toPython-200514

May 15, 2020

1 Some Example Errors in Python

[1]:
```
j
```

```
␣
↪---------------------------------------------------------------------------

NameError                                 Traceback (most recent call␣
↪last)

<ipython-input-1-3eedd8854d1e> in <module>
----> 1 j

NameError: name 'j' is not defined
```

[ ]:
```
import np
```

[ ]:
```
1/0
```

[2]:
```
's' + 1
```

```
␣
↪---------------------------------------------------------------------------

TypeError                                 Traceback (most recent call␣
↪last)

<ipython-input-2-578f2311e4f1> in <module>
----> 1 's' + 1

TypeError: can only concatenate str (not "int") to str
```

more in this link sumation on strings in python

[3]:
```
'a' + 'b' 'cdef'
```

[3]:
```
'abcdef'
```

[ ]:

[ ]:

1.1 Find the set of factors of numbers:

[4]:
```
for i in range (1, 21):
    L= []
    for j in range (1, i+1):
        if i%j== 0:
            L.append (j)
    print ('The set of fctors of', i, 'is: ', L)
```

```
The set of fctors of 1 is:  [1]
The set of fctors of 2 is:  [1, 2]
The set of fctors of 3 is:  [1, 3]
The set of fctors of 4 is:  [1, 2, 4]
The set of fctors of 5 is:  [1, 5]
The set of fctors of 6 is:  [1, 2, 3, 6]
The set of fctors of 7 is:  [1, 7]
The set of fctors of 8 is:  [1, 2, 4, 8]
The set of fctors of 9 is:  [1, 3, 9]
The set of fctors of 10 is:  [1, 2, 5, 10]
The set of fctors of 11 is:  [1, 11]
The set of fctors of 12 is:  [1, 2, 3, 4, 6, 12]
The set of fctors of 13 is:  [1, 13]
The set of fctors of 14 is:  [1, 2, 7, 14]
The set of fctors of 15 is:  [1, 3, 5, 15]
The set of fctors of 16 is:  [1, 2, 4, 8, 16]
The set of fctors of 17 is:  [1, 17]
The set of fctors of 18 is:  [1, 2, 3, 6, 9, 18]
The set of fctors of 19 is:  [1, 19]
The set of fctors of 20 is:  [1, 2, 4, 5, 10, 20]
```

2 Define a function

[5]:
```
# a code fore checking Divisibility

print ('100 is divisible to 5:', 100%5 == 0)
print ('100 is divisible to 7:', 100%7 == 0)
```

```
100 is divisible to 5: True
100 is divisible to 7: False
```

[6]:
```
L= []
for j in range (1, 101):
    if 100%j== 0:
        L.append (j)
print ('factors of 100:', L)
```

```
factors of 100: [1, 2, 4, 5, 10, 20, 25, 50, 100]
```

2.0.1 How to define a function for this:

[7]:
```
def factors (x):
    L= []
    for j in range (2, x):
        if x%j== 0:
            L.append (j)
    return L
```

2.0.2 Calling or using a function

[8]:
```
A= factors (13195)
print (A)
```

```
[5, 7, 13, 29, 35, 65, 91, 145, 203, 377, 455, 1015, 1885, 2639]
```

[9]:
```
# How to count the objects in a list, or the length of it

len(A)
```

[9]:
```
14
```

[10]:
```
# Define a function for checking a number is prime:

def isprime (x):
    L= []
    for j in range (2, x):
        if x%j== 0:
            L.append (j)
    return len(L) == 0
```

[11]:
```
# Use the function

isprime (25)
```

[11]:
```
False
```

[12]:
```
# Define a function to list the prime factors of a number

def primes (x):
    A= factors (x)
```

```
    L=[]
    for x in A:
        if isprime (x):
            L.append(x)
    return L
#             print (x)
```

[13]:
```
# Use the function

print (primes (5348))
```

```
[2, 7, 191]
```

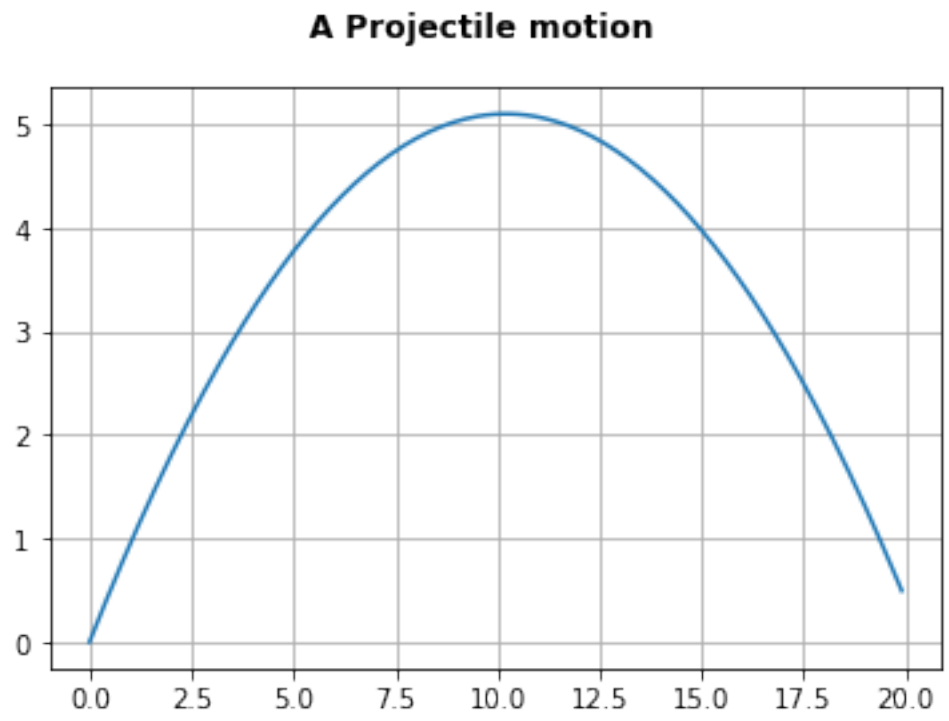
3 Projectile Motion

[14]:
```
T= []
for i in range (200):
    T.append (0.01*i)

v0x= 10
v0y= 10
a= -9.8

X= []
Y= []
for t in T:
    X.append (v0x*t)
    Y.append (.5*a*t**2 + v0y*t)
```

3.0.1 To plot

[15]:
```
import matplotlib.pyplot as plt
```

[16]:
```
plt.plot (X,Y)
plt.grid ()
plt.suptitle ('A Projectile motion', weight= 'bold')

plt.show ()
```


A Projectile motion
5
4
3
2
1
0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

[ ]: