

## Lab 1:

**WAP to implement random number generation using mid-square method .**

### **Code:**

```
seed_number = int(input("Please enter a four-digit number:\n "))
number = seed_number
seen_value = set()
counter = 0
while number not in seen_value:
    counter += 1
    seen_value.add(number)
    number = int(str(number * number).zfill(8)[2:6]) # adds zeros (0) at the beginning of the
                                                    #string, until it reaches the specified length.
    print(f"#{counter}: {number}")
print(f"We began with {seed_number} and " f" have repeated ourselves after {counter} steps"
      f" with {number}.")
```

### **Output:**

```
F:\5th_SEM\Csit_5th_ASMT\Simulation_Lab>python -u "f:\5th_SEM\Csit_5th_ASMT\Simulation_Lab\randomnumber.py"
Please enter a four-digit number:
1212
#1: 4689
#2: 9867
#3: 3576
#4: 7877
#5: 471
#6: 2218
#7: 9195
#8: 5480
#9: 304
#10: 924
#11: 8537
#12: 8803
#13: 4928
#14: 2851
#15: 1282
#16: 6435
#17: 4092
#18: 7444
#19: 4131
#20: 651
#21: 4238
#22: 9606
#23: 2752
#24: 5735
#25: 8902
#26: 2456
#27: 319
#28: 1017
#29: 342
#30: 1169
#31: 3665
#32: 4322
#33: 6796
#34: 1856
#35: 4447
#36: 7758
#37: 1865
#38: 4782
#39: 8675
#40: 2556
#41: 5331
#42: 4195
#43: 5980
#44: 7604
#45: 8208
#46: 3712
#47: 7789
#48: 6685
#49: 6892
#50: 4996
#51: 9600
#52: 1600
#53: 5600
#54: 3600
#55: 9600
We began with 1212 and have repeated ourselves after 55 steps with 9600.
F:\5th_SEM\Csit_5th_ASMT\Simulation_Lab>
```

