

```

1  Program box_muller_method
2      real::mean,std,r1,r2
3      integer::i,n
4      write(*,*)"Enter The Number of Samples:"
5      read(*,*)n
6      write(*,*)"Enter The mean of Distribution:"
7      read(*,*)mean
8      write(*,*)"Enter The Std. Deviation of Distribution:"
9      read(*,*)std
10     open(1,file = "result.dat",status="unknown")
11
12
13     do i = 1,n
14         call random_number(r1)
15         call random_number(r2)
16         R = sqrt(-2*log(r1))
17         theta = 2*(4*atan(1.0))*r2
18         x = mean + (R*cos(theta))*std
19         y = mean + (R*sin(theta))*std
20         write(1,*) x
21     enddo
22
23 end Program

```