AI / ML Lab - Python Lab - 2: Exercise

Exercise - 1: Simple calculator using match-case:

```
num1 = float(input("Enter the number 1: "))
num2 = float(input("Enter the number 1: "))
opt = input("Enter operator: ")

match opt:
    case '+':
        result = num1 + num2;
    case '-':
        result = num1 - num2;
    case '*':
        result = num1 * num2;
    case '/':
        result = num1 / num2;
    case _:
        printf("Invalid Entry, try again.")

print(result)
```

```
Enter the number 1:  21
Enter the number 1:  1
Enter operator:  +

22.0
```

Exercise - 2: Vowel and Consonant:

```
ch = input("Enter a word: ").lower()

match ch:
    case 'a' | 'e' | 'i' | 'o' | 'u':
        print("Vowel")
    case _:
        print("Consonant OR Invalid Input.")
```

```
Enter a word:  w

Consonant OR Invalid Input.
```

Exercise - 3: Grading System:

```
grade = input("Enter your grade (A / B / C / D / F) : ").upper()

match grade:
    case 'A':
```

```
        print("Excellent. As always.")
    case 'B':
        print("Very Good. Keep it up.")
    case 'C':
        print("Good. Can do better.")
    case 'D':
        print("Pass. Need more improvement.")
    case 'F':
        print("Fail! Try again.")
    case _:
        print("Invalid Entry!")
```

```
Enter your grade (A / B / C / D / F) :  g

Invalid Entry!
```

Exercise - 4: Traffic Light System:

```
traffic_light = input("Enter traffic light (R / G / Y) : ").upper()

match traffic_light:
    case 'R':
        print("RED LIGHT...STOP")
    case 'G':
        print("Green Light...GO")
    case 'Y':
        print("Yellow Light...GET READY")
    case _:
        print("Invalid Entry!")
```

```
Enter traffic light (R / G / Y) :  r

RED LIGHT...STOP
```

Exercise - 5: Number Classification:

```
num = float(input("Enter a number: "))

match num:
    case x if x > 0:
        print("Positive Number.")
    case x if x < 0:
        print("Negetive Number.")
    case x if x == 0:
        print("Zero.")
    case _:
        print("Invalid Entry.")
```

```
Enter a number:  12
```

```
Positive Number.
```

Exercise - 6: Menu Driven Area Calculater:

```
import math

print("MENU")
print("1. Area of Circle.")
print("2. Area of Reatangle.")
print("3. Area of Square.")

choice = int(input("Enter your choice from 1 to 3: "))

match choice:
    case 1:
        r = float(input("Enter radius: "))
        print("Area of Circle: ", math.pi * r * r)
    case 2:
        l = float(input("Enter length: "))
        w = float(input("Enter weidth: "))
        print("Area of Rectangle: ", l * w)
    case 3:
        s = float(inpot("Enter side: "))
        print("Area of Square: ", s * s)
    case _:
        print("Invalid Entry.")
```

```
MENU
1. Area of Circle.
2. Area of Reatangle.
3. Area of Square.

Enter your choice from 1 to 3:  1
Enter radius:  2

Area of Circle:  12.566370614359172
```

Exercise - 7: Basic ATM Operations:

```
balance = 5000  # initial balance
1

print("ATM Menu:")
print("1. Balance Inquiry")
print("2. Cash Withdrawal")
print("3. Deposit")

choice = int(input("Enter your choice (1-3): "))

match choice:
```

```
    case 1:
        print("Your Balance =", balance)
    case 2:
        amount = float(input("Enter amount to withdraw: "))
        if amount <= balance and amount > 0:
            balance -= amount
            print("Withdrawal successful!")
            print("Remaining Balance =", balance)
        else:
            print("Insufficient balance or invalid amount")
    case 3:
        amount = float(input("Enter amount to deposit: "))
        if amount > 0:
            balance += amount
            print("Deposit successful!")
            print("Updated Balance =", balance)
        else:
            print("Invalid deposit amount")
    case _:
        print("Invalid choice")
```

```
ATM Menu:
1. Balance Inquiry
2. Cash Withdrawal
3. Deposit

Enter your choice (1-3):  1

Your Balance = 5000
```

Exercise - 8: Shape Identifier:

```
sides = int(input("Enter the number of sides: "))

match sides:
    case 3:
        print("Triangle.")
    case 4:
        print("Quadrilateral.")
    case 5:
        print("Pentagon.")
    case 6:
        print("Hexagon.")
    case _:
        print("Invalid Entry!")
```

```
Enter the number of sides:  3

Triangle.
```