

More Functions

CS 1111
Introduction to Programming
Spring 2019

[The Coder's Apprentice, §5, §8-8.3]

Local and Global Variables

- **Local variables**
 - Arguments and any variables declared in the function
 - Cannot be seen by other functions or code
 - Even if they have the same name as variables outside the function, the computer treats them as different (think of two people both named Tom; they are different people though they happen to be named the same)
- Each function call has its own memory space and variables
- These local data disappear when the function finishes
- Arguments are assigned from the function call
- **Global variables**
 - Is accessible to all the functions in a program file

Local Variables

number = 0

def main():

```
number = int(input('Enter a number: '))  
show_number()
```

def show_number():

```
print('The number you entered is ', number)
```

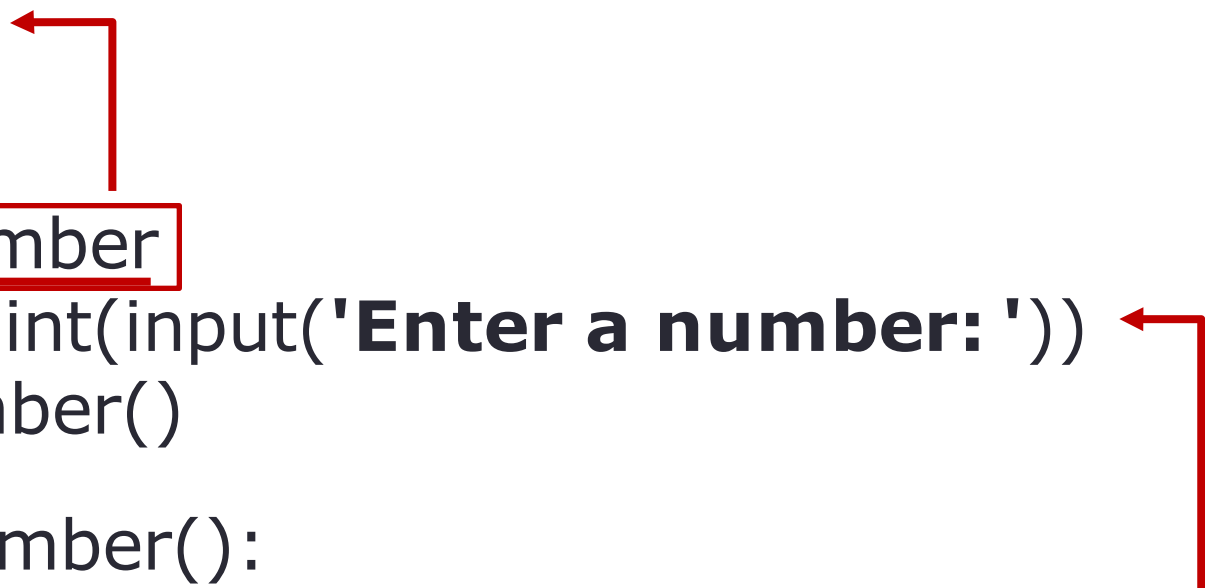
main()

Enter a number: 7

The number you entered is 0

Global Variables

```
number = 0
def main():
    global number
    number = int(input('Enter a number: '))
    show_number()
def show_number():
    print('The number you entered is ', number)
main()
```



```
Enter a number: 7
The number you entered is 7
```

Calling Functions with Named/Optional Parameters

```
def my_function(name="Mary", school="UVa"):  
    print(name + " goes to " + school)
```

Default values

```
# call a function without param passing  
my_function()
```

```
# call a function with some params (ordering)  
my_function("Tom")
```

```
# call a function with a named param  
my_function(school="GMU")
```

```
# call a function with param passing (match number of params and ordering)  
my_function("Ann", "VT")
```

```
# call a function with named params in any order  
my_function(school="GMU", name="Ann")
```

Mary goes to UVa
Tom goes to UVa
Mary goes to GMU
Ann goes to VT
Ann goes to GMU