Date: Ex No: 1.3	Title of the Lab Camel and Banana	Name: Yuvraj Singh Chauhan Registration Number: RA1911027010058 Section: N1 Lab Batch: 1 Day Order: 3

AIM:

To implement Camel and Banana problem.

Description of the Concept or Problem given:

A merchant has 3000 bananas and a camel. He wants to transport the maximum number of bananas to a destination which is 1000 km away, using only one camel as a mode of transportation. The camel cannot carry more than 1000 bananas at a time and eats a banana every km it travels. What is the maximum number of bananas that can be transferred to the destination using only camel (no other mode of transportation is allowed).

Manual Solution:

The camel first takes 1000 bananas, moves 1km and drops 998 bananas there, moves back by 1km, carry 1000 more bananas, move forward by 1km drop 998 bananas there again. Then it goes back by 1km again, carries 1000 bananas and moves forward by 1km yet again. Now there are 2995 bananas in the first km mark, so it has eaten 5 bananas for this cycle. This cycle would continue until the camel eats 1000 bananas, i.e., until the 200km mark. Now that the camel has to carry only 2000 bananas in the cycle of movement the number of bananas eaten by the camel is reduced by 2 for each cycle. This will continue yet again till the camel has to carry only 1000 bananas, the camel would have travelled this way for 333km and 533km in total. After this point the camel can just move forward for the rest of the journey. So, the camel would have to travel 467 km with 1000 bananas, and at point B it would still have 533 bananas.

Program Implementation [Coding]

```
def camel_and_banana(total_bananas,load_capacity,distance):
    lose=0
    left_bananas=total_bananas
    for i in range(distance):
        while left_bananas>0:
            left_bananas=left_bananas-load_capacity
            if left_bananas==1:
                lose=lose-1
            lose=lose+2
        lose=lose-1
        left_bananas=total_bananas-lose
        if left_bananas==0:
            break
    return left_bananas
total_bananas=int(input("Enter total numbers of bananas "))
load_capacity=int(input("Enter maximum load capacity of camel "))
```

```
distance=int(input("Enter distance to be covered "))
bananas_left=camel_and_banana(total_bananas,load_capacity,distance)
print("The maximum number of bananas that can be transferred to the destination using only camel is:-
",bananas_left)
```

Screenshots of the Outputs:

```
Enter total numbers of bananas 3000
Enter maximum load capacity of camel 11000
Enter distance to be covered 1000
The maximum number of bananas that can be transferred to the destination using only camel is:- 2000
```

Signature of the Student

[YUVRAJ SINGH CHAUHAN]