

# ASP Python Exercise

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## Abstract

A simple measurement exercise is described. Purpose of this exercise is to build up experience in measuring and its many pitfalls. The programming language Python is used as platform, because of its availability and low threshold for use.

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Select a programming environment,  
where loop overhead and file open  
can be measured in 30 minutes.

If this environment is not available,  
then use Python.

# Python download and information

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Active State Python (Freeware distribution, runs directly)

<http://www.activestate.com/Products/ActivePython/>

Python Language Website

<http://www.python.org/>

Python Reference Card

<http://admin.oreillynet.com/python/excerpt/PythonPocketRef/examples/python.pdf>

# Python example

```
import time

for n in (1,10,100,1000,10000,100000,1000000):
    a = 0
    tstart = time.time()
    for i in xrange(n):
        a = a+1
    tend=time.time()

    print n, tend-tstart, (tend-tstart)/n

def example_filehandling():
    f = open("c:\\temp\\test.txt")
    for line in f.readlines():
        print line
    f.close()

tstart = time.time()
example_filehandling()
tend=time.time()
print "file open, read & print, close: ",tend-tstart,"s"
```

```
>>>
1 0.0 0.0
10 0.0 0.0
100 0.0 0.0
1000 0.0 0.0
10000 0.00999999046326 9.99999046326e-007
100000 0.039999961853 3.9999961853e-007
1000000 0.44000005722 4.4000005722e-007

test line 1

line 2

line 3

file open, read, close: 0.039999961853 s
```

- Perform the following measurements
  1. loop overhead
  2. file open
- Determine for every measurement:
  - What is the expected result?
  - What is the measurement error?
  - What is the result?
  - What is the credibility of the result?
  - Explain the result.
  - (optional) What is the variation? Explain the variation.

- + measuring is easy
- + measuring provides data and understanding
- ~ result and expectation often don't match
- sensible measuring is more difficult