5.Write the python program for Missionaries Cannibal problem.
Program:

```python
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 then missionaries then the cannibals would eat the missionaries\n3. The boat cannot cross the river by itself with no people on board")
lM = 3
lC = 3
rM=0
rC=0
userM = 0
userC = 0
k = 0
print("\nM M M C C C |          --- | \n")
try:
        while(True):
                while(True):
                        print("Left side -> right side river 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 : ")
                lM = (lM-uM)
                lC = (lC-uC)
                rM += uM
                rC += uC

                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="")
```

```python
            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 : ")
            IM += userM
            IC += userC
            rM -= userM
            rC -= userC

            k +=1
            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")



            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 3.10.4 — ☐ ✕

File Edit Shell Debug Options Window Help

```
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>
= RESTART: C:\Users\Rohith kumar\OneDrive\Desktop\AI LAB\Missionaries Cannibal p
roblem.py


        Game Start
Now the task is to move all of them to right side of the river
rules:
1. The boat can carry at most two people
2. If cannibals num greater then missionaries then the cannibals would eat the m
issionaries
3. The boat cannot cross the river by itself with no people on board

M M M C C C |    --- |

Left side -> right side river travel
Enter number of Missionaries travel => 3
Enter number of Cannibals travel => 1
Wrong input re-enter :
Left side -> right side river travel
Enter number of Missionaries travel => 2
Enter number of Cannibals travel => 0


M C C C | --> | M M

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