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#code made by Papa Bons and Papa Juls

#class for cabbage
class Cabbage:
    def bring(self):
        print("Cabbage has been brought across the river")
        left.remove('C Cabbage')
        right.append('C Cabbage')

    def bringback(self):
        print("Cabbage has been brought back across the river")
        left.append('C Cabbage')
        if 'C Cabbage' in right:
            right.remove('C Cabbage')

# class for sheep
class Sheep:
    def bring(self):
        print("Sheep has been brought across the river")
        left.remove('S Sheep')
        right.append('S Sheep')

    def bringback(self):
        print("Sheep has been brought back across the river")
        left.append('S Sheep')
        if 'S Sheep' in right:
            right.remove('S Sheep')

# class for wolf
class Wolf:
    def bring(self):
        print("Wolf has been brought across the river")
        left.remove('W Wolf')
        right.append('W Wolf')

    def bringback(self):
        print("Wolf has been brought back across the river")
        left.append('W Wolf')
        if 'W Wolf' in right:
            right.remove('W Wolf')

# function(interface) for bringing the passenger across
def cross(choice):
    choice.bring()

# function(interface) for bringing the passenger back to point a
def BB(choice):
    choice.bringback()

def compatibilityCheck(passenger1,passenger2,passenger): # function when checking if the passengers left are compatible
    if 'W Wolf' in left and 'S Sheep' in left: # conditional statement if wolf and sheep were left behind
        print("you can't do that the wolf will eat the sheep!")
        BB(choice)
    elif 'C Cabbage' in left and 'S Sheep' in left: # conditional statement if sheep and cabbage were left behind
        print("you can't do that the sheep will eat the cabbage!")
        BB(choice)
    else:
        pass

left = ['W Wolf', 'S Sheep', 'C Cabbage'] #array for the point a
right = [] # array for point b
passenger = '' # variable for passenger

while True: # loop for the main interface the loop will continue on running until the brainteaser is solved
    print('\nThere are ' + str(len(left)) + ' passengers left')
    for i in left: # loop for printing the passengers left
        print(i)
    print("\nyou've crossed " + str(len(right)) + ' passengers')
    print('passengers crossed:')
    for j in right:
        print(j)

    action = int(input("What do you want to do? - Enter (1) to bring or Enter (2) to bring back: ")) # inputs what to do the passengers
    response = input('Who do you want to bring / bring back? (C for Cabbage, S for Sheep, W for Wolf): ') # inputs what passenger you wil

    match response: # switch case for the response of the user
        case 'C': # case when user picks the cabbage
            choice = Cabbage() #instantiates the choice as the cabbage
            passenger = 'C Cabbage'
        case 'S': # case when user picks the sheep
            choice = Sheep()

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        choice = Sheep()
        passenger = 'S Sheep'
    case 'W': # case when user picks the wolf
        choice = Wolf()
        passenger = 'W Wolf'
    case default: # case when user didn't pick any of the choices
        print('wrong input!!!!')

if action == 1: # conditional statement when the user wants to bring the passenger across the river
    cross(choice) # calls the cross function then cross the passenger depending on the variable choice
else: # else statement if the user picks to bring back the passenger
    BB(choice)

if len(left) == 2: # conditional statement if the passengers left are compatible
    compatibilityCheck(left[0],left[1],choice)
    continue # runs the loop to the very beginning after checking the compatibility

if len(left) == 0: # conditional statement if all passengers crossed the river it will end the loop
    print('All passengers have been brought across the river!')
    break

# Check if Sheep is on one side and Cabbage is on the other side
if 'S Sheep' in right and 'C Cabbage' in right:
    print('The sheep will eat the cabbage! you must bring back the sheep!')
    BB(Sheep())

# Check if Wolf is on one side and Sheep is on the other side
if 'W Wolf' in right and 'S Sheep' in right:
    print('The wolf will eat the sheep! you must bring back the sheep!')
    BB(Sheep())

# checks if the sheep is compatible when we bring it back to the left side
if 'W Wolf' in left and 'S Sheep' in left:
    print("you can't leave the sheep with wolf! you must bring something across!")
    continue

if 'S Sheep' in left and 'C Cabbage' in left:
    print("you can't leave the sheep with the cabbage! you must bring something across!")
    continue

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colab link:

https://colab.research.google.com/drive/1_zEwUqeDoAzZjAccEiRlbBldP3NGR3xD#scrollTo=i0fRCYUVHWZI