

ARTIFICIAL INTELLIGENCE PRINCIPLE AND TECHNIQUES LAB

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Practical 1

Aim: Develop a Python program to stimulate water jug problem.

Code:

```
a=int(input("Enter Jug A Capacity: "));
```

```
b=int(input("Enter Jug B Capacity: "));
```

```
ai=int(input("Initially Water in Jug A: "));
```

```
bi=int(input("Initially Water in Jug B: "));
```

```
af=int(input("Final State of Jug A: "));
```

```
bf=int(input("Final State of Jug B: "));
```

```
print("List Of Operations You can Do:\n");
```

```
print("1.Fill Jug A Completely\n");
```

```
print("2.Fill Jug B Completely\n");
```

```
print("3.Empty Jug A Completely\n");
```

```
print("4.Empty Jug B Completely\n");
```

```
print("5.Pour From Jug A till Jug B filled Completely or A becomes  
empty\n");
```

```
print("6.Pour From Jug B till Jug A filled Completely or B becomes  
empty\n");
```

```
print("7.Pour all From Jug B to Jug A\n");
```

```
print("8.Pour all From Jug A to Jug B\n");
```

```
while ((ai!=af or bi!=bf)):
```

```
    op=int(input("Enter the Operation: "));
```

```
    if(op==1):
```

```
        ai=a;
```

```
    elif(op==2):
```

```
        bi=b;
```

```
    elif(op==3):
```

```
        ai=0;
```

```
    elif(op==4):
```

```
        bi=0;
```

```
    elif(op==5):
```

```
        if(b-bi>ai):
```

```
            bi=ai+bi;
```

```
            ai=0;
```

```
        else:
```

```
            ai=ai-(b-bi);
```

```
            bi=b;
```

```
    elif(op==6):
```

```
        if(a-ai>bi):
```

```
            ai=ai+bi;
```

```
            bi=0;
```

```
        else:
```

```
            bi=bi-(a-ai);
```

```
            ai=a;
```

```
    elif(op==7):
```

```
        ai=ai+bi;
```

```
bi=0;
elif(op==8):
    bi=bi+ai;
    ai=0;
print(ai,bi);
```

Output:

```
▶ Enter Jug A Capacity: 4
Enter Jug B Capacity: 3
➞ Initially Water in Jug A: 0
Initially Water in Jug B: 0
Final State of Jug A: 2
Final State of Jug B: 0
List Of Operations You can Do:

1.Fill Jug A Completely

2.Fill Jug B Completely

3.Empty Jug A Completely

4.Empty Jug B Completely

5.Pour From Jug A till Jug B filled Completely or A becomes empty

6.Pour From Jug B till Jug A filled Completely or B becomes empty

7.Pour all From Jug B to Jug A

8.Pour all From Jug A to Jug B

Enter the Operation: 2
0 3
Enter the Operation: 7
3 0
Enter the Operation: 2
3 3
Enter the Operation: 6
4 2
Enter the Operation: 3
0 2
Enter the Operation: 6
2 0
```