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Kelas: TI21B (R2)

Tugas Minggu 1:

Buatlah 3 buah class (Fahrenheit, Reamur, dan Kelvin) yang mengimplementasikan OOP dimana setiap class memiliki kemampuan untuk melakukan konversi ke Temperatur yang lain.

Jawaban berupa 3 buah screenshot script beserta hasilnya dikirim ke email (freddy.wicaksono@umc.ac.id) dengan subject: **Tugas-1 PBO2 2023**

Code:

```
class Fahrenheit:
    def __init__(self, temp):
        self.temp = temp
    def to_celsius(self):
        return (self.temp - 32) * 5 / 9
    def to_reamur(self):
        return (self.temp - 32) * 4 / 9
    def to_kelvin(self):
        return (self.temp - 32) * 5 / 9 + 273.15

fahrenheit = Fahrenheit(30)
celcius = int(fahrenheit.to_celsius())
kelvin = int(fahrenheit.to_kelvin())
reamur = int(fahrenheit.to_reamur())

print(f"{fahrenheit.temp} derajat Fahrenheit = {celcius} derajat Celcius")
print(f"{fahrenheit.temp} derajat Fahrenheit = {kelvin} derajat Kelvin")
print(f"{fahrenheit.temp} derajat Fahrenheit = {reamur} derajat Reamur\n")

class Reamur:
    def __init__(self, temp):
        self.temp = temp
    def to_celsius(self):
        return self.temp * 5 / 4
    def to_fahrenheit(self):
        return self.temp * 9 / 4 + 32
```

```

def
to_kelvin(self):
    return self.temp * 5 / 4 + 273.15
    reamur = Reamur(30) celcius =
    reamur.to_celsius() kelvin =
    reamur.to_kelvin() fahrenheit =
    reamur.to_fahrenheit()
    print(f"{reamur.temp} derajat Reamur = {celcius} derajat Celcius")
    print(f"{reamur.temp} derajat Reamur = {kelvin} derajat Kelvin")
    print(f"{reamur.temp} derajat Reamur = {fahrenheit} derajat Fahrenheit\n")
    class Kelvin:
        def
__init__(self, temp):
    self.temp = temp
    def
to_celsius(self):
    return self.temp - 273.15
def to_fahrenheit(self):
    return (self.temp - 273.15) * 9 / 5 + 32
    def
to_reamur(self):
    return (self.temp - 273.15) * 4 / 5
    kelvin = Kelvin(30) celcius =
    round(kelvin.to_celsius(), 1) fahrenheit =
    round(kelvin.to_fahrenheit(), 1) reamur =
    round(kelvin.to_reamur(), 1)
    print(f"{kelvin.temp} derajat Kelvin = {celcius} derajat Celcius")
    print(f"{kelvin.temp} derajat Kelvin = {fahrenheit} derajat Fahrenheit")
    print(f"{kelvin.temp} derajat Kelvin = {reamur} derajat Reamur")

```

Output:

30 derajat Fahrenheit = -1 derajat Celcius

30 derajat Fahrenheit = 272 derajat Kelvin

30 derajat Fahrenheit = 0 derajat Reamur

30 derajat Reamur = 37.5 derajat Celcius

30 derajat Reamur = 310.65 derajat Kelvin

30 derajat Reamur = 99.5 derajat Fahrenheit

30 derajat Kelvin = -243.1 derajat Celcius

30 derajat Kelvin = -405.7 derajat Fahrenheit

30 derajat Kelvin = -194.5 derajat Reamur

Screenshot:

The screenshot shows the Visual Studio Code editor with the file `konversi_temperatur.py` open. The Explorer sidebar on the left indicates that no folder is currently opened. The main editor area displays the following Python code:

```
1 class Fahrenheit:
2     def __init__(self, temp):
3         self.temp = temp
4
5     def to_celsius(self):
6         return (self.temp - 32) * 5 / 9
7
8     def to_reamur(self):
9         return (self.temp - 32) * 4 / 9
10
11    def to_kelvin(self):
12        return (self.temp - 32) * 5 / 9 + 273.15
13
14    fahrenheit = Fahrenheit(30)
15    celsius = int(fahrenheit.to_celsius())
16    kelvin = int(fahrenheit.to_kelvin())
17    reamur = int(fahrenheit.to_reamur())
18
19    print(f"fahrenheit.temp derajat Fahrenheit = {celsius} derajat Celcius")
20    print(f"fahrenheit.temp derajat Fahrenheit = {kelvin} derajat Kelvin")
21    print(f"fahrenheit.temp derajat Fahrenheit = {reamur} derajat Reamur\n")
22
23    class Reamur:
24        def __init__(self, temp):
25            self.temp = temp
26
27        def to_celsius(self):
28            return self.temp * 5 / 4
29
30        def to_fahrenheit(self):
31            return self.temp * 9 / 4 + 32
32
33        def to_kelvin(self):
```

The screenshot shows the Visual Studio Code editor with the file `konversi_temperatur.py` open. The Explorer sidebar on the left indicates that no folder is currently opened. The main editor area displays the following Python code:

```
22
23    class Reamur:
24        def __init__(self, temp):
25            self.temp = temp
26
27        def to_celsius(self):
28            return self.temp * 5 / 4
29
30        def to_fahrenheit(self):
31            return self.temp * 9 / 4 + 32
32
33        def to_kelvin(self):
34            return self.temp * 5 / 4 + 273.15
35
36    reamur = Reamur(30)
37    celsius = reamur.to_celsius()
38    kelvin = reamur.to_kelvin()
39    fahrenheit = reamur.to_fahrenheit()
40
41    print(f"reamur.temp derajat Reamur = {celsius} derajat Celcius")
42    print(f"reamur.temp derajat Reamur = {kelvin} derajat Kelvin")
43    print(f"reamur.temp derajat Reamur = {fahrenheit} derajat Fahrenheit\n")
44
45    class Kelvin:
46        def __init__(self, temp):
47            self.temp = temp
48
49        def to_celsius(self):
50            return self.temp - 273.15
51
52        def to_fahrenheit(self):
53            return (self.temp - 273.15) * 9 / 5 + 32
54
```

Visual Studio Code interface showing a Python script for temperature conversion. The Explorer sidebar on the left indicates "NO FOLDER OPENED" with buttons for "Open Folder" and "Clone Repository". The main editor displays the file `konversi_temperatur.py` with the following code:

```
E:\PBO 2 > Pertemuan 1 > konversi_temperatur.py > Fahrenheit > to_kelvin
38 kelvin = reamur.to_kelvin()
39 fahrenheit = reamur.to_fahrenheit()
40
41 print(f"(reamur.temp) derajat Reamur = {celcius} derajat Celcius")
42 print(f"(reamur.temp) derajat Reamur = {kelvin} derajat Kelvin")
43 print(f"(reamur.temp) derajat Reamur = {fahrenheit} derajat Fahrenheit\n")
44
45 class Kelvin:
46     def __init__(self, temp):
47         self.temp = temp
48
49     def to_celsius(self):
50         return self.temp - 273.15
51
52     def to_fahrenheit(self):
53         return (self.temp - 273.15) * 9 / 5 + 32
54
55     def to_reamur(self):
56         return (self.temp - 273.15) * 4 / 5
57
58 kelvin = Kelvin(30)
59 celcius = round(kelvin.to_celsius(), 1)
60 fahrenheit = round(kelvin.to_fahrenheit(), 1)
61 reamur = round(kelvin.to_reamur(), 1)
62
63 print(f"(kelvin.temp) derajat Kelvin = {celcius} derajat Celcius")
64 print(f"(kelvin.temp) derajat Kelvin = {fahrenheit} derajat Fahrenheit")
65 print(f"(kelvin.temp) derajat Kelvin = {reamur} derajat Reamur")
```

The bottom panel shows the OUTPUT window with the following execution results:

```
30 derajat Fahrenheit = 272 derajat Kelvin
30 derajat Fahrenheit = 0 derajat Reamur

30 derajat Reamur = 37.5 derajat Celcius
30 derajat Reamur = 310.65 derajat Kelvin
30 derajat Reamur = 99.5 derajat Fahrenheit

30 derajat Kelvin = -243.1 derajat Celcius
30 derajat Kelvin = -405.7 derajat Fahrenheit
30 derajat Kelvin = -194.5 derajat Reamur
PS C:\Users\danda>
```

The status bar at the bottom indicates the file is at Line 12, Column 49, with 4 spaces, UTF-8 encoding, CRLF line endings, and Python 3.10.8 64-bit. The system clock shows 9:37 PM on 03/17/2023.

The screenshot shows the Visual Studio Code editor with the file `konversi_temperatur.py` open. The code defines a `Kelvin` class with methods for converting between Kelvin, Celsius, Fahrenheit, and Reamur. The `__init__` method initializes the temperature. The `to_celsius`, `to_fahrenheit`, and `to_reamur` methods perform the conversions. The `print` statements at the bottom demonstrate the conversions for 30 units of each scale.

```
E:\PBO 2 > Pertemuan 1 > konversi_temperatur.py > Fahrenheit > to_kelvin
38 kelvin = reamur.to_kelvin()
39 fahrenheit = reamur.to_fahrenheit()
40
41 print(f"reamur.temp derajat Reamur = {celcius} derajat Celcius")
42 print(f"reamur.temp derajat Reamur = {kelvin} derajat Kelvin")
43 print(f"reamur.temp derajat Reamur = {fahrenheit} derajat Fahrenheit\n")
44
45 class Kelvin:
46     def __init__(self, temp):
47         self.temp = temp
48
49     def to_celsius(self):
50         return self.temp - 273.15
51
52     def to_fahrenheit(self):
53         return (self.temp - 273.15) * 9 / 5 + 32
54
55     def to_reamur(self):
56         return (self.temp - 273.15) * 4 / 5
57
```

PROBLEMS 23 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

```
30 derajat Fahrenheit = 272 derajat Kelvin
30 derajat Fahrenheit = 0 derajat Reamur

30 derajat Reamur = 37.5 derajat Celcius
30 derajat Reamur = 310.65 derajat Kelvin
30 derajat Reamur = 99.5 derajat Fahrenheit

30 derajat Kelvin = -243.1 derajat Celcius
30 derajat Kelvin = -405.7 derajat Fahrenheit
30 derajat Kelvin = -194.5 derajat Reamur
PS C:\Users\danda>
```

Ln 12, Col 49 Spaces: 4 UTF-8 CRLF Python 3.10.8 64-bit Go Live 23 Spell Colorize: 0 variables 9:37 PM 03/17/2023

The screenshot shows the Visual Studio Code editor with the file `konversi_temperatur.py` open. The code defines a `Reamur` class with methods for converting between Reamur, Celsius, Fahrenheit, and Kelvin. The `__init__` method initializes the temperature. The `to_celsius`, `to_fahrenheit`, and `to_kelvin` methods perform the conversions. The `print` statements at the bottom demonstrate the conversions for 30 units of each scale.

```
E:\PBO 2 > Pertemuan 1 > konversi_temperatur.py > Fahrenheit > to_kelvin
22
23 class Reamur:
24     def __init__(self, temp):
25         self.temp = temp
26
27     def to_celsius(self):
28         return self.temp * 5 / 4
29
30     def to_fahrenheit(self):
31         return self.temp * 9 / 4 + 32
32
33     def to_kelvin(self):
34         return self.temp * 5 / 4 + 273.15
35
36 reamur = Reamur(30)
37 celcius = reamur.to_celsius()
38 kelvin = reamur.to_kelvin()
39 fahrenheit = reamur.to_fahrenheit()
40
41 print(f"reamur.temp derajat Reamur = {celcius} derajat Celcius")
42 print(f"reamur.temp derajat Reamur = {kelvin} derajat Kelvin")
43 print(f"reamur.temp derajat Reamur = {fahrenheit} derajat Fahrenheit\n")
44
45 class Kelvin:
46     def __init__(self, temp):
47         self.temp = temp
48
49     def to_celsius(self):
50         return self.temp - 273.15
51
52     def to_fahrenheit(self):
53         return (self.temp - 273.15) * 9 / 5 + 32
54
```

PROBLEMS 23 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

```
30 derajat Fahrenheit = 272 derajat Kelvin
30 derajat Fahrenheit = 0 derajat Reamur

30 derajat Reamur = 37.5 derajat Celcius
30 derajat Reamur = 310.65 derajat Kelvin
30 derajat Reamur = 99.5 derajat Fahrenheit

30 derajat Kelvin = -243.1 derajat Celcius
30 derajat Kelvin = -405.7 derajat Fahrenheit
30 derajat Kelvin = -194.5 derajat Reamur
PS C:\Users\danda>
```

Ln 12, Col 49 Spaces: 4 UTF-8 CRLF Python 3.10.8 64-bit Go Live 23 Spell Colorize: 0 variables 9:37 PM 03/17/2023