

CMPSCI 120 Fall 2016
Lab #3
Professor William T. Verts

In this assignment you will enter and run a simple Python program. This program receives an integer input from the user, and then computes the factorial of that integer. Unlike what (was / will be) shown in class, the final version of the program will automatically email its answer to me at the class mail drop. Do not even *think* about using this program to send email to anyone but me!

Setting Up

Using either PuTTY on a PC or ssh on a Mac, log in to your account on the UNIX server. Immediately create a new folder called `python_tests` by typing the command:

```
mkdir python_tests
```

Normally you will not need to set any permissions on this folder as you will be the only one using it, but if you need me to look at the files you place there I will ask you to set the permissions to 755 (`rwxr-xr-x`) with the `chmod` command. Don't do this now.

The Assignment Part 1

Open the `python_tests` folder. By now you should be able to do this without any guidance. Do you remember how to open a folder in UNIX?

Use the emacs text editor to create a new file called `factorial.py`, then type in the program on the next page, but only down to where the comment says **# Stop here...** Do not enter the **# Stop here...** line itself. The line `#!/usr/bin/python` must be the first line of text in the file, and the line `print "Sending: " + Message` must be the last line in the file at this point.

Enter **your own name** instead of mine and **your own username** instead of mine in the lines that assign values to the `From` and `Subject` variables (shown underlined). Be careful about quotes, upper case and lower case letters, and indentation! These matter a lot to Python! **Do not** enter any of the text from after the comment at this point.

Exit emacs, and then use the `chmod` command to set the permissions on `factorial.py` to 755 (we need execute permission because the file is a program).

Run the program by typing `factorial.py` at the UNIX command line. If you get a permissions error, fix the problem with `chmod`. If Python gives you one or more syntax errors, try to figure out what it is complaining about, then go back into emacs and fix the error(s). Do this until running the program allows you to enter a number, compute a factorial of that number, and print out a **correct** email template containing the answer.

The Assignment Part 2

Once the program is running, go back into emacs and enter all of the code shown below the **# Stop here...** comment line. Exit emacs. Run the program once again, and fix any errors. I will tell you in class what to use instead of localhost. When all is well, run the program with a random number **between 100 and 200**. When your program prints the message Email sent successfully you are done with the assignment.

The Python Code

```
#!/usr/bin/python

import smtplib

N = input("Enter a number --- ")
F = 1
I = 1

while (I <= N):
    F = F * I
    I = I + 1

From      = "Bill Verts <verts@elsrv3.cs.umass.edu>"
To        = "literacy@cs.umass.edu"
Subject   = "Factorial of " + str(N) + " from Bill Verts"
Text      = "The Factorial of " + str(N) + " is " + str(F)

Message = "From: "      + From      + "\r\n" + \
          "To: "        + To        + "\r\n" + \
          "Subject: "   + Subject   + "\r\n" + \
          Text

print "Sending: " + Message

# Stop here until all code above this point is working

Server    = smtplib.SMTP("localhost")

try:
    Code = Server.sendmail(From, [To], Message)
finally:
    Server.quit()

if Code:
    print "Error sending email"
else:
    print "Email sent successfully"
```