In [ ]:
```
# Match... Case Statement
```

In [ ]:
```
=============================================
              4. match..case Statement
=============================================


=> The match..case statement is a new feature available from Python version 3.10 on


=> The purpose of the match..case statement is
   "To implement Menu-Driven Applications or handle
    Pre-Defined Conditions efficiently.




-----------------------------------------------
Syntax:
-----------------------------------------------


match variable:
    case value1:
        # block of statements
    case value2:
        # block of statements
    case _:
        # default block (optional)

-----------------------------------------------


=============================================
                Examples:
=============================================




            Arithmetic Operations
=============================================

1. Addition
2. Multiplication
3. Subtraction
4. Division
5. Modulo Division
6. Exit

-----------------------------------------------
```

```
Enter Your Choice: 4
---------------------------------------------

Example Program:
---------------------------------------------


# Program to perform Arithmetic Operations using match..case


print("====== Arithmetic Operations ======")
print("1. Addition")
print("2. Multiplication")
print("3. Subtraction")
print("4. Division")
print("5. Modulo Division")
print("6. Exit")

choice = int(input("Enter your choice (1-6): "))

num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))


match choice:
    case 1:
        print("Addition =", num1 + num2)
    case 2:
        print("Multiplication =", num1 * num2)
    case 3:
        print("Subtraction =", num1 - num2)
    case 4:
        print("Division =", num1 / num2)
    case 5:
        print("Modulo Division =", num1 % num2)
    case 6:
        print("Exiting the program...")
    case _:
        print("Invalid Choice! Please try again.")
```

In [ ]:

```
**********************************************
*         Temperature Conversion Menu         *
**********************************************

1Fahrenheit to Celsius
2. Fahrenheit to Kelvin
3. Celsius to Fahrenheit
4. Celsius to Kelvin
5. Kelvin to Fahrenheit
6. Kelvin to Celsius
7. Exit

**********************************************
Enter Your Choice:
**********************************************
```

Formulas Used

- Fahrenheit to Celsius:

$$C = (F - 32) \times \frac{5}{9}$$

- Fahrenheit to Kelvin:

$$K = (F - 32) \times \frac{5}{9} + 273.15$$

- Celsius to Fahrenheit:

$$F = (C \times \frac{9}{5}) + 32$$

- Celsius to Kelvin:

$$K = C + 273.15$$

- Kelvin to Fahrenheit:

$$F = (K - 273.15) \times \frac{9}{5} + 32$$

- Kelvin to Celsius:

$$C = K - 273.15$$

Python Program: Temperature Conversion Calculator

In [ ]:

```
## Temperature Conversion Calculator using match-case
# Available from Python 3.10 onwards


print("***********************************************")
print("*         Temperature Conversion Menu         *")
print("***********************************************")
print("1. Fahrenheit to Celsius")
print("2. Fahrenheit to Kelvin")
print("3. Celsius to Fahrenheit")
print("4. Celsius to Kelvin")
print("5. Kelvin to Fahrenheit")
print("6. Kelvin to Celsius")
print("7. Exit")
print("***********************************************")


choice = int(input("Enter Your Choice (1-7): "))

match choice:
    case 1:
        f = float(input("Enter Temperature in Fahrenheit: "))
        c = (f - 32) * 5 / 9
        print(f"Temperature in Celsius: {c:.2f}°C")

    case 2:
        f = float(input("Enter Temperature in Fahrenheit: "))
        k = (f - 32) * 5 / 9 + 273.15
        print(f"Temperature in Kelvin: {k:.2f} K")

    case 3:
        c = float(input("Enter Temperature in Celsius: "))
        f = (c * 9 / 5) + 32
        print(f"Temperature in Fahrenheit: {f:.2f}°F")

    case 4:
        c = float(input("Enter Temperature in Celsius: "))
        k = c + 273.15
```

```
        print(f"Temperature in Kelvin: {k:.2f} K")

    case 5:
        k = float(input("Enter Temperature in Kelvin: "))
        f = (k - 273.15) * 9 / 5 + 32
        print(f"Temperature in Fahrenheit: {f:.2f}°F")

    case 6:
        k = float(input("Enter Temperature in Kelvin: "))
        c = k - 273.15
        print(f"Temperature in Celsius: {c:.2f}°C")

    case 7:
        print("Exiting... Thank you for using the converter!")

    case _:
        print("Invalid Choice! Please select from 1 to 7.")

print("Program excution is completed")
```

In [ ]:

```
Program to find the area of different shapes using match-case

print("Choose a shape to find the area:")
print("R - Rectangle")
print("S - Square")
print("C - Circle")

ch = input("Enter your choice: ").upper()

match ch:
    case "R":
        L = float(input("Enter Length: "))
        B = float(input("Enter Breadth: "))
        area = L * B
        print("Area of Rectangle = {:.2f}".format(area))

    case "S":
        side = float(input("Enter Side: "))
        area = side * side
        print("Area of Square = {:.2f}".format(area))

    case "C":
        radius = float(input("Enter Radius: "))
        area = 3.14 * radius * radius
        print("Area of Circle = {:.2f}".format(area))

    case _:
        print("Invalid choice! Please enter R, S, or C.")
```

In [8]:

```
print("Choose a shape to find the area:")
print("R - Rectangle")
print("S - Square")
print("C - Circle")

ch = input("Enter your choice: ").upper()
```

```
match ch:
    case "R":
        L = float(input("Enter Length: "))
        B = float(input("Enter Breadth: "))
        area = L * B
        print("Area of Rectangle = {:.2f}".format(area))

    case "S":
        side = float(input("Enter Side: "))
        area = side * side
        print("Area of Square = {:.2f}".format(area))

    case "C":
        radius = float(input("Enter Radius: "))
        area = 3.14 * radius * radius
        print("Area of Circle = {:.2f}".format(area))

    case _:
        print("Invalid choice! Please enter R, S, or C.")
```

```
Choose a shape to find the area:
R - Rectangle
S - Square
C - Circle
Area of Square = 900.00
```

In [14]:

```
print("Choose a shape to find the area:")
print("R - Rectangle")
print("S - Square")
print("C - Circle")

ch = input("Enter your choice: ").upper()

match ch:
    case "R"|"r":
        L = float(input("Enter Length: "))
        B = float(input("Enter Breadth: "))
        area = L * B
        print("Area of Rectangle = {:.2f}".format(area))

    case "S"|"s":
        side = float(input("Enter Side: "))
        area = side * side
        print("Area of Square = {:.2f}".format(area))

    case "C"|"c":
        radius = float(input("Enter Radius: "))
        area = 3.14 * radius * radius
        print("Area of Circle = {:.2f}".format(area))

    case _:
        print("Invalid choice! Please enter R, S, or C.")
```

```
Choose a shape to find the area:
R - Rectangle
S - Square
C - Circle
Area of Rectangle = 900.00
```

matchcase

In [35]:
```
wkd=input("Enter a week name:")
match(wkd):
    case"Monday"|"Tuesday"|"Wednesday"|"Thursday"|"Friday":
        print("{} is working day".format(wkd))
    case"Saturday":
        print("{} is Week - End". format(wkd))
    case"Sunday":
        print("{} is Holiday".format(wkd))
    case _:
        print("{} is not a week day".fomrat(wkd))
```

```
Monday is working day
```

In [37]:
```
wkd=input("Enter a week name:")
match(wkd):
    case"Monday"|"Tuesday"|"Wednesday"|"Thursday"|"Friday":
        print("{} is working day".format(wkd))
    case"Saturday":
        print("{} is Week - End". format(wkd))
    case"Sunday":
        print("{} is Holiday".format(wkd))
    case _:
        print("{} is not a week day".fomrat(wkd))
```

```
Saturday is Week - End
```

In [39]:
```
wkd=input("Enter a week name:")
match(wkd):
    case"Monday"|"Tuesday"|"Wednesday"|"Thursday"|"Friday":
        print("{} is working day".format(wkd))
    case"Saturday":
        print("{} is Week - End". format(wkd))
    case"Sunday":
        print("{} is Holiday".format(wkd))
    case _:
        print("{} is not a week day".fomrat(wkd))
```

```
Sunday is Holiday
```

Write a Python program that asks the user to enter a week name.

Using the match–case statement, check whether the day is:

- a working day (Mon–Fri)
- a weekend (Saturday)
- a holiday (Sunday)

In [43]:
```
wkd=input("Enter a week name:").upper()
if wkd in ["Monday","Tuesday","Wednesday","Thursday","Friday","MON","TUE","WED","TH
    match(wkd[:3]):
        case"MON"|"TUE"|"WED"|"THU"|"FRI":
            print("{} is working day".format(wkd))
        case"SAT":
            print("{} is weekend".format(wkd))
        case"SUN":
            print("{} is the holiday".format(wkd))
else:
    print("{} is not a weekdays".format(wkd))
```

```
MON is working day
```

In [49]:
```
wkd=input("Enter a week name:").upper()
if wkd in ["Monday","Tuesday","Wednesday","Thursday","Friday","MON","TUE","WED","TH
    match(wkd[:3]):
        case"MON"|"TUE"|"WED"|"THU"|"FRI":
            print("{} is working day".format(wkd))
        case"SAT":
            print("{} is weekend".format(wkd))
        case"SUN":
            print("{} is the holiday".format(wkd))
else:
    print("{} is not a weekdays".format(wkd))
```

```
SAT is not a weekdays
```

In [51]:
```
wkd=input("Enter a week name:").upper()
if wkd in ["Monday","Tuesday","Wednesday","Thursday","Friday","MON","TUE","WED","TH
    match(wkd[:3]):
        case"MON"|"TUE"|"WED"|"THU"|"FRI":
            print("{} is working day".format(wkd))
        case"SAT":
            print("{} is weekend".format(wkd))
        case"SUN":
            print("{} is the holiday".format(wkd))
else:
    print("{} is not a weekdays".format(wkd))
```

```
SUN is not a weekdays
```

In [ ]:
```
THE SESSION IS COMPLETED. THANK YOU
```