**Module 02: Lab Exercise**

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Cybersecurity Workforce Certification Training (CWCT)

Ivy Tech Community College

CWCT 140 - Introduction to Python for Cyber Security

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**Module 2 Lab Project   
CWCT140  
Python Essentials**

In this week’s lab, you will create a simple Python “calculator”. See the snapshot below:

Text

Description automatically generated

Your mission: Write a Python program to produce this output

Below you will find “pseudo-code”. Pseudo-code is a functional description of your program logic. Sometimes it is very helpful to draft the pseudo-code before writing the actual statements. That way, you can focus on function and not worry so much about syntax.

This exercise will introduce you to the string function “split” and “if” statements. The **split** command is very useful – it breaks apart a string and creates a list from the individual pieces. The **if** **elif** statement is used to control program flow. The code associated with these commands will be provided.

Calculator Program Pseudo-code:

* Prompt the user for input
* Input the “expression” into a variable named “calcmessage”
* Split the string into its pieces – see code below

parameters = calcmessage.split()

value1 = float(parameters[0])

operator = parameters[1]

value2 = float(parameters[2])

* Populate the “if then else” chain with the proper statements – see code below

if operator == "+":

    result = #Perform calculation

elif operator == "-":

    result = #Perform calculation

elif operator == "\*":

    result = #Perform calculation

elif operator == "/":

    result = #Perform calculation

* Print the answer as shown at the top
* Run the program and test the calculator with all four operations. Paste screen snapshots of all four tests and submit with the code

print("Python Calculator")  
print("This program will add, subtract, divide or multiple two numbers.")  
print("Type:\n + for Add.\n - for Subtract.\n / for Divide. \n \* for Multiply.")  
  
# Prompt user for a input  
expression = input("Enter expression in form \"x <op> y\", e.g. 73 \* 80: ")  
  
# Input the “expression” into a variable named “calcmessage”  
calc\_message = expression.split()  
  
# Split the string into its pieces – see code below  
val1 = int(calc\_message[0])  
operator = calc\_message[1]  
val2 = int(calc\_message[2])  
  
# Populate the “if then else” chain with the proper statements – see code below  
if operator == '+':  
 result = val1 + val2  
elif operator == '-':  
 result = val1 - val2  
elif operator == '\*':  
 result = val1 \* val2  
elif operator == '/':  
 result = val1 / val2  
else:  
 print("Invalid input!! Please enter in the form \"23 + 56\"")  
  
# Print the answer as shown at the top  
print(f"{val1} {operator} {val2} = {result}")

**Paste Snapshots of Results Here**

A screenshot of a computer program

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A screenshot of a computer

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Advanced Exercise:

Replace the “if else” chain with a “match” statement. Also known as “switch” statements in C, C# and Java, the format can be found at the following link:

<https://www.freecodecamp.org/news/python-switch-statement-switch-case-example/>

print("Python Calculator")  
print("This program will add, subtract, divide or multiple two numbers.")  
print("Type:\n + for Add.\n - for Subtract.\n / for Divide. \n \* for Multiply.")  
  
# Prompt user for a input  
expression = input("Enter expression in form \"x <op> y\", e.g. 73 \* 80: ")  
  
# Input the “expression” into a variable named “calcmessage”  
calc\_message = expression.split()  
  
# Split the string into its pieces – see code below  
val1 = int(calc\_message[0])  
operator = calc\_message[1]  
val2 = int(calc\_message[2])  
  
# Populate the “if then else” chain with the proper statements – see code below  
match operator:  
 case "+":  
 result = val1 + val2  
 case "-":  
 result = val1 - val2  
 case "\*":  
 result = val1 \* val2  
 case "/":  
 result = val1 / val2  
 case \_:  
 print("Invalid input!! Please enter in the form \"23 + 56\"")  
  
# Print the answer as shown at the top  
print(f"{val1} {operator} {val2} = {result}")

**Paste Snapshot of Result Here**

A screenshot of a computer program

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