

## Practical – 7

**Aim:** Implement a menu driven program to generate random numbers using: a) Nominal distribution b) Exponential distribution.

### Program:

```
#include <bits/stdc++.h>
using namespace std;
void normal()
{
    int i, j, m, nn;
    float t, sum, x, mue, sigma;

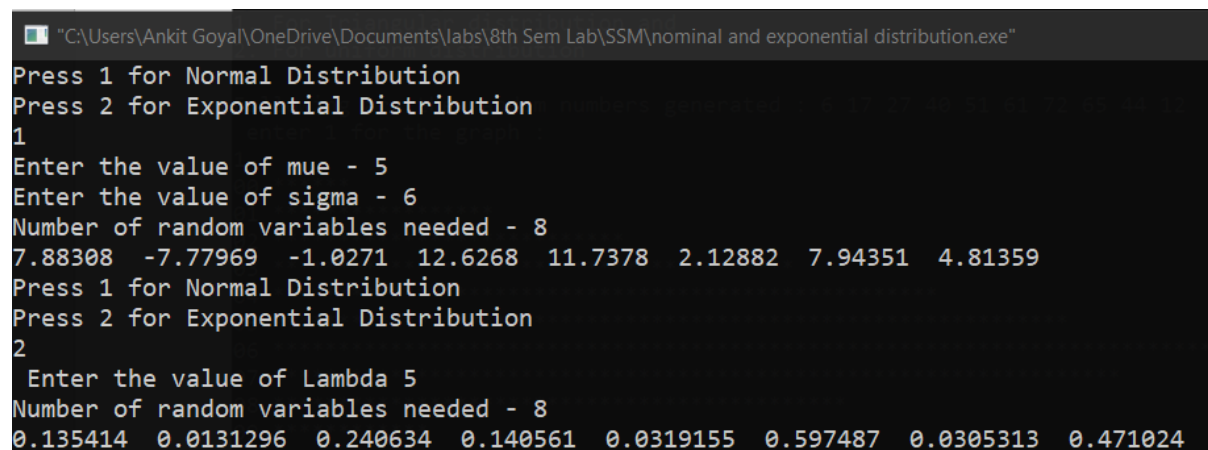
    cout << "Enter the value of mue - ";
    cin >> mue;
    cout << "Enter the value of sigma - ";
    cin >> sigma;
    cout << "Number of random variables needed - ";
    cin >> nn;

    for (m = 1; m <= nn; m++)
    {
        sum = 0;
        for (i = 1; i <= 12; i++)
        {
            x = float(rand()) / float(RAND_MAX);
            sum = sum + x;
        }
        t = mue + sigma * (sum - 6.);
        cout << t << " ";
    }
}
void expo()
{
    int i, j, k, m, nn;
    double lambda;
    cout << " Enter the value of Lambda ";
    cin >> lambda;
    cout << "Number of random variables needed - ";
    cin >> nn;
    for (m = 1; m <= nn; m++)
    {
        double u = float(rand()) / float(RAND_MAX);
        double x = log(1 - u) / (-lambda);
        cout << x << " ";
    }
}
int main()
{
```

```
int c;
while (true)
{
    cout << "Press 1 for Normal Distribution " << endl;
    cout << "Press 2 for Exponential Distribution " << endl;
    cin >> c;

    if (c == 1)
        normal();
    else
        expo();
    cout << endl;
}
return 0;
}
```

## Output:



The screenshot shows a Windows command prompt window with the title bar: "C:\Users\Ankit Goyal\OneDrive\Documents\labs\8th Sem Lab\SSM\nominal and exponential distribution.exe". The program's output is as follows:

```
Press 1 for Normal Distribution
Press 2 for Exponential Distribution
1
Enter the value of mue - 5
Enter the value of sigma - 6
Number of random variables needed - 8
7.88308 -7.77969 -1.0271 12.6268 11.7378 2.12882 7.94351 4.81359
Press 1 for Normal Distribution
Press 2 for Exponential Distribution
2
Enter the value of Lambda 5
Number of random variables needed - 8
0.135414 0.0131296 0.240634 0.140561 0.0319155 0.597487 0.0305313 0.471024
```