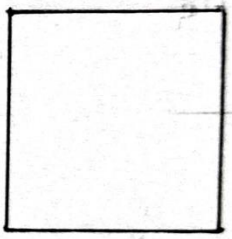
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
COLLEGE OF ENGINEERING
ELECTRONICS ENGINEERING DEPARTMENT
ACECE3L - COMPUTER PROGRAMMING I

MODULE I
Introduction to Python

LAZ, Ronald, B.
BS ECE - ZA



April 28, 2021
Engr. John Peter M. Ramos
Instructor.

Programming Demonstration 1.1
"Resistor in Series and Parallel"

Instruction: create a program in phyton that will calculate the total resistance of two resistor connected in series and parallel and will display the result.

CODE:

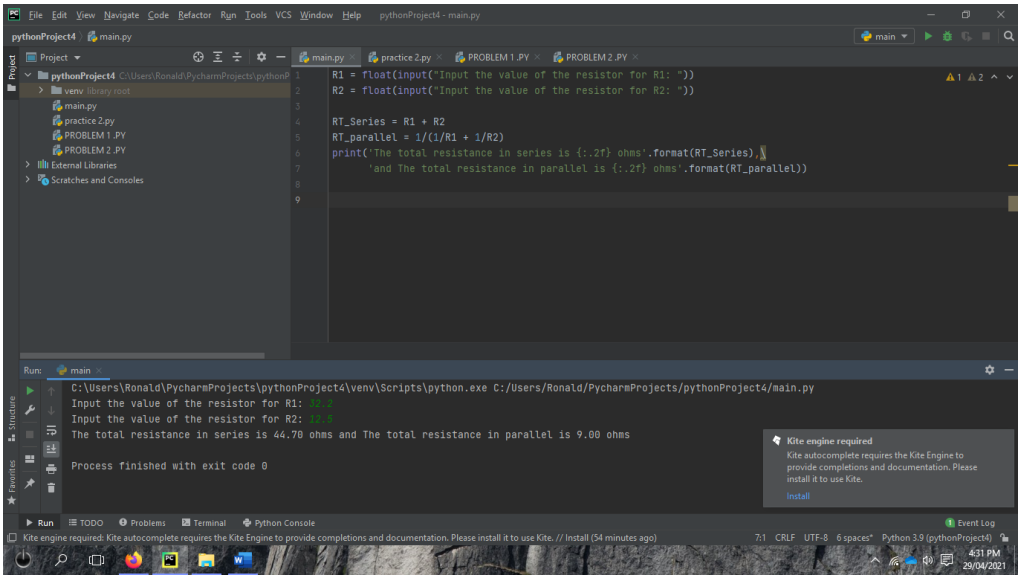
```
R1 = float(input("Input the value of the first resistor:"))
R2 = float(input("Input the value of the second resistor:"))

RT_series = R1 + R2
RT_parallel = 1/(1/R1 + 1/R2)

print('The total resistance in series is {:.2f} ohms'.format(RT_
      series), \ 'and the total resistance in parallel is {:.2f}
      ohms.'.format(RT_parallel))
```

Observation

The float command enables the user to input a number that have decimal value. While {:.2f} signifies the number of decimal that will be shown in the print statement. c ehanging the number will also change the amount of decimal that we will see.


File Edit View Navigate Code Refactor Run Tools VCS Window Help pythonProject4 - main.py
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venv library root
main.py
practice 2.py
PROBLEM 1 .PY
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PROBLEM 1 .PY
PROBLEM 2 .PY
R1 = float(input("Input the value of the resistor for R1: "))
R2 = float(input("Input the value of the resistor for R2: "))
RT_Series = R1 + R2
RT_parallel = 1/(1/R1 + 1/R2)
print('The total resistance in series is {:.2f} ohms'.format(RT_Series),\
'and The total resistance in parallel is {:.2f} ohms'.format(RT_parallel))
Run: main
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe C:/Users/Ronald/PycharmProjects/pythonProject4/main.py
Input the value of the resistor for R1: 32.2
Input the value of the resistor for R2: 12.5
The total resistance in series is 44.70 ohms and The total resistance in parallel is 9.00 ohms
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
Install
Run TODO Problems Terminal Python Console
Event Log
Kite engine required: Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite. // Install (54 minutes ago)
7:1 CRLF UTF-8 6 spaces* Python 3.9 (pythonProject4)
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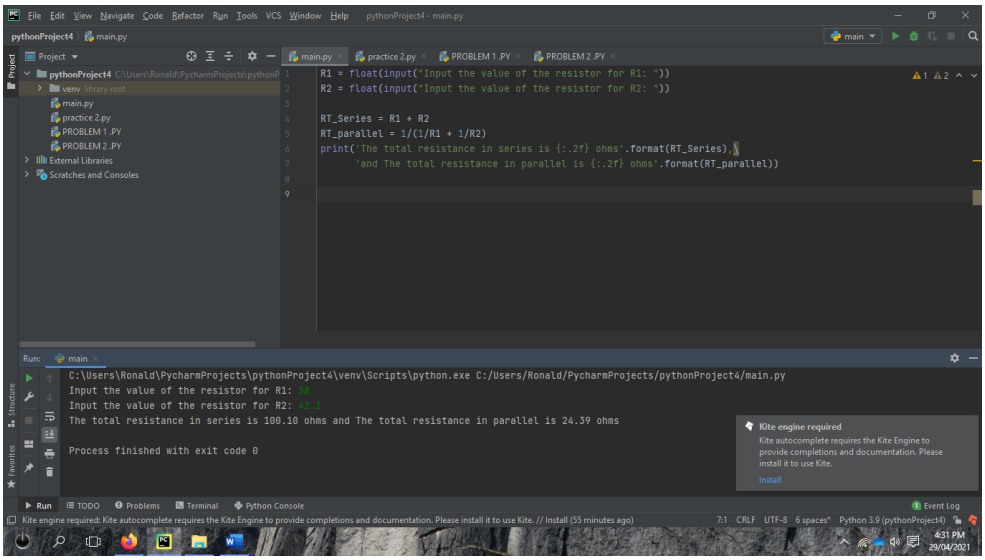
29/04/2021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PROBLEM 1 .PY
PROBLEM 2 .PY
R1 = float(input("Input the value of the resistor for R1: "))
R2 = float(input("Input the value of the resistor for R2: "))
RT_Series = R1 + R2
RT_parallel = 1/(1/R1 + 1/R2)
print('The total resistance in series is {:.2f} ohms'.format(RT_Series),\
'and The total resistance in parallel is {:.2f} ohms'.format(RT_parallel))
Run: main
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe C:/Users/Ronald/PycharmProjects/pythonProject4/main.py
Input the value of the resistor for R1: 68
Input the value of the resistor for R2: 42.1
The total resistance in series is 108.10 ohms and The total resistance in parallel is 24.39 ohms
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
Install
Run TODO Problems Terminal Python Console
Event Log
Kite engine required: Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite. // Install (55 minutes ago)
7:1 CRLF UTF-8 6 spaces* Python 3.9 (pythonProject4)
4:31 PM
29/04/2021

Programming Demonstration 1.2
"Welcome"

Instruction: Write a program that uses input to prompt a user for their first, last name and section then welcome's them.

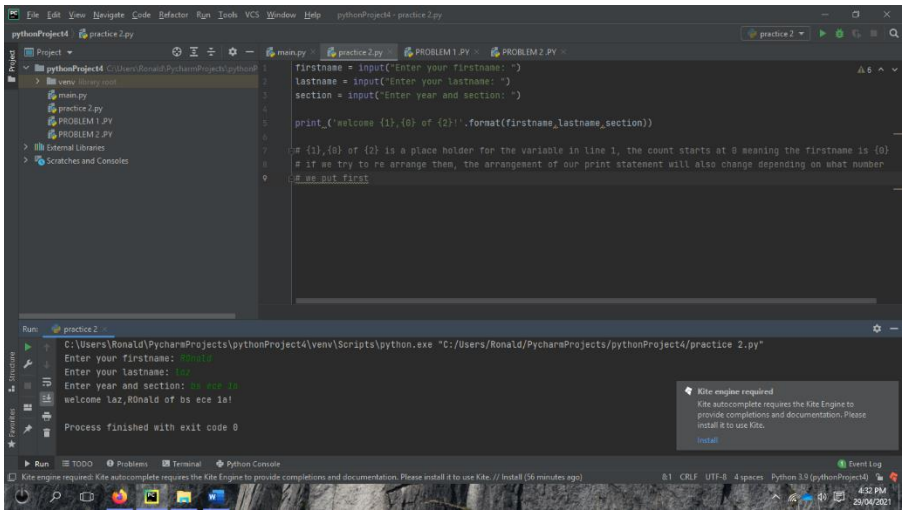
CODE:

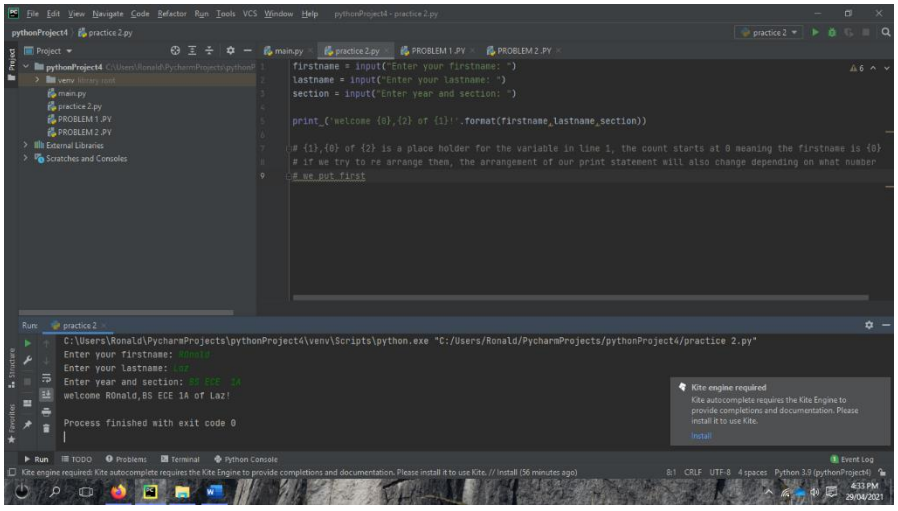
```
firstName = input("Enter First Name: ")
lastName = input("Enter Last Name: ")
section =input("Enter Year and Section: ")

print('Welcome {1}, {0}, of {2}!.format(firstName, lastName,
    section))
```

Observation:

{1}, {2}, {0} is a place holder for variable in line 1-3. the arrangement of our sentence in the print statement will change depending on how we arrange our placeholders.


firstname = input("Enter your firstname: ")
lastname = input("Enter your lastname: ")
section = input("Enter year and section: ")
print('welcome {1},{0} of {2}!'.format(firstname,lastname,section))
# {1},{0} of {2} is a place holder for the variable in line 1, the count starts at 0 meaning the firstname is {0}
# if we try to re arrange them, the arrangement of our print statement will also change depending on what number
# we put first
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/practice 2.py"
Enter your firstname: ROnald
Enter your lastname: laz
Enter year and section: bs ece 1a
welcome laz,ROnald of bs ece 1a!
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
Install


firstname = input("Enter your firstname: ")
lastname = input("Enter your lastname: ")
section = input("Enter year and section: ")
print('welcome {0},{2} of {1}!'.format(firstname,lastname,section))
# {1},{0} of {2} is a place holder for the variable in line 1, the count starts at 0 meaning the firstname is {0}
# if we try to re arrange them, the arrangement of our print statement will also change depending on what number
# we put first
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/practice 2.py"
Enter your firstname: ROnald
Enter your lastname: Laz
Enter year and section: BS ECE 1A
welcome ROnald,BS ECE 1A of Laz!
Process finished with exit code 0
Kite engine required
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Install

Problem 1.

A regular polygon has n number of side with each side of length s. The regular polygon area is given by $A = \frac{ns^2}{4\tan(\frac{\pi}{n})}$

The perimeter of a polygon is equal to the length of the boundary of the polygon.

Instruction: Write a program called calc_polygon that takes two argument, n and s, This program should output the area and perimeter of a given regular polygon rounded-off to four decimal places.

CODE:

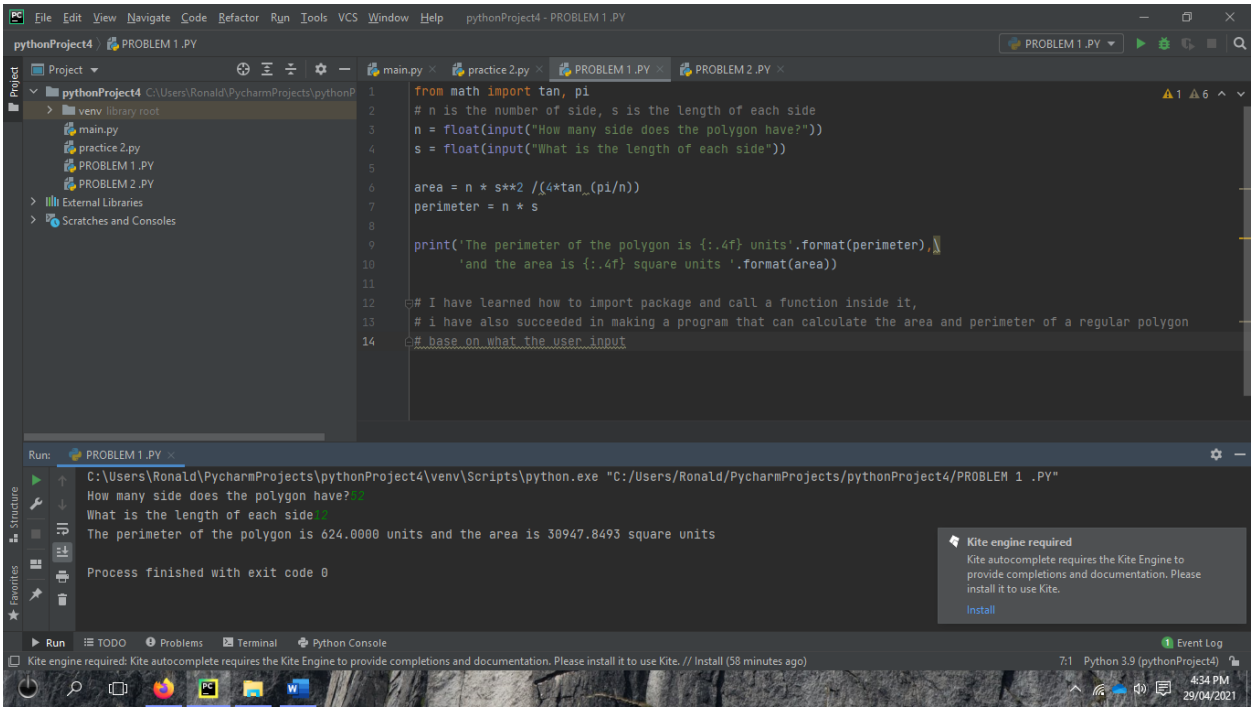
```
from math import tan, pi
n = float(input("How many side does the polygon have? "))
s = float(input("What is the length of a side? "))

area = n * s**2 / (4 * tan(pi/n))
perimeter = n * s

print("The perimeter of the polygon is {:.4} units".format(perimeter)
      \'and the area is {:.4} square units'.format(area)).
```

Observation:

I have created a program that can calculate the area and perimeter. In this problem I have realized that problem solving skills and analytical understanding is a must if I want to be a good programmer.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main.py
practice 2.py
PROBLEM 1 .PY
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External Libraries
Scratches and Consoles
from math import tan, pi
# n is the number of side, s is the length of each side
n = float(input("How many side does the polygon have?"))
s = float(input("What is the length of each side"))
area = n * s**2 /(4*tan(pi/n))
perimeter = n * s
print('The perimeter of the polygon is {:.4f} units'.format(perimeter),
'and the area is {:.4f} square units '.format(area))
I have learned how to import package and call a function inside it,
i have also succeeded in making a program that can calculate the area and perimeter of a regular polygon
base on what the user input
Run: PROBLEM 1 .PY
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/PROBLEM 1 .PY"
How many side does the polygon have?62
What is the length of each side12
The perimeter of the polygon is 624.0000 units and the area is 30947.8493 square units
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
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Kite engine required: Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite. // Install (58 minutes ago)
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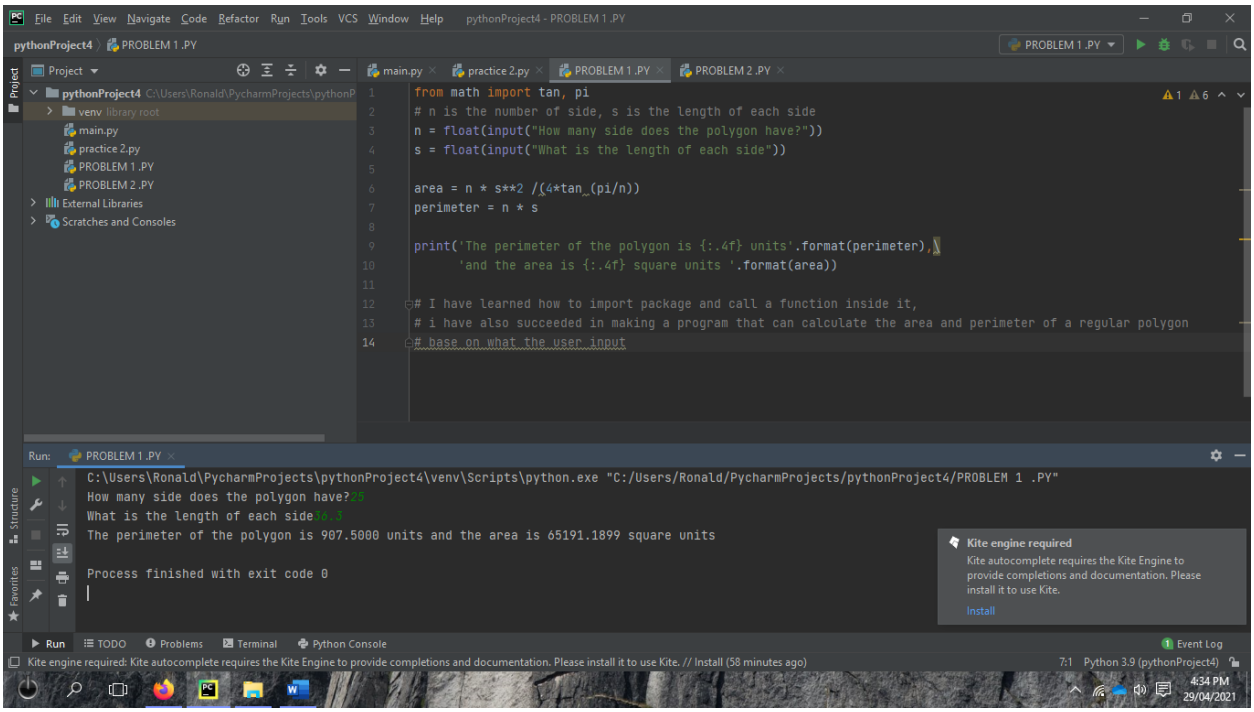
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venv library root
main.py
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PROBLEM 1 .PY
PROBLEM 2 .PY
External Libraries
Scratches and Consoles
from math import tan, pi
# n is the number of side, s is the length of each side
n = float(input("How many side does the polygon have?"))
s = float(input("What is the length of each side"))
area = n * s**2 /(4*tan(pi/n))
perimeter = n * s
print('The perimeter of the polygon is {:.4f} units'.format(perimeter),
'and the area is {:.4f} square units '.format(area))
I have learned how to import package and call a function inside it,
i have also succeeded in making a program that can calculate the area and perimeter of a regular polygon
base on what the user input
Run: PROBLEM 1 .PY
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/PROBLEM 1 .PY"
How many side does the polygon have?25
What is the length of each side36.3
The perimeter of the polygon is 907.5000 units and the area is 65191.1899 square units
Process finished with exit code 0
Kite engine required
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Python 3.9 (pythonProject4)
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29/04/2021

Problemn 2:

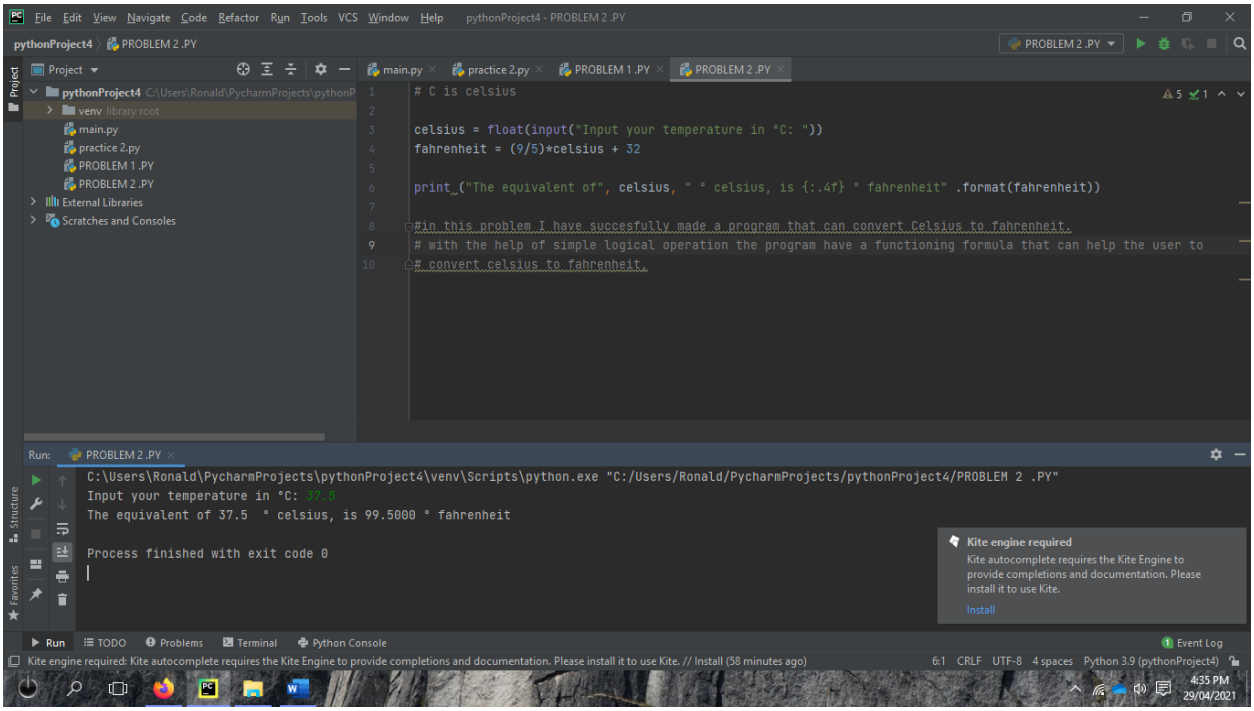
Instruction: Write a program called celsius_to_fahrenheit which prompts the user for a Celsius temp., convert the temperature to fahrenheit, and print out converted temperature.

CODE

```
celsius = float(input("Input your temperature in °C: "))
fahrenheit = (9/5)*celsius + 32
print("The equivalent of", celsius, "°C, is {:.4} °F"
      .format(fahrenheit)).
```

Observation:

I have successfuly created a program that uses simple logical-operation to convert the given temperature from celsius to fahrenheit. With the help of the float command the user can input whole numbers with decimals, also, the program is designed to print values in 4 decimal places.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External Libraries
Scratches and Consoles
main.py practice 2.py PROBLEM 1 .PY PROBLEM 2 .PY
# C is celsius
celsius = float(input("Input your temperature in °C: "))
fahrenheit = (9/5)*celsius + 32
print("The equivalent of", celsius, " ° celsius, is {:.4f} ° fahrenheit" .format(fahrenheit))
#in this problem I have succesfully made a program that can convert Celsius to fahrenheit.
with the help of simple logical operation the program have a functioning formula that can help the user to
convert celsius to fahrenheit.
Run: PROBLEM 2 .PY
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/PROBLEM 2 .PY"
Input your temperature in °C: 37.5
The equivalent of 37.5 ° celsius, is 99.5000 ° fahrenheit
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
Install
Run TODO Problems Terminal Python Console
Event Log
Kite engine required: Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite. // Install (58 minutes ago)
6:1 CRLF UTF-8 4 spaces Python 3.9 (pythonProject4)
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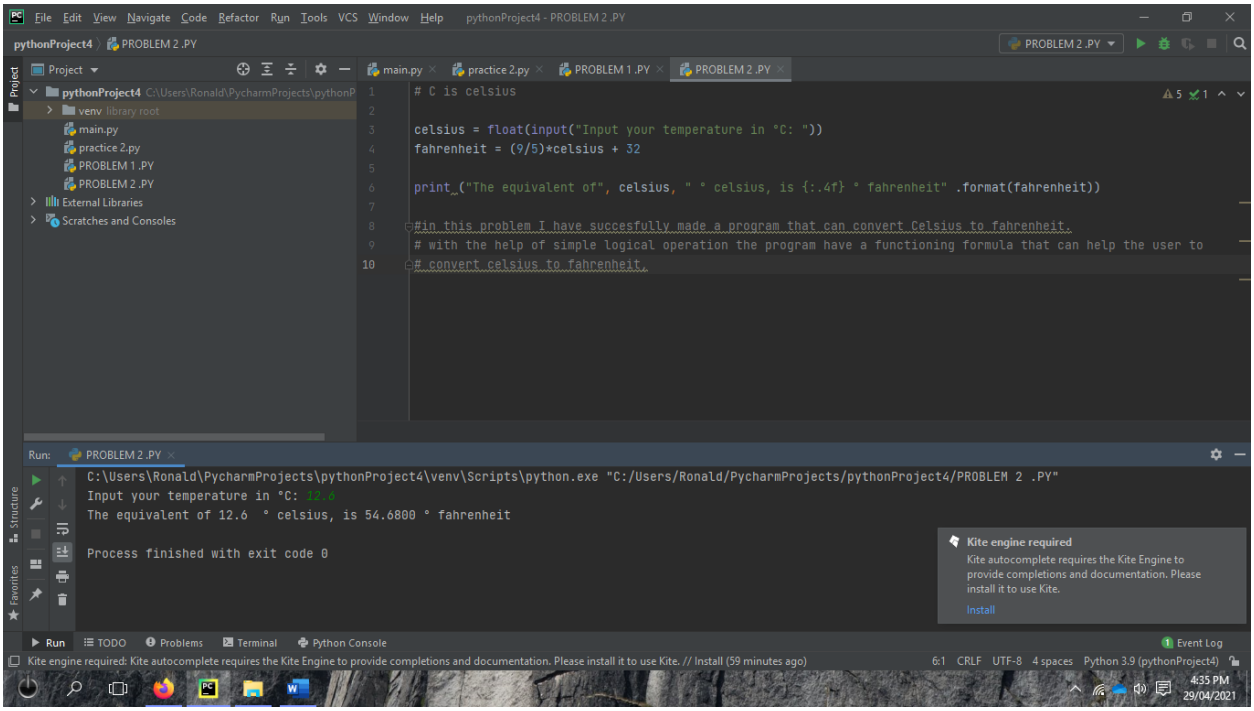
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PROBLEM 1 .PY
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External Libraries
Scratches and Consoles
main.py practice 2.py PROBLEM 1 .PY PROBLEM 2 .PY
# C is celsius
celsius = float(input("Input your temperature in °C: "))
fahrenheit = (9/5)*celsius + 32
print("The equivalent of", celsius, " ° celsius, is {:.4f} ° fahrenheit" .format(fahrenheit))
#in this problem I have succesfully made a program that can convert Celsius to fahrenheit.
with the help of simple logical operation the program have a functioning formula that can help the user to
convert celsius to fahrenheit.
Run: PROBLEM 2 .PY
C:\Users\Ronald\PycharmProjects\pythonProject4\venv\Scripts\python.exe "C:/Users/Ronald/PycharmProjects/pythonProject4/PROBLEM 2 .PY"
Input your temperature in °C: 12.6
The equivalent of 12.6 ° celsius, is 54.6800 ° fahrenheit
Process finished with exit code 0
Kite engine required
Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite.
Install
Run TODO Problems Terminal Python Console
Event Log
Kite engine required: Kite autocomplete requires the Kite Engine to provide completions and documentation. Please install it to use Kite. // Install (59 minutes ago)
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