

In [1]:

```
from datetime import datetime

class TimestampMeta(type):
    def __new__(cls, name, bases, dct):

        dct['timestamp'] = datetime.now()

        if 'name' not in dct or 'age' not in dct:
            raise ValueError(f"Class '{name}' must define 'name' and 'age' attributes.")

        return super().__new__(cls, name, bases, dct)
```

In [2]:

```
# Example 1
class Person(metaclass=TimestampMeta):
    name = "John Doe"
    age = 30

print("Example 1: Person Class")
person = Person()
print(f"Person Timestamp: {person.timestamp}")
print(f"Name: {person.name}, Age: {person.age}")
print("-" * 30)
```

Example 1: Person Class

Person Timestamp: 2024-11-11 23:13:49.821751

Name: John Doe, Age: 30

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In [3]:

```
try:
    class Animal(metaclass=TimestampMeta):
        # Missing 'name' and 'age' attributes
        species = "Dog"
except ValueError as e:
    print("Example 2: Invalid Class")
    print(e)
print("-" * 30)
```

Example 2: Invalid Class

Class 'Animal' must define 'name' and 'age' attributes.

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In [4]:

```
try:
    class Student(Person):
        # Inherits
        school = "Springfield High School"

    print("Example 3: Student Subclass")
    student = Student()
    print(f"Student Timestamp (inherited): {student.timestamp}")
    print(f"Name: {student.name}, Age: {student.age}, School: {student.school}")
except ValueError as e:
    print("Example 3: Student Subclass Error")
```

```
print(e)
print("-" * 30)
```

Example 3: Student Subclass Error

Class 'Student' must define 'name' and 'age' attributes.

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In [5]:

*# Example 4*

```
class Employee(metaclass=TimestampMeta):
    name = "Jane Smith"
    age = 40
    position = "Software Engineer"
```

```
print("Example 4: Employee Class")
employee = Employee()
print(f"Employee Timestamp: {employee.timestamp}")
print(f"Name: {employee.name}, Age: {employee.age}, Position: {employee.position}")
print("-" * 30)
```

Example 4: Employee Class

Employee Timestamp: 2024-11-11 23:15:27.006024

Name: Jane Smith, Age: 40, Position: Software Engineer

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In [ ]: