

#Python program to illustrate Missionaries & cannibals Problem

#This code is contributed by Sunit Mal

```
print("\n")
```

```
print("\tGame Start\nNow the task is to move all of them to right side of the river")
```

```
print("rules:\n1. The boat can carry at most two people\n2. If cannibals num greater than missionaries  
then the cannibals would eat the missionaries\n3. The boat cannot cross the river by itself with no  
people on board")
```

```
lM = 3          #lM = Left side Missionaries number
```

```
lC = 3          #lC = Left side Cannibals number
```

```
rM=0           #rM = Right side Missionaries number
```

```
rC=0           #rC = Right side cannibals number
```

```
userM = 0       #userM = User input for number of missionaries for right to left side travel
```

```
userC = 0       #userC = User input for number of cannibals for right to left travel
```

```
k = 0
```

```
print("\nlM lM lM lC lC lC | --- | \n")
```

```
try:
```

```
    while(True):
```

```
        while(True):
```

```
            print("Left side -> right side river travel")
```

```
            #uM = user input for number of missionaries for left to right travel
```

```
            #uC = user input for number of cannibals for left to right travel
```

```
            uM = int(input("Enter number of Missionaries travel => "))
```

```
            uC = int(input("Enter number of Cannibals travel => "))
```

```
            if((uM==0)and(uC==0)):
```

```
                print("Empty travel not possible")
```

```
                print("Re-enter : ")
```

```
            elif(((uM+uC) <= 2)and((lM-uM)>=0)and((lC-uC)>=0)):
```

```
                break
```

```

else:
    print("Wrong input re-enter : ")

IM = (IM-uM)
IC = (IC-uC)
rM += uM
rC += uC

print("\n")
for i in range(0,IM):
    print("M ",end="")

for i in range(0,IC):
    print("C ",end="")

print("| --> | ",end="")

for i in range(0,rM):
    print("M ",end="")

for i in range(0,rC):
    print("C ",end="")

print("\n")

k +=1

if(((IC==3)and (IM == 1))or((IC==3)and(IM==2))or((IC==2)and(IM==1))or((rC==3)and (rM
== 1))or((rC==3)and(rM==2))or((rC==2)and(rM==1))):
    print("Cannibals eat missionaries:\nYou lost the game")

    break

if((rM+rC) == 6):
    print("You won the game : \n\tCongrats")

```

```

        print("Total attempt")
        print(k)
        break
while(True):
    print("Right side -> Left side river travel")
    userM = int(input("Enter number of Missionaries travel => "))
    userC = int(input("Enter number of Cannibals travel => "))

    if((userM==0)and(userC==0)):
        print("Empty travel not possible")
        print("Re-enter : ")
    elif(((userM+userC) <= 2)and((rM-userM)>=0)and((rC-userC)>=0)):
        break
    else:
        print("Wrong input re-enter : ")

lM += userM
lC += userC
rM -= userM
rC -= userC

k +=1
print("\n")
for i in range(0,lM):
    print("M ",end="")
for i in range(0,lC):
    print("C ",end="")
print("| <-- | ",end="")
for i in range(0,rM):
    print("M ",end="")

```

```
for i in range(0,rC):  
    print("C ",end="")  
print("\n")
```

```
if(((IC==3)and (IM == 1))or((IC==3)and(IM==2))or((IC==2)and(IM==1))or((rC==3)and (rM  
== 1))or((rC==3)and(rM==2))or((rC==2)and(rM==1))):  
    print("Cannibals eat missionaries:\nYou lost the game")  
    break  
except EOFError as e:  
    print("\nInvalid input please retry !!")
```

output:

```
IDLE Shell 3.11.6
File Edit Shell Debug Options Window Help
Wrong input re-enter :
Right side -> Left side river travel
Enter number of Missionaries travel => 2
Enter number of Cannibals travel => 1
Wrong input re-enter :
Right side -> Left side river travel
Enter number of Missionaries travel => 0
Enter number of Cannibals travel => 2

M M M C C C | <-- |

Left side -> right side river travel
Enter number of Missionaries travel => 1
Enter number of Cannibals travel => 1

M M C C | --> | M C

Right side -> Left side river travel
Enter number of Missionaries travel => 1
Enter number of Cannibals travel => 1

M M M C C C | <-- |

Left side -> right side river travel
Enter number of Missionaries travel => 1
Enter number of Cannibals travel => 1

M M C C | --> | M C

Right side -> Left side river travel
Enter number of Missionaries travel => 1
Enter number of Cannibals travel => 0

M M M C C | <-- | C

Left side -> right side river travel
Enter number of Missionaries travel => 1
Enter number of Cannibals travel => 1

M M C | --> | M C C

Cannibals eat missionaries:
You lost the game
>>> |
```