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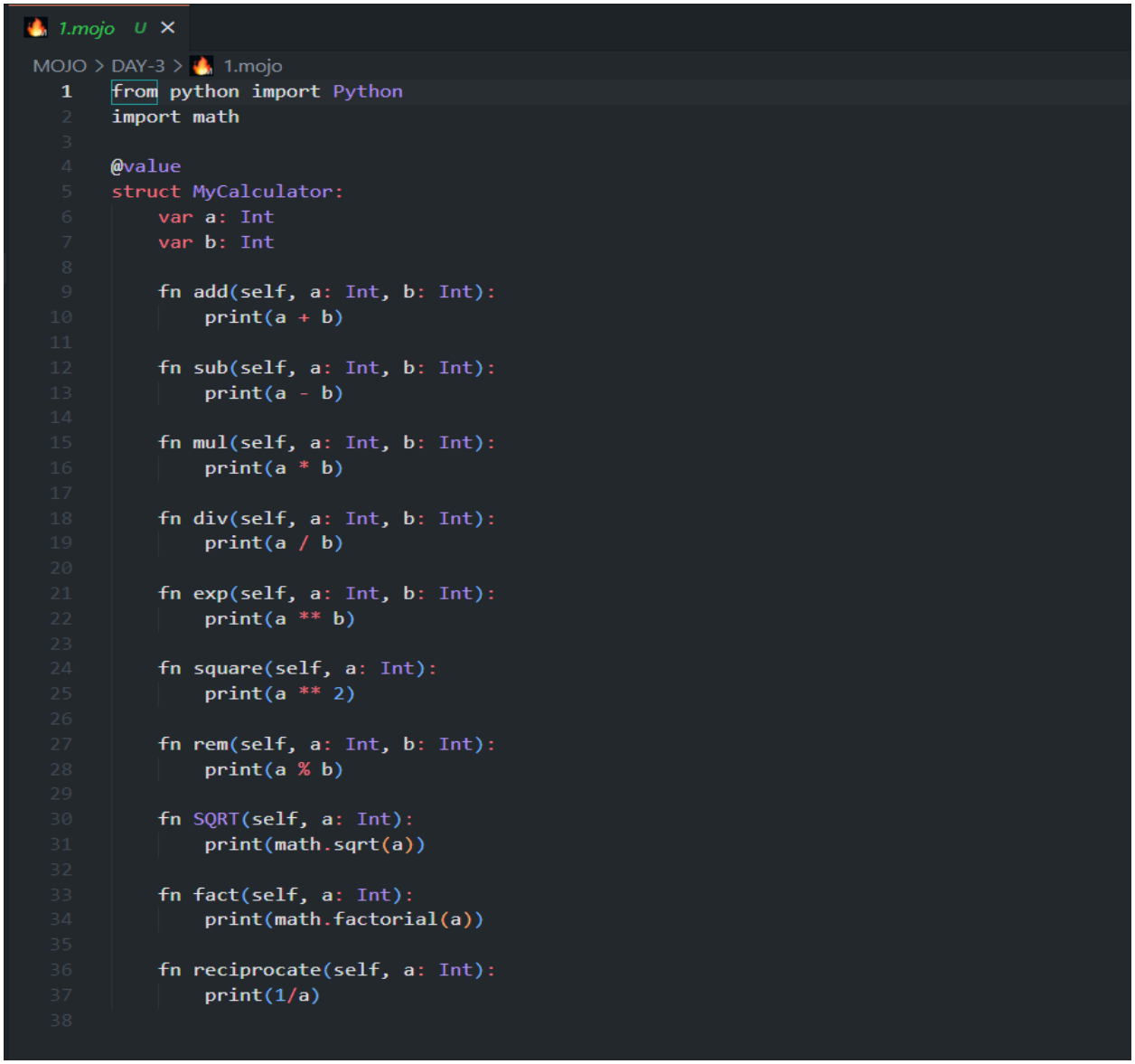
SEM-7

Day 3 Programs:

1. Write a program to design scientific calculator operations(any 10) using modules.



MOJO > DAY-3 > 1.2.mojo

```
from python import Python
from MyCaIcuIator import Mycalculator

fn main() raises:
    var py = Python.import_modules("builtins")
    var x: Int = atol(py.input())
    var y: Int = atol(py.input())
    var calc = Mycalculator(x, y)
    calc.add(x, y)
    calc.sub(x, y)
    calc.mul(x, y)
    calc.div(x, y)
    calc.exp(x, y)
    calc.rem(x, Y)
    calc. square(x)
    calc.SQRT(x)
    calc. reciprocate (x)
    calc.fact (x)
```

```
100
50
150
50
5000
2.0
0
0
10000
10
0.01
94894792402599
```

2. Write a program to read student marks information and generate a result with cgpa using biotin functions.

2.mojo U

MOJO > DAY-3 > 2.mojo

```
from python import Python
fn main() raises:
    var py = Python.import_module("builtins")
    var OOAD: Int = atol(py.input())
    var CC: Int = atol(py.input())
    var CD: Int = atol(py.input())
    var NLP: Int = atol(py.input())
    var TDL: Int = atol(py.input())
    var marks = [OOAD, CC, CD, NLP, TDL]
    print(py.sum(marks)/(10* py.len(marks)))
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$ mojo 2.mojo
90
99
94
95
99
9.54
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```

3. WAP to implement a ‘person’ struct with data members: name, age, email id and develop member functions: validate_data() with all necessary constructors using @value decorator.

MOJO > DAY-3 > 3.mojo

```
from python import Python
@value
struct person:
    var name: String
    var age: Int
    var email: String

    fn validate_data(self) raises:
        var time = Python.import_module("time")
        var os = Python.import_module("os")
        os.system("clear")
        print("Validating.")
        time.sleep(1)
        os.system("clear")
        time.sleep(1)
        os.system("clear")
        print("Validating..")
        time.sleep(1)
        print("Validated user: ",self.name, self.age, self.email)

fn main() raises:
    var py = Python.import_module("builtins")
    var name: String = py.input()
    var age: Int = atol(py.input())
    var email: String = py.input()
    var person = person(name, age, email)
    person.validate_data()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
Validating..
Validated user:  chocku 21 xyz@gmail.com
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```

4. WAP to demonstrate all arithmetic operations in CPU register using @register_passable decorator.

2.mojo U 4.mojo U

MOJO > DAY-3 > 4.mojo

```mojo
from python import Python
@value
@register_passable
struct math:
    fn add(self,a:Int,b:Int)->Int:
        return a+b
    fn sub(self,a:Int,b:Int)->Int:
        return a-b
    fn mul(self,a:Int,b:Int)->Int:
        return a*b
    fn div(self,a:Int,b:Int)->Float16:
        return a/b

fn main() raises:
    var py=Python.import_module("builtins")
    var x:Int =atol(py.input())
    var y:Int =atol(py.input())
    var math=math()

    print(math.add(x,y))
    print(math.sub(x,y))
    print(math.mul(x,y))
    print(math.div(x,y))

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$ mojo 4.mojo
14
7
21
7
98
2.0
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```

5. WAP to form 10 numbers from SIMD datatype and calculate its square. Also print the original and square values of the numbers.

MOJO > DAY-3 > 5.mojo

```mojo
fn main():
    var vec=SIMD[DType.int32,16](1,2,3,4,5,6,7,8,9,10)
    for i in range(0,10):
        print(vec[i],end=" ")
    print()
    var vec2=vec**2
    for i in range(0,10):
        print(vec2[i],end=" ")
    print()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$ mojo 5.mojo
1 2 3 4 5 6 7 8 9 10
1 4 9 16 25 36 49 64 81 100
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```

6. WAP to read a .CSV file using Pandas library in Mojo.

MOJO > DAY-3 > 6.mojo

```
1  from python import Python
2  fn main() raises:
3      var py = Python.import_module("pandas")
4      var df = py.read_csv("iris.data.csv")
5      print(df. head())
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$ mojo 6.mojo
   5.1  3.5  1.4  0.2  Iris-setosa
0  4.9  3.0  1.4  0.2  Iris-setosa
1  4.7  3.2  1.3  0.2  Iris-setosa
2  4.6  3.1  1.5  0.2  Iris-setosa
3  5.0  3.6  1.4  0.2  Iris-setosa
4  5.4  3.9  1.7  0.4  Iris-setosa
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```

7. WAP to generate random numbers from 1-128 using necessary python library.

MOJO > DAY-3 > 7.mojo

```
1  from python import Python
2  fn main() raises:
3      var py=Python.import_module("random")
4      print(py.randrange(1,128))
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$ mojo 7.mojo
76
chocku@imperio:/mnt/c/Users/chock/OneDrive/Desktop/MOJO/DAY-3$
```