```
class Character:
    def __init__(self, name):
        self.name = name
        self.side = "LEFT"

    def move(self, farmer):
        if self.side == "LEFT":
            self.side = "RIGHT"
        else:
            self.side = "LEFT"
        print(f"The {self.name} moved to the {self.side} side of the river")

class Farmer(Character):
    def __init__(self):
        Character.__init__(self, "Farmer")


class Wolf(Character):
    def __init__(self):
        Character.__init__(self, "Wolf")


class Sheep(Character):
    def __init__(self):
        Character.__init__(self, "Sheep")


class Cabbage(Character):
    def __init__(self):
        Character.__init__(self, "Cabbage")


class Project:
    def __init__(self):
        self.farmer = Farmer()
        self.wolf = Wolf()
        self.sheep = Sheep()
        self.cabbage = Cabbage()
        self.characters = {"w": self.wolf, "s": self.sheep, "c": self.cabbage}
        self.none = False

    def side(self):
        print("-----------------------------------------------------------------------------------------------")
        print(" Farmer:", self.farmer.side)
        print(" Wolf:", self.wolf.side)
        print(" Sheep:", self.sheep.side)
        print(" Cabbage:", self.cabbage.side)
        print("-----------------------------------------------------------------------------------------------")

    def play(self):
        print("Riddle Game!", "\n")
        print("A farmer with a wolf, a sheep, and a cabbage must cross a river by boat.\nThe boat can only carry the farmer and a single
        print("If left unattended together, the wolf would eat the sheep,\nor the sheep would eat the cabbage.")
        print("How can they cross the river without anything being eaten?")

        self.side()

        while True:
            if self.none:
                print("Press 'w' for Wolf, 's' for Sheep, 'c' for Cabbage, or 'n' for None.")
            else:
                print("Press 'w' for Wolf, 's' for Sheep, or 'c' for Cabbage.")

            ui = input("What should the farmer bring? ").lower()
            print("-----------------------------------------------------------------------------------------------")

            if ui == "n" and self.none:
                self.farmer.move(self.farmer)
                print(" ")
                self.side()

                if (self.wolf.side == self.sheep.side and self.farmer.side != self.wolf.side) or
                        ( self.sheep.side == self.cabbage.side and self.farmer.side != self.sheep.side):
                    print(f"You lose! The {self.wolf.name} ate the {self.sheep.name}." if self.wolf.side == self.sheep.side
                          else f"You lose! The {self.sheep.name} ate the {self.cabbage.name}.")
                    return
```

```
            elif ui in self.characters:
                character = self.characters[ui]
                character.move(self.farmer)
                self.farmer.move(self.farmer)

                self.side()

                if (self.wolf.side == self.sheep.side and self.farmer.side != self.wolf.side) or
                        ( self.sheep.side == self.cabbage.side and self.farmer.side != self.sheep.side):
                    print(f"You lose! The {self.wolf.name} ate the {self.sheep.name}." if self.wolf.side == self.sheep.side
                          else f"You lose! The {self.sheep.name} ate the {self.cabbage.name}.")
                    return

                if all(character.side == "RIGHT" for character in [self.farmer, self.wolf, self.sheep, self.cabbage]):
                    print("Congratulations! The farmer, sheep, wolf, and cabbage arrived safely on the other side of the river")
                    break
            else:
                print("Invalid input. Please press 'w' for Wolf, 's' for Sheep, 'c' for Cabbage, or 'n' for None.")
                continue

            self.none = True


if __name__ == "__main__":
    game = Project()
    game.play()
```

```
Riddle Game!

A farmer with a wolf, a sheep,
and a cabbage must cross a
river by boat.
The boat can only carry the
farmer and a single passenger.
If left unattended together,
the wolf would eat the sheep,
or the sheep would eat the
cabbage.
How can they cross the river
without anything being eaten?
------------------------------
------------------------------
---
 Farmer: LEFT
 Wolf: LEFT
 Sheep: LEFT
 Cabbage: LEFT
------------------------------
------------------------------
---
Press 'w' for Wolf, 's' for
Sheep, or 'c' for Cabbage.
What should the farmer bring?
s
------------------------------
------------------------------
---
The Sheep moved to the RIGHT
side of the river
The Farmer moved to the RIGHT
side of the river
------------------------------
------------------------------
---
 Farmer: RIGHT
 Wolf: LEFT
 Sheep: RIGHT
 Cabbage: LEFT
------------------------------
------------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
'n' for None.
What should the farmer bring?
n
------------------------------
------------------------------
---
The Farmer moved to the LEFT
side of the river

------------------------------
------------------------------
---
 Farmer: LEFT
 Wolf: LEFT
 Sheep: RIGHT
 Cabbage: LEFT
------------------------------
------------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
'n' for None.
What should the farmer bring?
w
------------------------------
------------------------------
---
The Wolf moved to the RIGHT
side of the river
The Farmer moved to the RIGHT
side of the river
```

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----------------------------
----------------------------
---
 Farmer: RIGHT
 Wolf: RIGHT
 Sheep: RIGHT
 Cabbage: LEFT
----------------------------
----------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
'n' for None.
What should the farmer bring?
s
----------------------------
----------------------------
---
The Sheep moved to the LEFT
side of the river
The Farmer moved to the LEFT
side of the river
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----------------------------
---
 Farmer: LEFT
 Wolf: RIGHT
 Sheep: LEFT
 Cabbage: LEFT
----------------------------
----------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
'n' for None.
What should the farmer bring?
c
----------------------------
----------------------------
---
The Cabbage moved to the
RIGHT side of the river
The Farmer moved to the RIGHT
side of the river
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----------------------------
---
 Farmer: RIGHT
 Wolf: RIGHT
 Sheep: LEFT
 Cabbage: RIGHT
----------------------------
----------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
'n' for None.
What should the farmer bring?
n
----------------------------
----------------------------
---
The Farmer moved to the LEFT
side of the river

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----------------------------
---
 Farmer: LEFT
 Wolf: RIGHT
 Sheep: LEFT
 Cabbage: RIGHT
----------------------------
----------------------------
---
Press 'w' for Wolf, 's' for
Sheep, 'c' for Cabbage, or
```

```
'n' for None.
What should the farmer bring?
s
----------------------------
----------------------------
---
The Sheep moved to the RIGHT
side of the river
The Farmer moved to the RIGHT
side of the river
----------------------------
----------------------------
---
 Farmer: RIGHT
 Wolf: RIGHT
 Sheep: RIGHT
 Cabbage: RIGHT
----------------------------
----------------------------
---
Congratulations! The farmer,
sheep, wolf, and cabbage
arrived safely on the other
side of the river
```