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Artificial Intelligence Lab
Lab - 1 (B)

Aim: Implementation of Toy problem - 10 coins Puzzle

Problem Formulation:

To make two piles of coins each with same number of heads up where the given condition is such that there are 5 coins head up and 5 coins tails up but not which ones are which.

The coins can be flipped any number of times.

Initial State:- HTTHHHHTHTT

Final State :- P1 THHHH
P2 HHHHT

Problem solving:

Make 2 piles with an equal number of coins.
Now, flip all the coins in one of the piles.

For Example:-

P1 : H TTT T
P2: HH HH T

By flipping P1

P1: T HHHH H
P2: HH HH T

∴ No. of heads in P1 = No. of heads in P2

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ARTIFICIAL INTELLIGENCE LAB

EXPERIMENT NO: 1(B)

IMPLEMENTATION OF TOY PROBLEM (10 COINS PUZZLE)

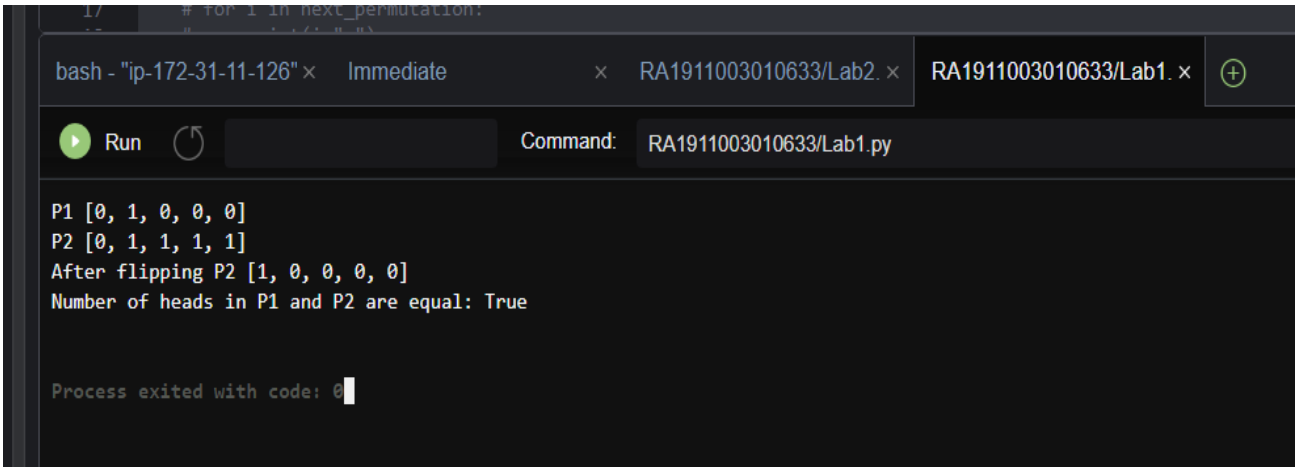
Source code:

```
#10 Coins puzzle
#1 represents head and O represents tail
import random
P1=[]
P2=[]
for i in range(5):
    P1.append(random.randint(0,1))
print("P1",P1)
count1=0;
count0=0;
for i in P1:
    if(i==0):
        count0=count0+1
    else:
        count1+=1
for i in range(5-count0):
    P2.append(0)
for i in range(5-count1):
    P2.append(1)
print("P2",P2)
for i in range(5):
```

```
    if P2[i]==0:
        P2[i]=1
    else:
        P2[i]=0
print("After flipping P2",P2)

cnt=0
for i in range(5):
    if P2[i]==0:
        cnt+=1
print("Number of heads in P1 and P2 are equal:", cnt==count0);
```

Output:



Result:

Hence, the implementation of 10 Coins Puzzle is done successfully.