

Python Scripts and the Shell

A Python **script** is a plain text file that contains algorithms written in the Python language.

When you run a script, the computer **evaluates** one line at a time. While running, the computer will show information in the **shell**. Try creating a script that prints "Hello World" to the shell.



Create a Python script

1. Open the Python IDE
2. Select *File -> New* (or press *Ctrl+N* on the keyboard)
3. Type the following code on the first line:

```
print("Hello, world!")
```
4. Select *File -> Save* (or *Ctrl+S*) and name the file: `hello.py`
5. Select *Run -> Run Current Script* to run your script!

You should see the following output in the **Shell**:

```
>>> %Run test.py
Hello, world!
>>> |
```

When you use `print()` in your script, the shell will "print" whatever is in the parenthesis.

How to use the Shell:

You can also type code directly into the shell (the last `>>>` prompt shows where to type). When you hit the *enter* key in the shell, that line of code will be immediately **evaluated** by the computer, and the result will show on the next line. Try it out!

1. Type `20 + 22` in the shell and press *enter*
2. The computer will show the result below!



Understanding Error Messages

Sometimes the computer will encounter an error in your code. When that happens, it's called an **exception**. An exception will cause your program to stop immediately.

Making mistakes

Let's try causing an exception to see what happens:

1. Switch back to the `hello.py` file you created earlier.
2. Pretend we forgot how to spell "print", and add the following code:

```
prnt("Hello, world!")
```

3. Run the script and look at the output in the **shell**:

```
Traceback (most recent call last):  
  File "/home/ben/test.py", line 1, in <module>  
    prnt("Hello, world!")  
NameError: name 'prnt' is not defined
```

Line # where the error occurred

The last line shows the error message

4. Experiment by trying to cause different errors!
What error messages did you see? What do you think they mean?

i There are many different types of errors. The one above is is a **NameError**.

Sometimes error messages can be really long, but don't worry! You don't need to understand the whole thing. Here are some tips to help you find the bug quickly:

What to do in case of an error

- Carefully read the last line of the error message.
- Look a couple lines up for the **line number**. Check your code on that line.
- If you're still stuck, look at the *"My code isn't working"* page.
- Copy-and-paste the last line of the error into the search bar on stackoverflow.com

