**AI Course**

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**Python Match Case Statements:**

1. **Definition**: The match case statement in Python, introduced in Python 3.10, is similar to the switch case statement in other languages like C/C++ or Java. It allows for more readable and efficient code by matching an expression against a series of patterns.
2. **Syntax**: The match case statement is initialized with the match keyword followed by the parameter to be matched. Various cases are defined using the case keyword and the pattern to match the parameter. The \_ is the wildcard character that runs when all the cases fail to match the parameter value.

match parameter:

case pattern1:

# code for pattern 1

case pattern2:

# code for pattern 2

...

case patternN:

# code for pattern N

case \_:

# default code block

1. **Simple Match Case Statement**: In a simple match case statement, the exact value is compared and matched with the case pattern value.

def runMatch():

num = int(input("Enter a number between 1 and 3: "))

match num:

case 1:

print("One")

case 2:

print("Two")

case 3:

print("Three")

case \_:

print("Number not between 1 and 3")

runMatch()

1. **Match Case Statement with OR Operator**: The OR operator (|) can be used to match multiple patterns that result in the same output.

def runMatch():

num = int(input("Enter a number between 1 and 6: "))

match num:

case 1 | 2:

print("One or Two")

case 3 | 4:

print("Three or Four")

case 5 | 6:

print("Five or Six")

case \_:

print("Number not between 1 and 6")

runMatch()

1. **Match Case with Sequence Pattern**: Match case statements can also be used with sequence patterns like lists or tuples.

def runMatch():

sequence = [1, 2, 3]

match sequence:

case [1, 2, 3]:

print("Matched [1, 2, 3]")

case [4, 5, 6]:

print("Matched [4, 5, 6]")

case \_:

print("No match found")

runMatch()

1. **Match Case with Dictionary**: Match case statements can be used to match dictionary patterns.

def runMatch():

data = {"name": "Asad", "age": 36}

match data:

case {"name": "Asad", "age": 36}:

print("Matched Asad, 36")

case {"name": "Umar", "age": 28}:

print("Matched Umar, 28")

case \_:

print("No match found")

runMatch()

1. **Match Case with Class**: Match case statements can be used to match class instances.

class Person:

def \_\_init\_\_(self, name, age):

self.name = name

self.age = age

def runMatch():

person = Person("Asad", 36)

match person:

case Person(name="Asad", age=36):

print("Matched Asad, 36")

case Person(name="Umar", age=28):

print("Matched Umar, 28")

case \_:

print("No match found")

runMatch()

These examples demonstrate the versatility and power of the match case statement in Python, making it a valuable tool for writing clean and efficient code.