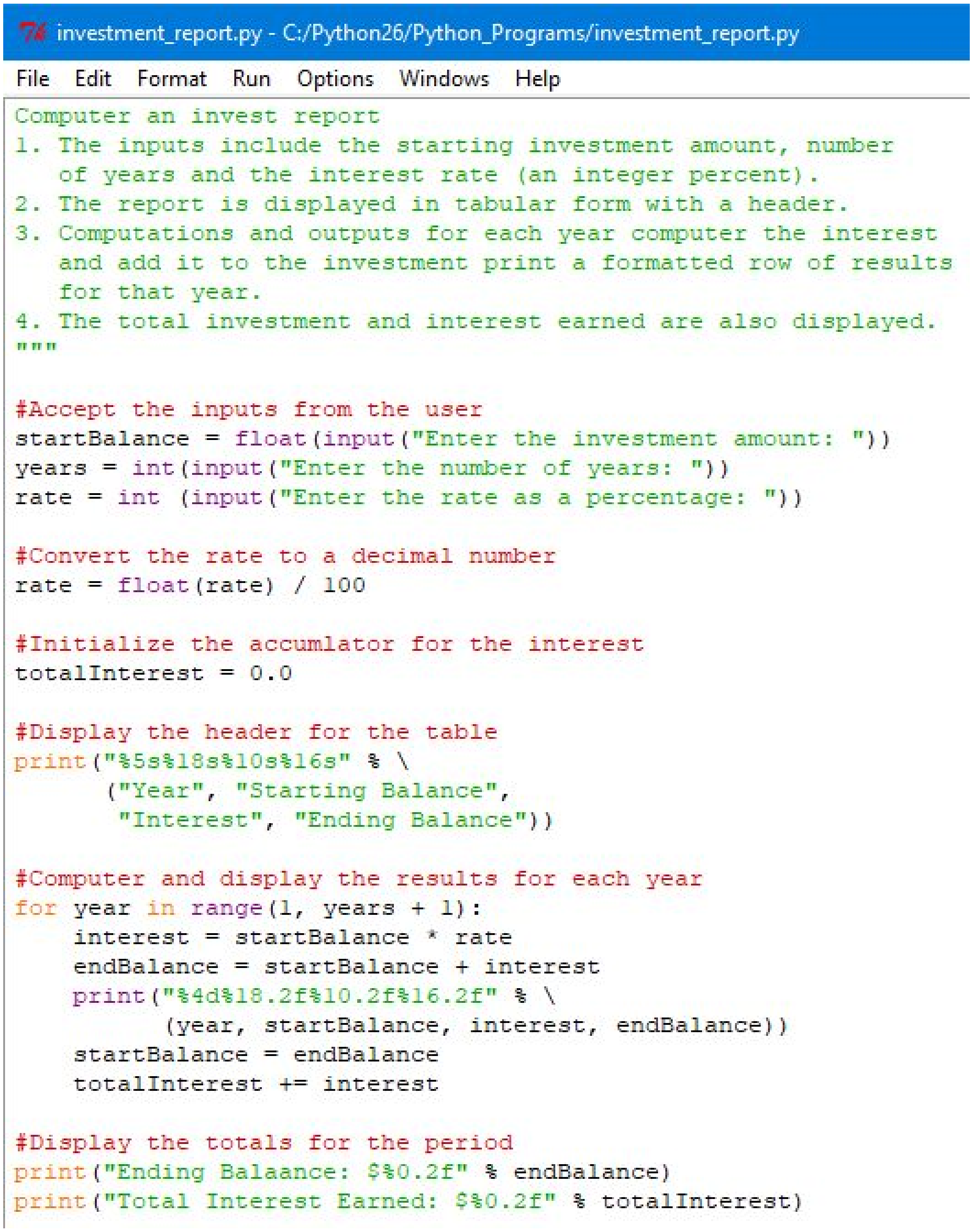


```
#!/usr/bin/env python
#
# The program checks to see what
# numbers are divisible by 3 or 5
#
def numcheck(x):
    s=0
    s1=0
    for number in x:
        if number%3==0 and number%5==0:
            s += number
            print(number, s)
numcheck(range(100))
print("\n")
```

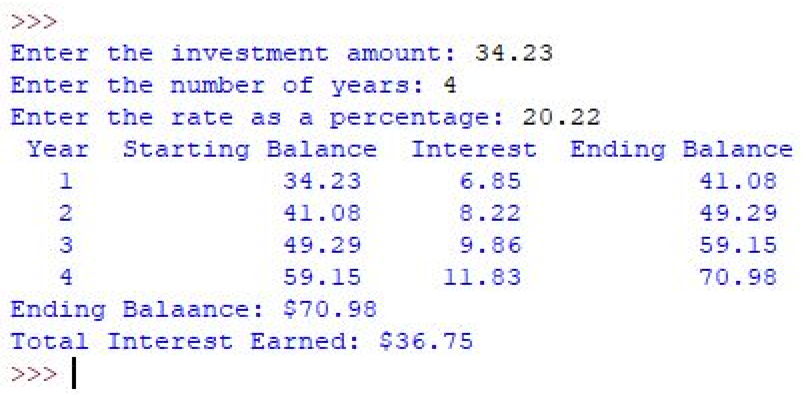


```
>>>
(0, 0)
(15, 15)
(30, 45)
(45, 90)
(60, 150)
(75, 225)
(90, 315)


>>>
```

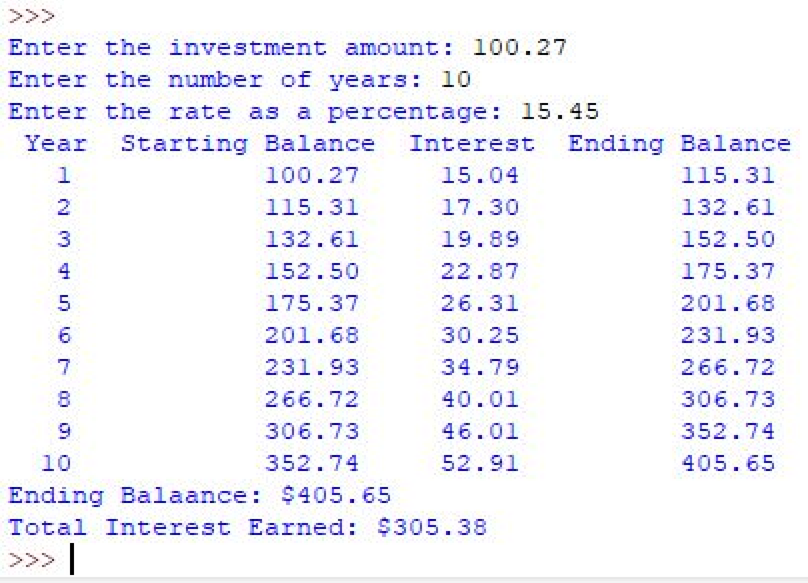
8. <investment_report.py>


investment_report.py - C:/Python26/Python_Programs/investment_report.py
File Edit Format Run Options Windows Help

```
Computer an invest report
1. The inputs include the starting investment amount, number
   of years and the interest rate (an integer percent).
2. The report is displayed in tabular form with a header.
3. Computations and outputs for each year computer the interest
   and add it to the investment print a formatted row of results
   for that year.
4. The total investment and interest earned are also displayed.
"""

#Accept the inputs from the user
startBalance = float(input("Enter the investment amount: "))
years = int(input("Enter the number of years: "))
rate = int (input("Enter the rate as a percentage: "))

#Convert the rate to a decimal number
rate = float(rate) / 100

#Initialize the accumlator for the interest
totalInterest = 0.0

#Display the header for the table
print("%5s%18s%10s%16s" % \
      ("Year", "Starting Balance",
       "Interest", "Ending Balance"))

#Computer and display the results for each year
for year in range(1, years + 1):
    interest = startBalance * rate
    endBalance = startBalance + interest
    print("%4d%18.2f%10.2f%16.2f" % \
          (year, startBalance, interest, endBalance))
    startBalance = endBalance
    totalInterest += interest

#Display the totals for the period
print("Ending Balaance: $%0.2f" % endBalance)
print("Total Interest Earned: $%0.2f" % totalInterest)
```

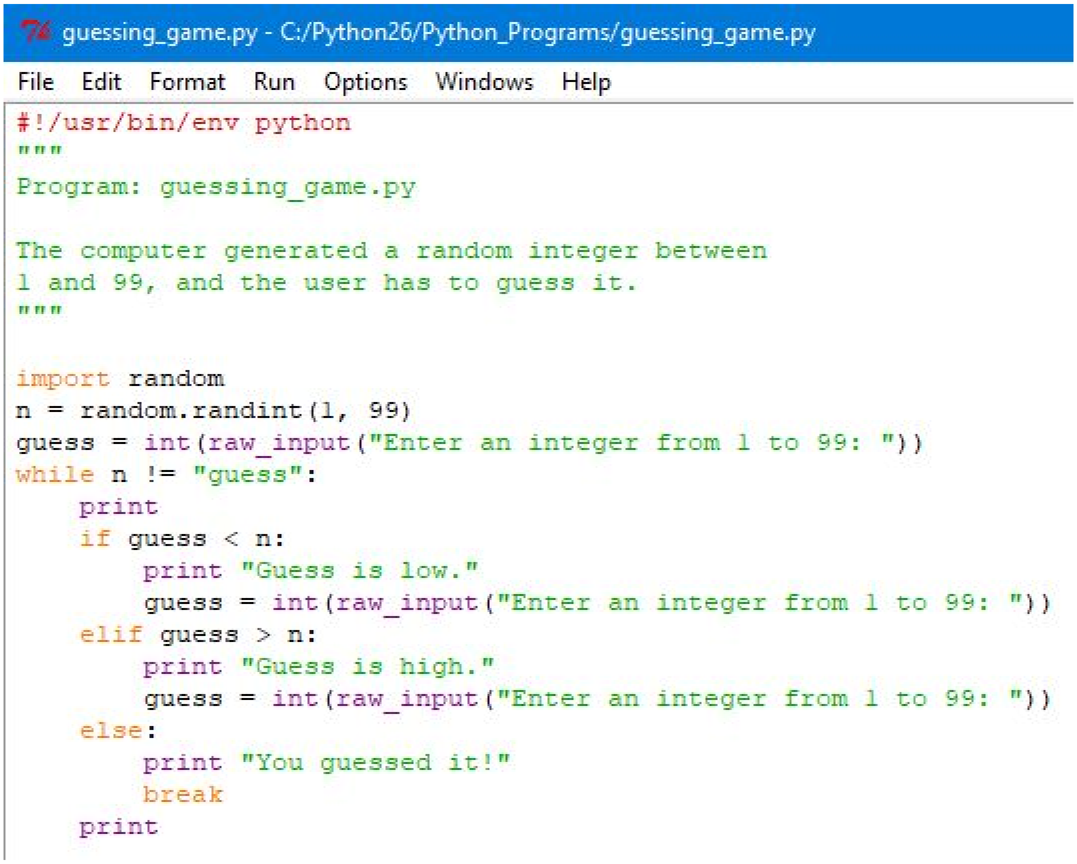


```
>>> 
Enter the investment amount: 34.23
Enter the number of years: 4
Enter the rate as a percentage: 20.22
 Year  Starting Balance  Interest  Ending Balance
   1             34.23      6.85           41.08
   2             41.08      8.22           49.29
   3             49.29      9.86           59.15
   4             59.15     11.83           70.98
Ending Balaance: $70.98
Total Interest Earned: $36.75
>>> 
```

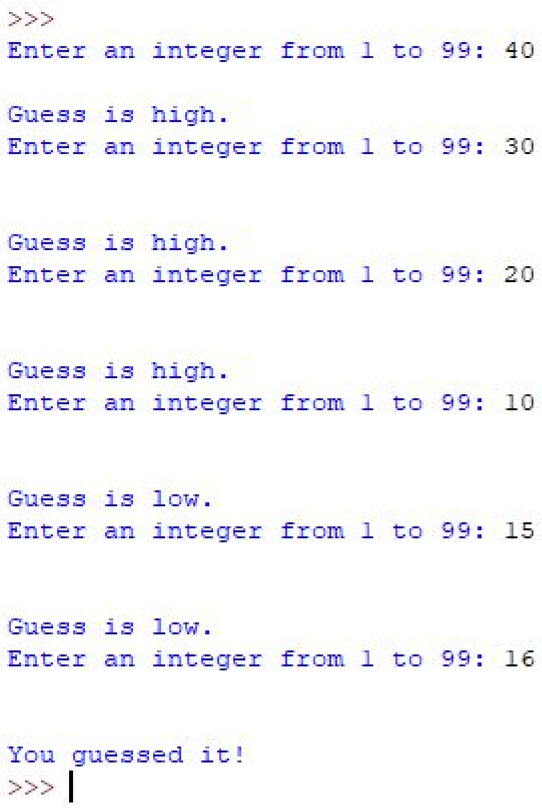


```
>>> 
Enter the investment amount: 100.27
Enter the number of years: 10
Enter the rate as a percentage: 15.45
 Year  Starting Balance  Interest  Ending Balance
   1            100.27     15.04          115.31
   2            115.31     17.30          132.61
   3            132.61     19.89          152.50
   4            152.50     22.87          175.37
   5            175.37     26.31          201.68
   6            201.68     30.25          231.93
   7            231.93     34.79          266.72
   8            266.72     40.01          306.73
   9            306.73     46.01          352.74
  10            352.74     52.91          405.65
Ending Balaance: $405.65
Total Interest Earned: $305.38
>>> 
```

9. <guessing_game.py>

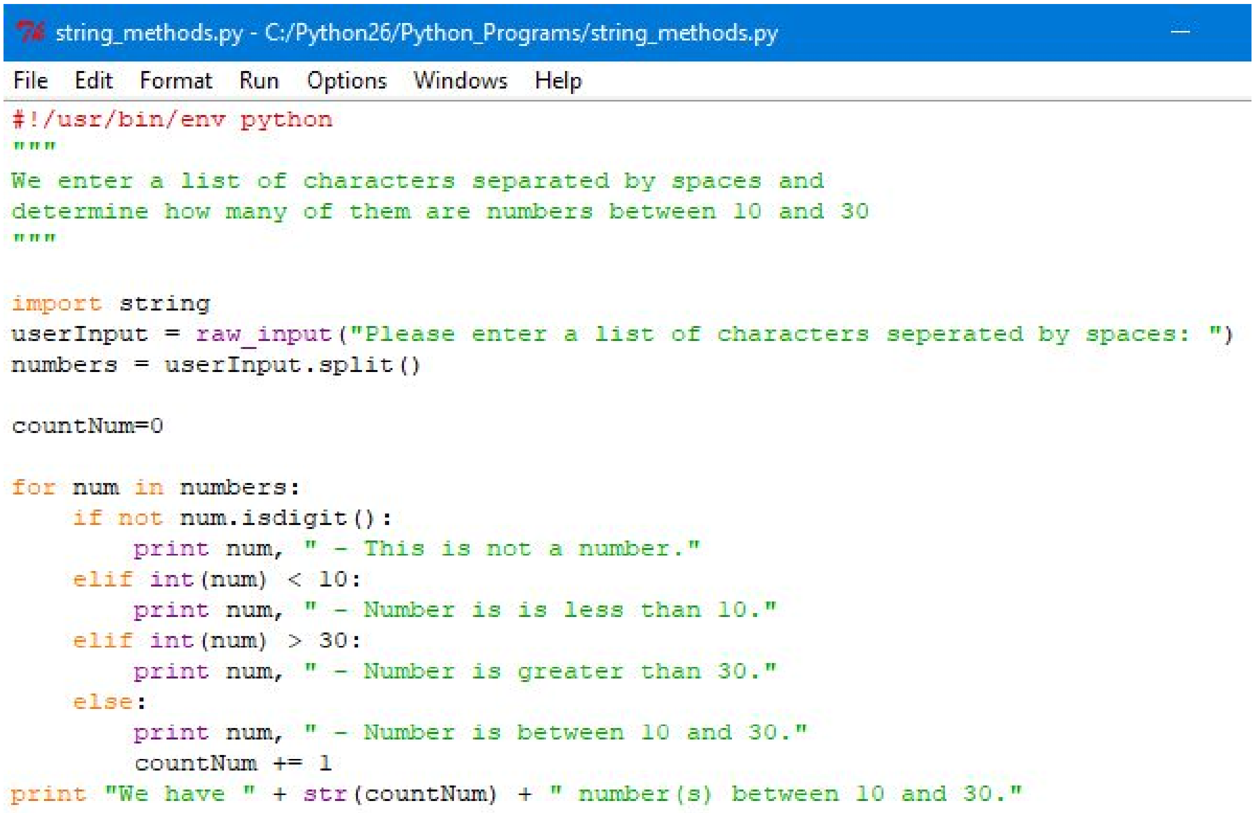

guessing_game.py - C:/Python26/Python_Programs/guessing_game.py
File
Edit
Format
Run
Options
Windows
Help

```
#!/usr/bin/env python
"""
Program: guessing_game.py

The computer generated a random integer between
1 and 99, and the user has to guess it.
"""

import random
n = random.randint(1, 99)
guess = int(raw_input("Enter an integer from 1 to 99: "))
while n != "guess":
    print
    if guess < n:
        print "Guess is low."
        guess = int(raw_input("Enter an integer from 1 to 99: "))
    elif guess > n:
        print "Guess is high."
        guess = int(raw_input("Enter an integer from 1 to 99: "))
    else:
        print "You guessed it!"
        break
    print
```

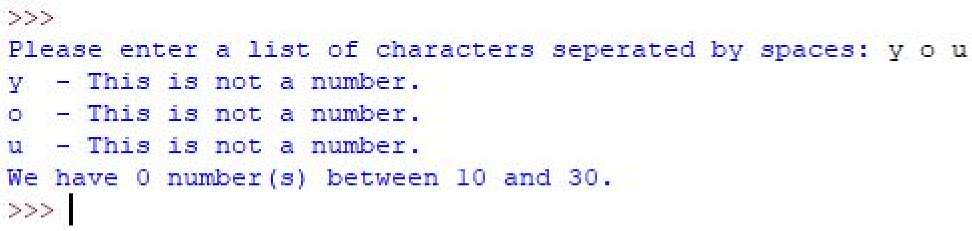


```
>>>
Enter an integer from 1 to 99: 40

Guess is high.
Enter an integer from 1 to 99: 30


Guess is high.
Enter an integer from 1 to 99: 20


Guess is high.
Enter an integer from 1 to 99: 10


Guess is low.
Enter an integer from 1 to 99: 15


Guess is low.
Enter an integer from 1 to 99: 16


You guessed it!
>>> 
```

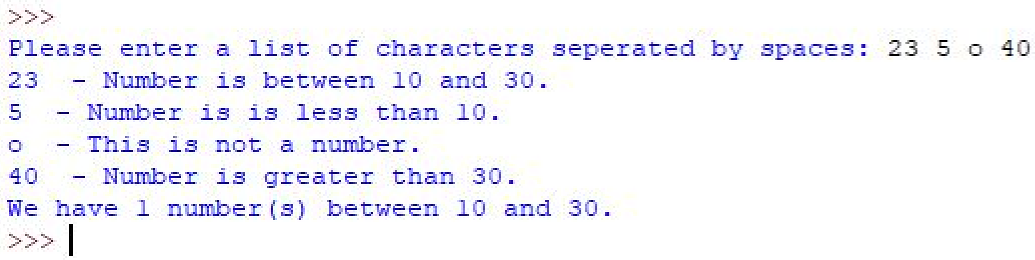
10. <string_methods.py>


string_methods.py - C:/Python26/Python_Programs/string_methods.py
File Edit Format Run Options Windows Help

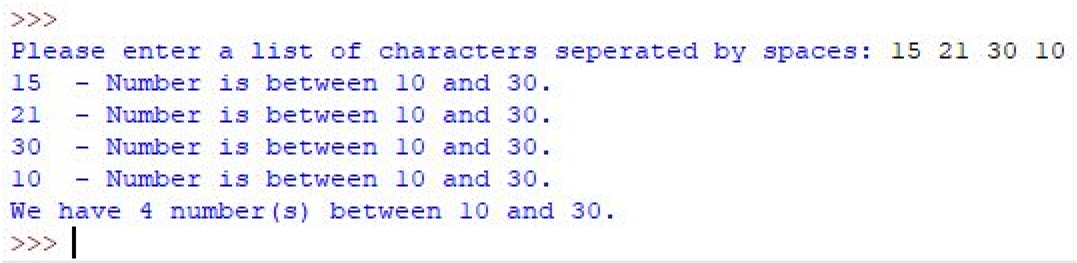
```
#!/usr/bin/env python
"""
We enter a list of characters separated by spaces and
determine how many of them are numbers between 10 and 30
"""

import string
userInput = raw_input("Please enter a list of characters seperated by spaces: ")
numbers = userInput.split()

countNum=0

for num in numbers:
    if not num.isdigit():
        print num, " - This is not a number."
    elif int(num) < 10:
        print num, " - Number is is less than 10."
    elif int(num) > 30:
        print num, " - Number is greater than 30."
    else:
        print num, " - Number is between 10 and 30."
        countNum += 1
print "We have " + str(countNum) + " number(s) between 10 and 30."
```



```
>>>
Please enter a list of characters seperated by spaces: y o u
y  - This is not a number.
o  - This is not a number.
u  - This is not a number.
We have 0 number(s) between 10 and 30.
>>> 
```



```
>>>
Please enter a list of characters seperated by spaces: 23 5 o 40
23  - Number is between 10 and 30.
5  - Number is is less than 10.
o  - This is not a number.
40  - Number is greater than 30.
We have 1 number(s) between 10 and 30.
>>> 
```



```
>>>
Please enter a list of characters seperated by spaces: 15 21 30 10
15  - Number is between 10 and 30.
21  - Number is between 10 and 30.
30  - Number is between 10 and 30.
10  - Number is between 10 and 30.
We have 4 number(s) between 10 and 30.
>>> 
```