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BSCS C204

Finals Lab Task 3: POLYMORPHISM

Problem. Chirp and Tweet

Create a simple program to demonstrate basic polymorphism with bird sounds.

Class - Bird:

- Methods:
    - `def make_sound(self) -> None`: An abstract method that represents making a sound. It doesn't have a specific implementation in the base class `Bird`.

Class - Sparrow (extends Bird):

- Methods:
    - `def make_sound(self) -> None`: Overrides the `make_sound` method from the base class `Bird`. It prints the sound "Chirp Chirp" when called.

Class - Parrot (extends Bird):

- Methods:
    - `def make_sound(self) -> None`: Overrides the `make_sound` method from the base class `Bird`. It prints the sound "Tweet Tweet" when called.

Class - BirdCage:

- Methods:
    - `def make_bird_sounds(self, birds: List) -> None`: Accepts a list of `Bird` objects as input. Iterates through the list of birds and calls the `make_sound` method on each bird to make its sound.

Note:

- *The test cases are not outputs of your main file but of a hidden test file. Create and implement the classes instructed to test your code.*
- *Each class should be defined in its own file, with the file name following camelCase conventions (e.g., `bankAccount.py`).*

Source Codes:

Bird.py
```python
class Bird:

    def make_sound(self) -> None:
        pass
```

Sparrow.py
```python
from Bird import Bird

class Sparrow(Bird):

    def make_sound(self) -> None:
        print("Chirp Chirp")
```

Parrot.py
```python
from Bird import Bird

class Parrot(Bird):

    def make_sound(self) -> None:
        print("Tweet Tweet")
```

BirdCage.py
```python
from typing import List
from Bird import Bird

class BirdCage:

    def make_bird_sounds(self, birds: List[Bird]) -> None:
        for bird in birds:
            bird.make_sound()
```

main.py
```python
from Sparrow import Sparrow
from Parrot import Parrot
from BirdCage import BirdCage

sparrow = Sparrow()
parrot = Parrot()

birds = [sparrow, parrot]

cage = BirdCage()
cage.make_bird_sounds(birds)
```

Sample Output:

```
Chirp Chirp
Tweet Tweet


...Program finished with exit code 0
Press ENTER to exit console.
```