

FINALS LAB TASK 2: INHERITANCE

Problem School Performance

Note: You are to create 4 separate Python files for this task:

- performer.py (base class)
- singer.py (subclass)
- dancer.py (subclass)
- test_class.py – following the required test cases

SOURCE CODE:

```
1  #Base Class - Performer
2  class Performer:
3      def __init__(self, name: str, age: int):
4          self.name = name
5          self.age = age
6
7      def get_name(self) -> str:
8          return self.name
9
10     def get_age(self) -> int:
11         return self.age
12
13
14 #Subclass - Singer
15 class Singer(Performer):
16     def __init__(self, name: str, age: int, vocal_range: str):
17         super().__init__(name, age)
18         self.vocal_range = vocal_range
19
20     def get_vocal_range(self) -> str:
21         return self.vocal_range
22
23     def sing(self) -> None:
24         print(f"{self.name} is singing with a {self.vocal_range} range.")
25
26 #Subclass - Dancer
27 class Dancer(Performer):
28     def __init__(self, name: str, age: int, dance_style: str):
29         super().__init__(name, age)
30         self.dance_style = dance_style
31
32     def get_dance_style(self) -> str:
33         return self.dance_style
34
35     def dance(self) -> None:
36         print(f"{self.name} is performing {self.dance_style} dance.")
```

TEST CLASS:

```
39 # Test case 1
40 p = Performer("James", 17)
41 print(f"Performer: {p.get_name()} \nAge: {p.get_age()}")
42
43 # Test case 2
44 print()
45 d = Dancer("James2", 18, "Hip Hop")
46 print(f"Dancer: {d.get_name()} \nAge: {d.get_age()} \nDance Style: {d.get_dance_style()}.")
47
48 # Test case 3
49 d.dance()
50
51 # Test case 4
52 print(issubclass(Dancer, Performer))
53
54 # Test case 5
55 print()
56 s = Singer("James3", 19, "Soprano")
57 print(f"Singer: {s.get_name()} \nAge: {s.get_age()} \nVocal Range: {s.get_vocal_range()}.")
58
59 # Test case 6
60 s.sing()
```

SAMPLE OUTPUT:

```
Performer: James
Age: 17

Dancer: James2
Age: 18
Dance Style: Hip Hop.
James2 is performing Hip Hop dance.
True

Singer: James3
Age: 19
Vocal Range: Soprano.
James3 is singing with a Soprano range.
```