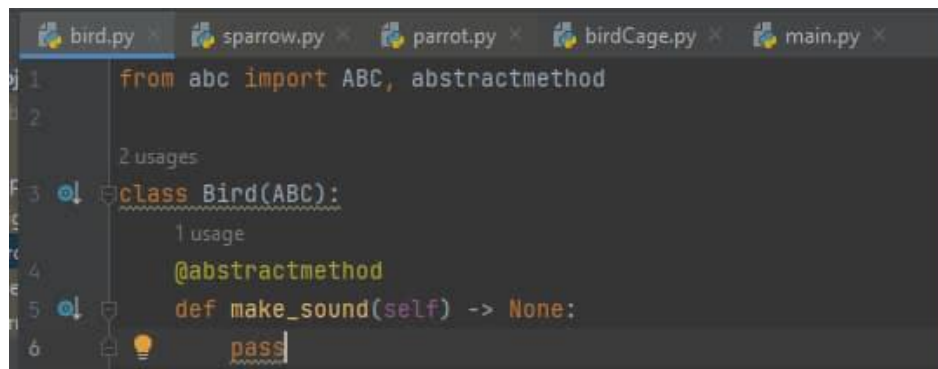


Final Task 3. Polymorphism

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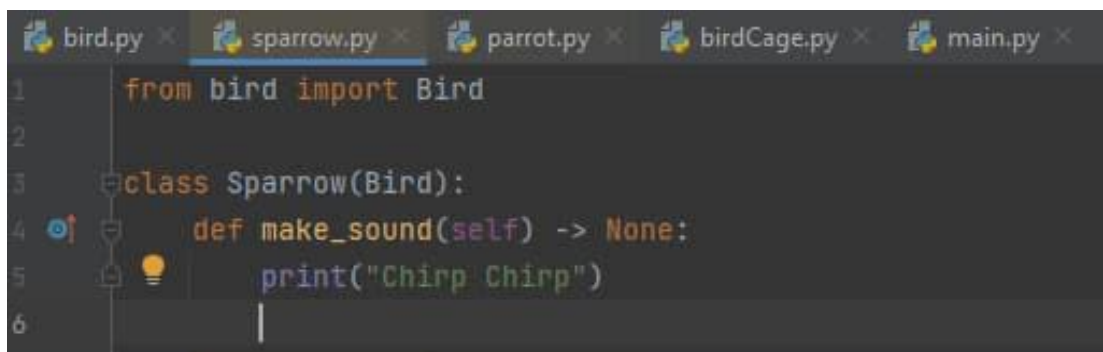
BSCS C203

Bird



```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1 from abc import ABC, abstractmethod
2
3 class Bird(ABC):
4     @abstractmethod
5     def make_sound(self) -> None:
6         pass
```

Sparrow



```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1 from bird import Bird
2
3 class Sparrow(Bird):
4     def make_sound(self) -> None:
5         print("Chirp Chirp")
6
```

Parrot



```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1 from bird import Bird
2
3 class Parrot(Bird):
4     def make_sound(self) -> None:
5         print("Tweet Tweet")
6
```

Birdcage

```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1 from typing import List
2 from bird import Bird
3
4 class BirdCage:
5     def make_bird_sounds(self, birds: List[Bird]) -> None:
6         for bird in birds:
7             bird.make_sound()
```

Main

```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1 from sparrow import Sparrow
2 from parrot import Parrot
3 from birdCage import BirdCage
4
5 if __name__ == "__main__":
6     sparrow = Sparrow()
7     parrot = Parrot()
8
9     print("Test Case 1:")
10    sparrow.make_sound()
11
12    print("\nTest Case 2:")
13    parrot.make_sound()
14
15    print("\nTest Case 3:")
16    birds = [sparrow, parrot]
17    for b in birds:
18        b.make_sound()
19
20    print("\nTest Case 5:")
21    cage = BirdCage()
22    cage.make_bird_sounds(birds)
```

Test Case 1

```
bird.py x sparrow.py x parrot.py x birdCage.py x main.py x
1  from sparrow import Sparrow
2      from parrot import Parrot
3  from birdCage import BirdCage
4  |
5  if __name__ == "__main__":
6      sparrow = Sparrow()
7      parrot = Parrot()
```

Test Case 2

```
8
9      print("Test Case 1:")
10     sparrow.make_sound()
11
```

Test Case 3

```
11
12     print("\nTest Case 2:")
13     parrot.make_sound()
14
```

Test Case 4

```
14
15     print("\nTest Case 3:")
16     birds = [sparrow, parrot]
17     for b in birds:
18         b.make_sound()
19
```

Test Case 5

```
19
20     print("\nTest Case 5:")
21     cage = BirdCage()
22     cage.make_bird_sounds(birds)
23
24
25
```

Sample Output

```
Run: main x
C:\Users\COMLAB\PycharmProjects\pythonProject1\venv\Scripts\python.exe
Test Case 1:
Chirp Chirp

Test Case 2:
Tweet Tweet

Test Case 3:
Chirp Chirp
Tweet Tweet

Test Case 5:
Chirp Chirp
Tweet Tweet

Process finished with exit code 0
```