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Roll No: **180123029**
Lab No: **3**

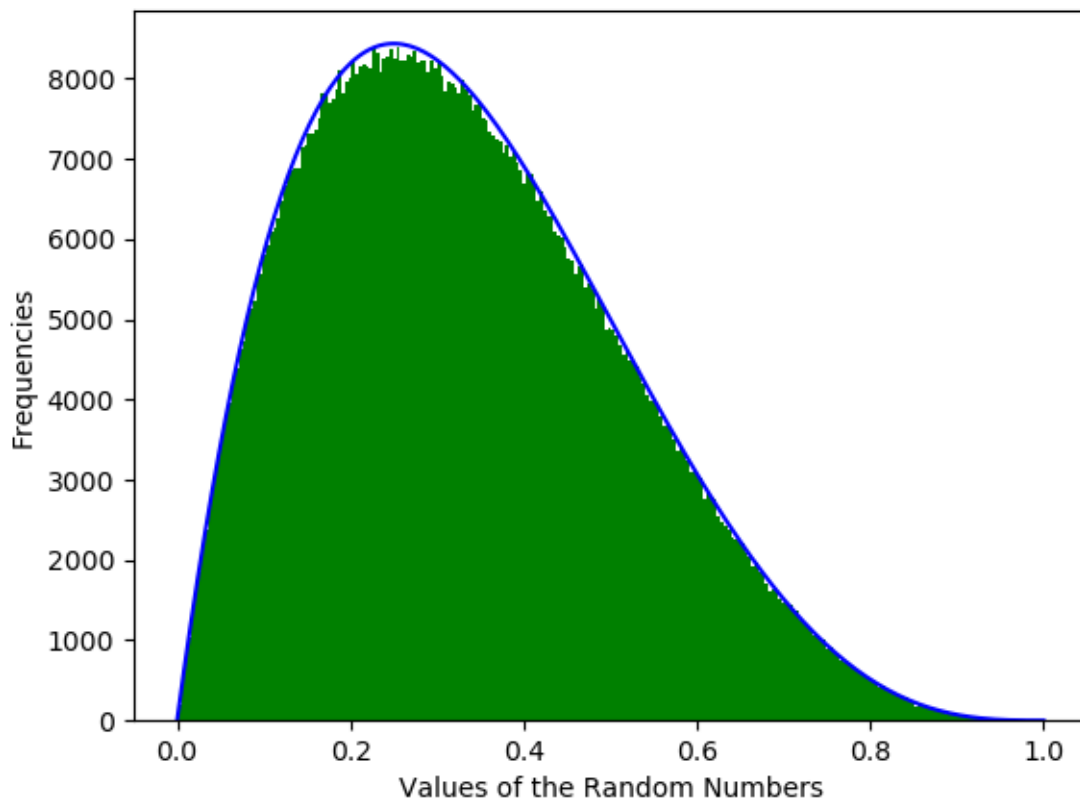
Q.1)

Run the code itself because no of generated values is very large to be copied here.

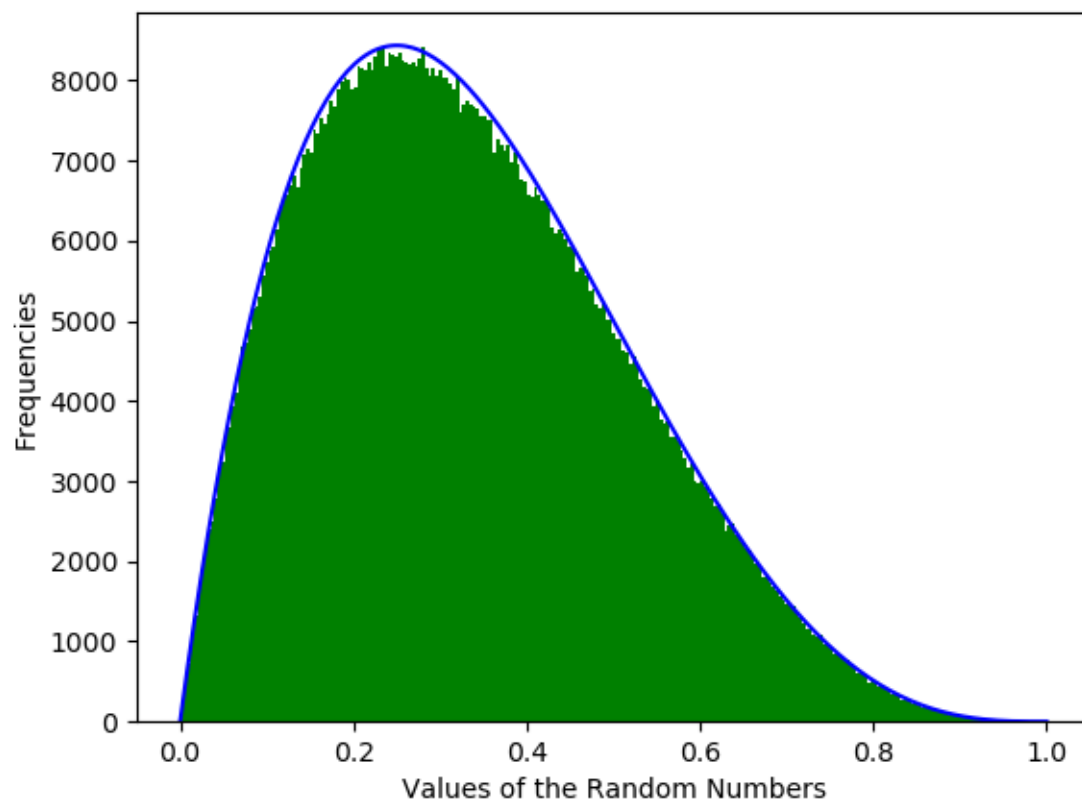
Q.2)

-> I have taken the values of c as 135/64, 15,36.

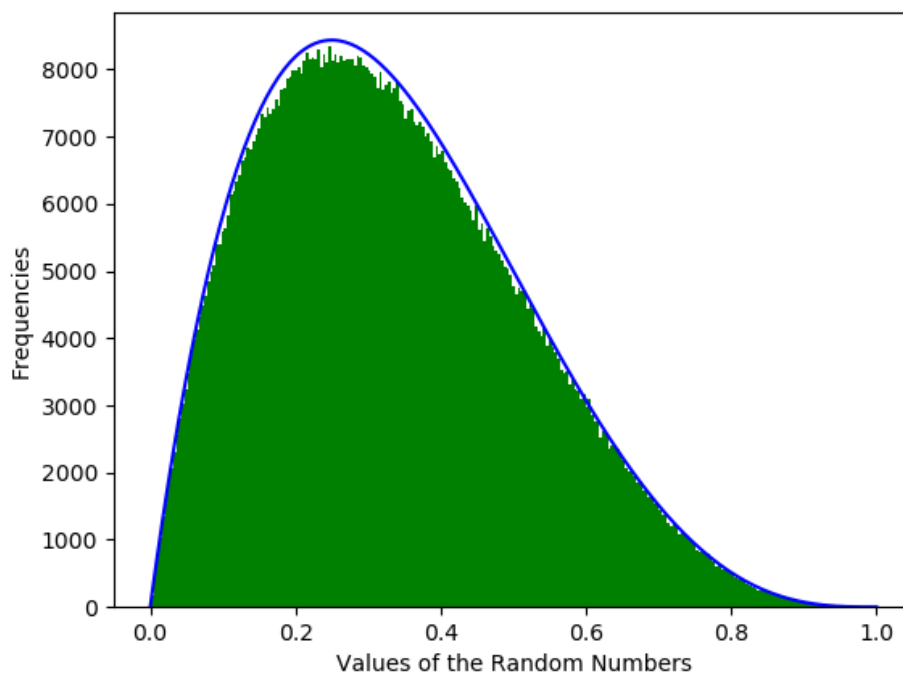
```
naman@naman-Inspiron-3576: ~/Desk...
naman@naman-Inspiron-3576:~/Desktop/IITG_SEMS/MonteCarloSimulation/Lab3$ python3 180123029_NamanGoyal_q2.py
Average count of iterations for 2.109375 = 2.10737
Average count of iterations for 15 = 15.000923
Average count of iterations for 36 = 35.9958
naman@naman-Inspiron-3576:~/Desktop/IITG_SEMS/MonteCarloSimulation/Lab3$ |
```



This is for $c=135/64$



This is for $c = 15$



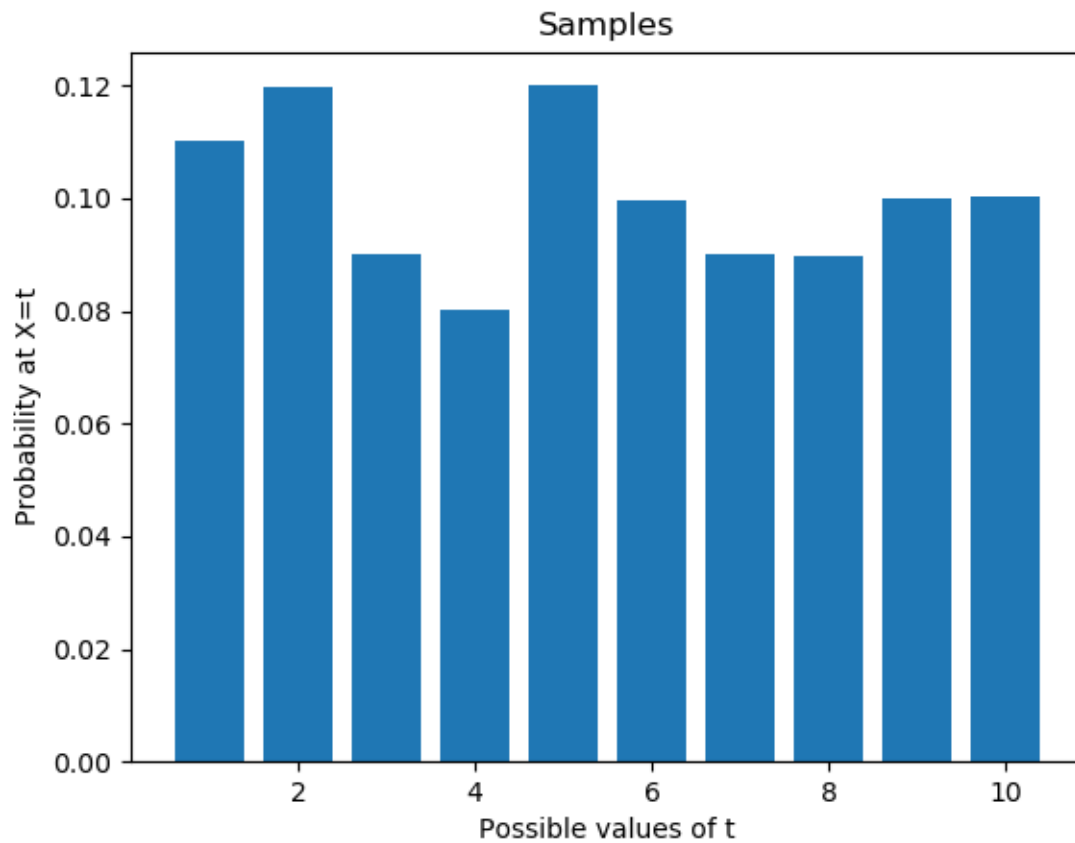
This is for $c = 36$

The smallest value of c which satisfy the inequality is $135/64$.

From above 3 graphs we can say that the curve comes out to be similar for the different values of c 's. Hence, frequency is not dependent on the values of c . The average counts is been shown the first figure itself.

Q.3)

```
naman@naman-Inspiron-3576: ~/Desk...
naman@naman-Inspiron-3576:~/Desktop/IITG_SEM5/MonteCarloSimulation/Lab3$ python3
180123029_NamanGoyal_q3.py
max|P(X=t) - f(t)| = 0.0005669999999999981
avg iterations = 1.400649
naman@naman-Inspiron-3576:~/Desktop/IITG_SEM5/MonteCarloSimulation/Lab3$ |
```



We have values of Probability $X=t$ for various t 's.

Mean of iterations is 1.400649 which is very close to 1.4 that is our chosen value of c .

We can conclude that mean of the number of iterations required is very close to the chosen value of c .