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Experiment 8

Thread:

```python
import time # import time module
def cal_sqre(num): # define the cal_sqre function
    print(" Calculate the square root of the given number")
    for n in num:
        time.sleep(0.3) # at each iteration it waits for 0.3 time
        print(' Square is : ', n * n)
def cal_cube(num): # define the cal_cube() function
    print(" Calculate the cube of the given number")
    for n in num:
        time.sleep(0.3) # at each iteration it waits for 0.3 time
        print(" Cube is : ", n * n *n)
arr = [6, 9, 12, 13, 2] # given array
t1 = time.time() # get total time to execute the functions
cal_sqre(arr) # call cal_sqre() function
cal_cube(arr) # call cal_cube() function
print(" Total time taken by threads is :", time.time() - t1) # print the
total time
```

MultiThread:

```python
import time # import time module
import threading
from threading import *
def cal_sqre(num): # define the cal_sqre function
    print(" Calculate the square root of the given number")
    for n in num:
        time.sleep(0.3) # at each iteration it waits for 0.3 time
        print(' Square is : ', n * n)
def cal_cube(num): # define the cal_cube() function
    print(" Calculate the cube of the given number")
    for n in num:
        time.sleep(0.3) # at each iteration it waits for 0.3 time
        print(" Cube is : ", n * n *n)
ar = [6, 9, 12, 13, 2] # given array
```

```python
t = time.time() # get total time to execute the functions
#cal_cube(ar)
#cal_sqre(ar)
th1 = threading.Thread(target=cal_sqre, args=(ar, ))
th2 = threading.Thread(target=cal_cube, args=(ar, ))
th1.start()
th2.start()
th1.join()
th2.join()
print(" Total time taking by threads is :", time.time() - t) # print the total
time
print(" Again executing the main thread")
print(" Thread 1 and Thread 2 have finished their execution.")
```

Output:

```
 C:\Users\cc100\Desktop\AKSHIT(PYTHON)> py thread.py
alculate the square root of the given number
quare is :  36
quare is :  81
quare is :  144
quare is :  169
quare is :  4
ube is :  216
ube is :  729
ube is :  1728
ube is :  2197
ube is :  8
otal time taken by threads is : 3.0136592388153076
 C:\Users\cc100\Desktop\AKSHIT(PYTHON)> py thread.py
alculate the square root of the given number
alculate the cube of  the given number
quare is :  36
ube is :  216
quare is :  81
ube is :  729
quare is :  144
ube is :  1728
quare is :  169
ube is :  2197
quare is :  4
ube is :  8
otal time taking by threads is : 1.5069513320922852
gain executing the main thread
hread 1 and Thread 2 have finished their execution.
```