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Artificial Intelligence Lab

Lab 1 (B)

Aim:- Implementation of Toy Problem.

Camel and Banana Problem

Problem Formulation

To find maximum no. of bananas that can be transferred to the destination using only camel.

Since there are 3000 bananas and the camel can carry at most 1000 bananas, at least five trips needed to carry away all bananas from Plantation P (3 trips away from the plantation and 2 return trips.)

Camel can never travel more than 500 km.

P → plantation

M → market.

initial State. final State

P (plantation) =forth⇒

⇐back= =forth⇒

=forth⇒ A ⇐back= B =forth⇒ M (marked)

⇐back= =forth⇒

=forth⇒

Problem Solving

Point A cannot be market. This is because camel can never travel more than 500 km. into desert if it should return to the plantation. So Point A lies somewhere btw plantation and market. From point A to the next point, less than 5 trips must be used to transport the bananas to the next point.

Algorithm

1. Break each section of the checkpoint.
2. Check condition that camel does not move back if there is only one banana left.
3. Decrease loose
4. Increase loose
5. Lose is decreased as in last trip, camel will not go back.
6. Check condition whether it is possible to take a single banana or not.
7. Print start.

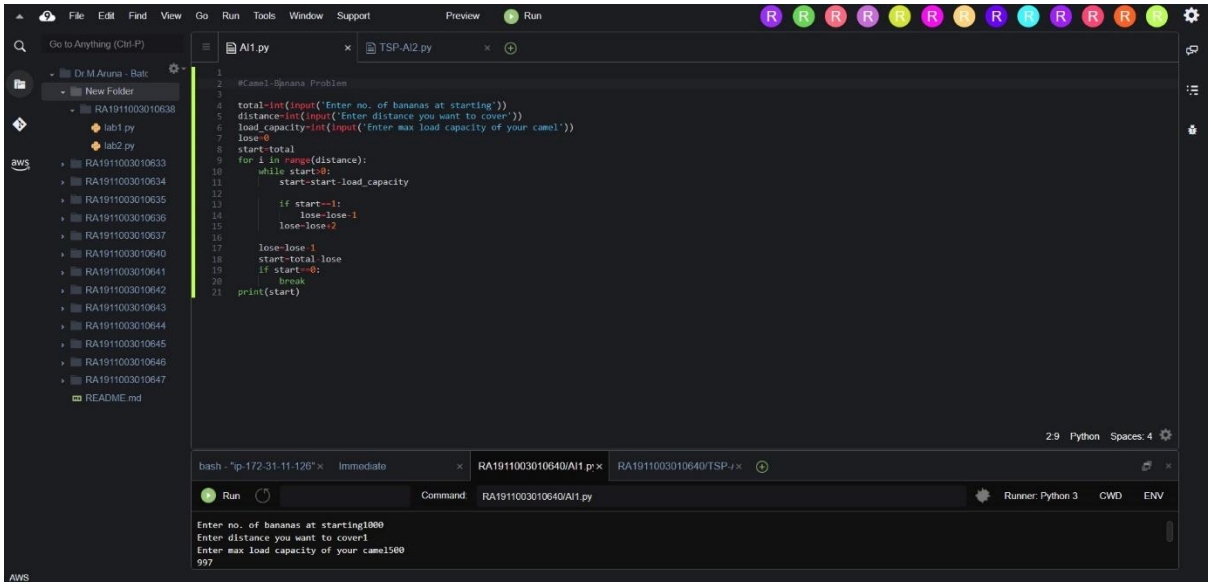
Code:-

```
#Camel-Banana Problem


total=int(input('Enter no. of bananas at starting'))
distance=int(input('Enter distance you want to cover'))
load_capacity=int(input('Enter max load capacity of your camel'))
lose=0
start=total
for i in range(distance):
    while start>0:
        start=start-load_capacity


        if start==1:
            lose=lose-1
        lose=lose+2


    lose=lose-1
    start=total-lose
    if start==0:
        break
print(start)
```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lab1.py
lab2.py
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README.md
AI1.py
TSP-AI2.py
#Camel-Banana Problem
total=int(input('Enter no. of bananas at starting'))
distance=int(input('Enter distance you want to cover'))
load_capacity=int(input('Enter max load capacity of your camel'))
lose=0
start=total
for i in range(distance):
while start>0:
start=start-load_capacity
if start==1:
lose=lose-1
lose=lose+2
lose=lose-1
start=total-lose
if start==0:
break
print(start)
2:9 Python Spaces: 4
bash - "ip-172-31-11-126" Immediate
RA1911003010640/AI1.p
RA1911003010640/TSP-A
Run
Command:
RA1911003010640/AI1.py
Runner: Python 3
CWD
ENV
Enter no. of bananas at starting1000
Enter distance you want to cover1
Enter max load capacity of your camel500
997
AWS