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**CS 161 Week 6 In class Exercises**

1. Write a function that converts a decimal integer to hexadecimal. Use the following main function to test your function.

def main():

# Prompt the user to enter a decimal integer

decimalValue = eval(input("Enter a decimal number: "))

print("Hex for decimal", decimalValue, "is", decimalToHex(decimalValue))

1. Given the following code, make a prediction of what you think will happen then what actually happens. After you make a prediction, run it in Spyder to find out.

|  |  |
| --- | --- |
| Prediction | **It will error out with localVar not being initialized** |
| Actual | **Errored out with localVar not being initialized: NameError: name 'localVar' is not defined** |

globalVar = 1

def f1():

localVar = 2

print(globalVar)

print(localVar)

f1()

print(globalVar)

print(localVar)

1. Given the following code, make a prediction of what you think will happen then what actually happens. After you make a prediction, run it in Spyder to find out.

|  |  |
| --- | --- |
| Prediction | **The program will print 2, followed by 1** |
| Actual | **The program printed 2, followed by 1** |

x = 1

def f1():

x = 2

print(x)

f1()

print(x)

1. Given the following code, make a prediction of what you think will happen if the user enter -7. After you make a prediction, run it in Spyder to find out.

|  |  |
| --- | --- |
| Prediction | **Because -7 is less then 0, y isn’t being initialized therefor the program will crash with y not being initialized** |
| Actual | **User input was gotten and then it crashed: NameError: name 'y' is not defined** |

x = int(input("Enter a number: "))

if (x > 0):

y = 4

print(y)

1. Clear all the variables in Spyder.



* 1. Run the code from #4 but enter 8 as the number.
     1. What happened?

**The program printed 4**

* + 1. Why did that happen?

**8 is greater then 0, so y was assigned 4 and the was printed outside of the function.**

* 1. Run the code from #4 but enter -6 as the number.
     1. What happened?

**The program crashed.**

* + 1. Why did that happen?

**y was cleared after the first time running so it wasn’t given a value.**

1. Given the following code, make a prediction of what you think will happen then what actually happens. After you make a prediction, run it in Spyder to find out.

|  |  |
| --- | --- |
| Prediction | **Sum will equal 10 but the program will crash because i isn’t initialized** |
| Actual | **i printed 4 and sum printed 10** |

sum = 0

for i in range(0, 5):

sum += i

print(i)

print(sum)

1. Given the following code, make a prediction of what you think will happen then what actually happens. After you make a prediction, run it in Spyder to find out.

|  |  |
| --- | --- |
| Prediction | **The program will crash because a global is being made inside of a function.** |
| Actual | **The spacing was wrong so it crashed but it allowed the lines to run and printed out 2 twice after fixing the spacing. I think it just got messed up in copy/paste.** |

x = 1

def increase():

global x

x = x + 1

print(x)

increase()

print(x)

1. Write a module that contains the following two functions:
   1. def celsiusToFahrenheit(celsius) # Converts Celsius to Fahrenheit
   2. def fahrenheitToCelsius(fahrenheit) #Converts Fahrenheit to Celsius

Use the following code to test your functions:

def main():

print(format("Celsius", "<15s"), format("Fahrenheit", "<15s"), " | ", format("Fahrenheit", "<15s"), format("Celsius", "<15s"))

print("---------------------------------------------------------------")

celsius = 40

farenheit = 120

i = 1

while i <= 10:

print(format(celsius, "<15d"), format(celsiusToFahrenheit(celsius), "<15.2f"), " | ",

format(farenheit, "<15d"), format(fahrenheitToCelsius(farenheit), "<15.2f"))

celsius -= 1

farenheit -= 10

i += 1

Output should look like the following:

