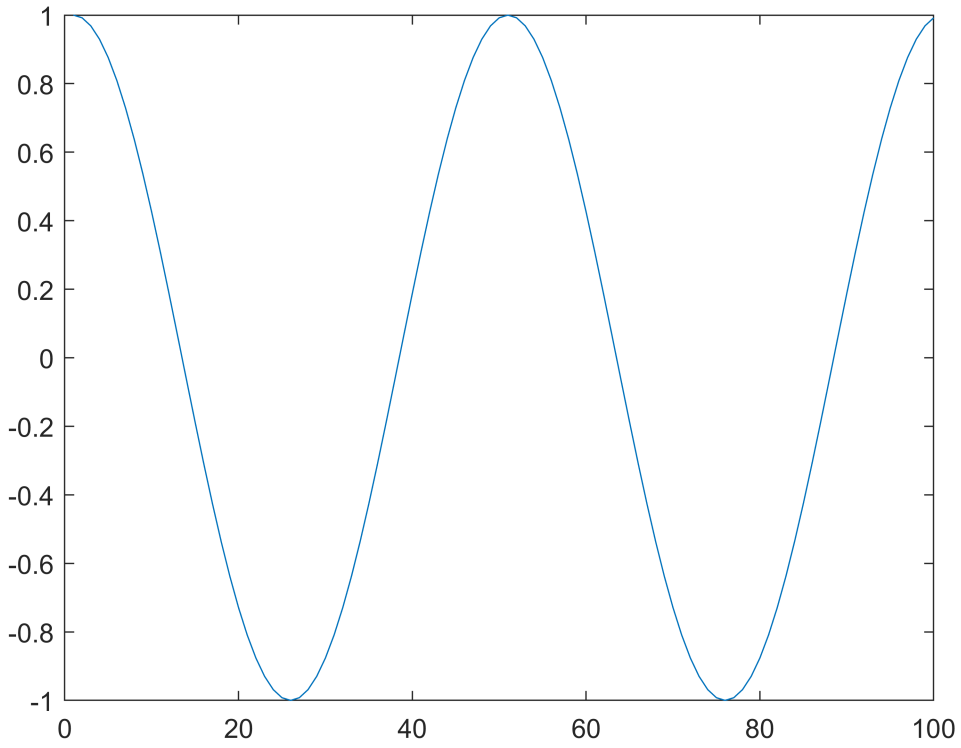
ejemplo 1:

```
% Deterministic Discrete Sinusoidal Wave with Vpp=2 and offset=0
n = 0:1e3;  A=1; f0=1/50; wo= 2*pi*f0;
xn = A*cos(wo*n); % Original signal, a sine wave

plot(xn(1:100))
```




```
mean(xn)
```

```
ans = 9.9900e-04
```

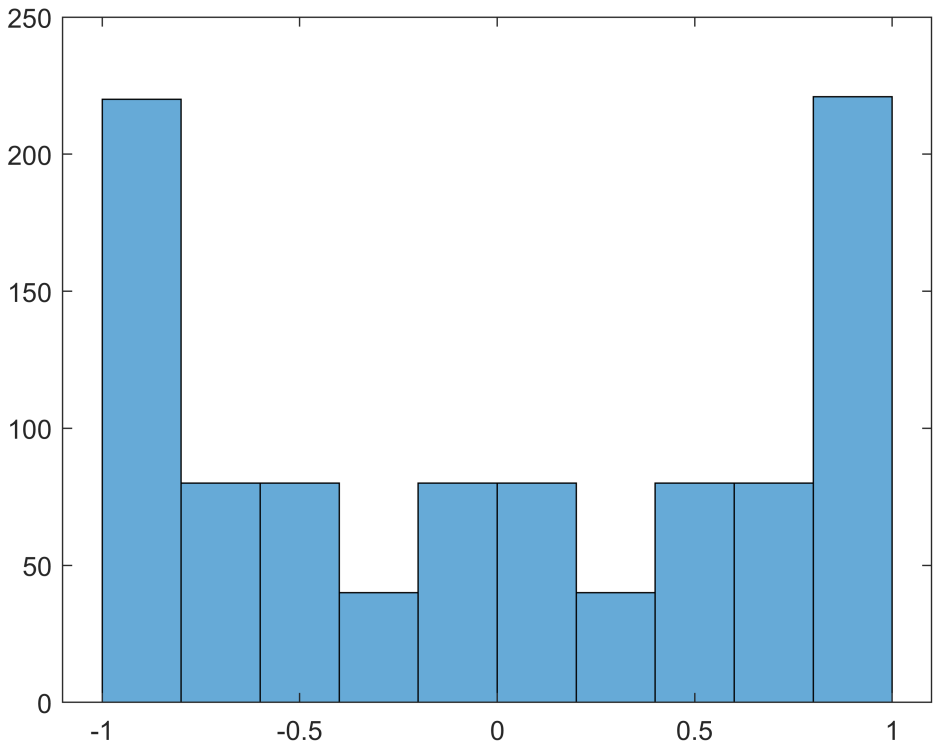
```
var(xn)
```

```
ans = 0.5010
```

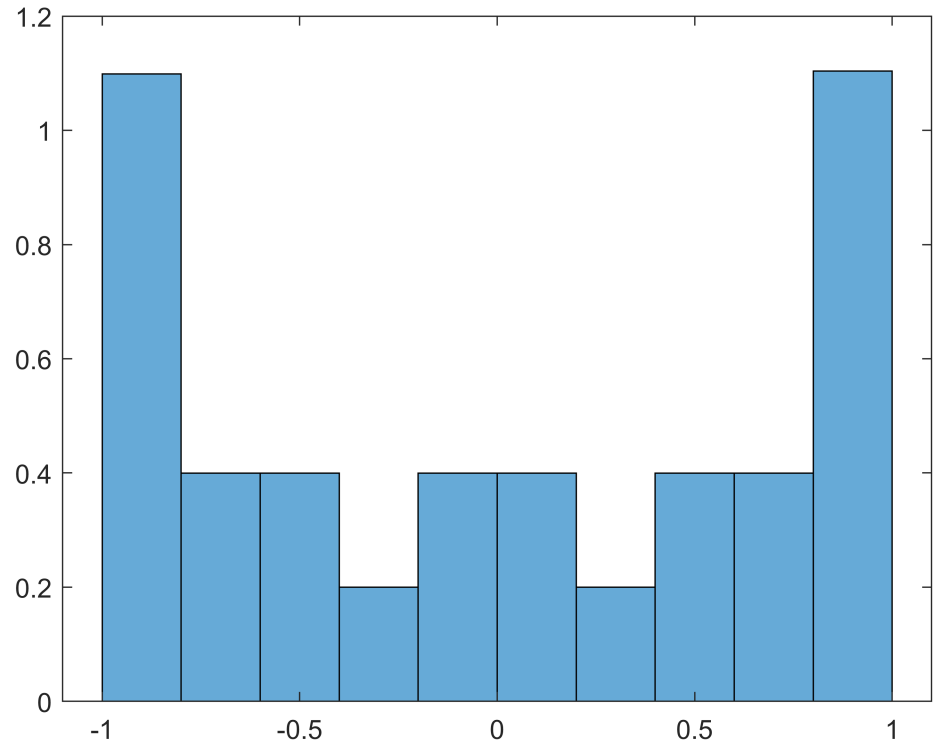
```
RMS = sqrt(var(xn))
```

```
RMS = 0.7078
```

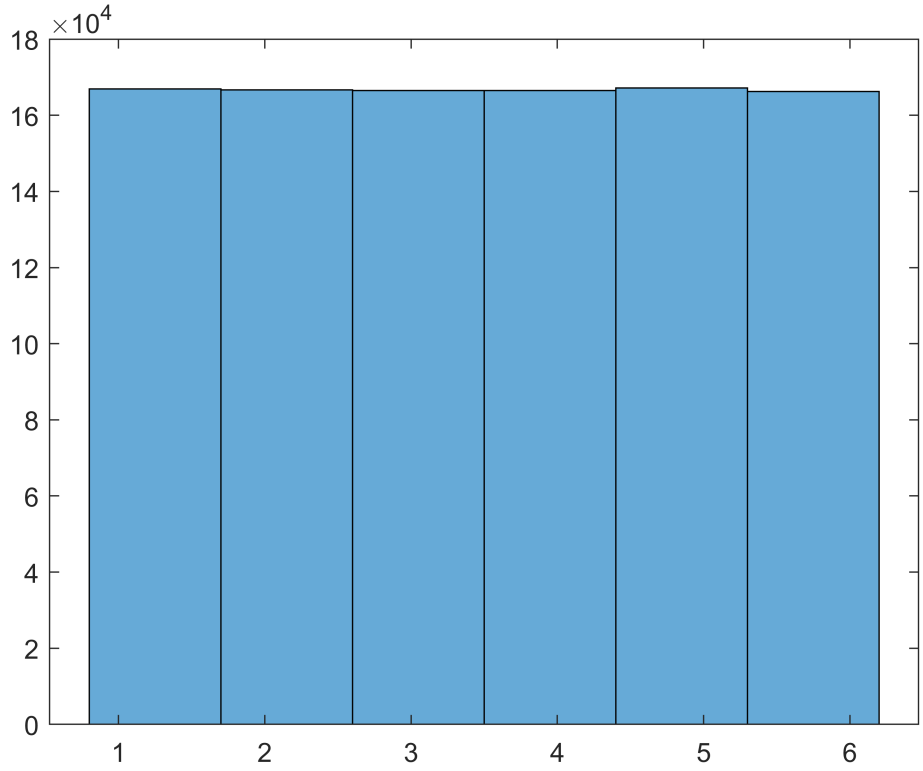
```
histogram(xn,10)
```




```
histogram(xn,'Normalization','pdf');
```



```
% Discrete Random variable (RV) with uniform Probability Mass Function (PMF)
xD=randi([1 6], 1,1e6);
histogram(xD,6)
```




```
mean(xD)
```

```
ans = 3.4992
```

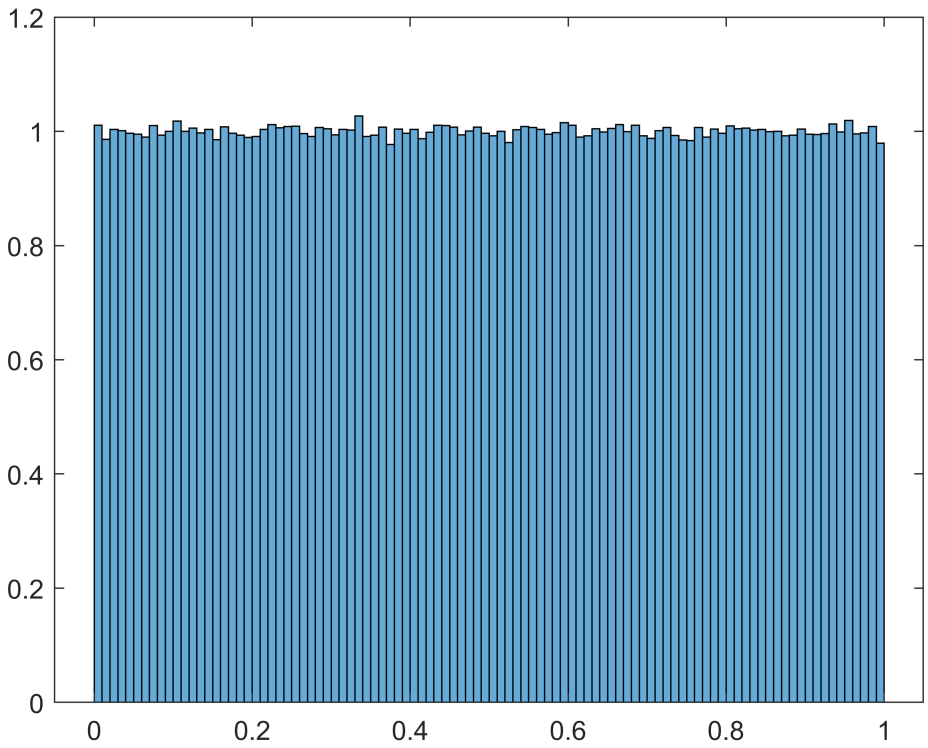
```
var(xD)
```

```
ans = 2.9166
```

```
potencia = sum(xD.^2/numel(xD))
```

```
potencia = 15.1610
```

```
% Continuous RV with uniform Probability Density Function (PDF)
xU=rand(1,1e6);
histogram(xU,'Normalization','pdf'); % plots an estimate of the PDF for X
```




```
mean(xU)
```

```
ans = 0.4999
```

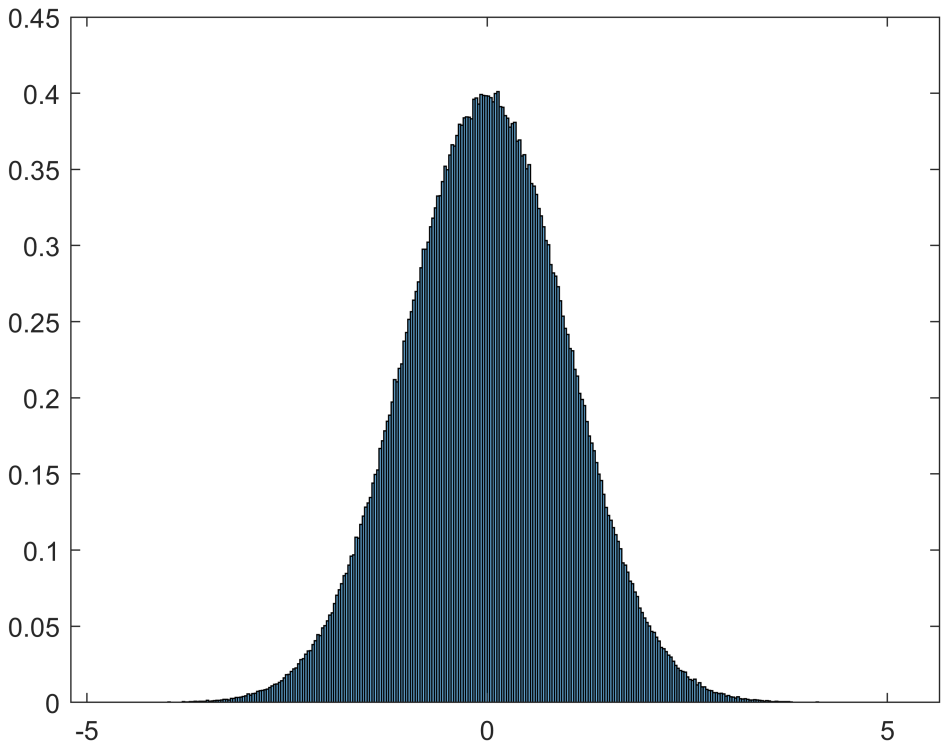
```
var(xU)
```

```
ans = 0.0833
```

```

```

```
% Continuous RV with Gaussian Probability Density Function (PDF)
xG=randn(1,1e6);
histogram(xG,'Normalization','pdf');
```



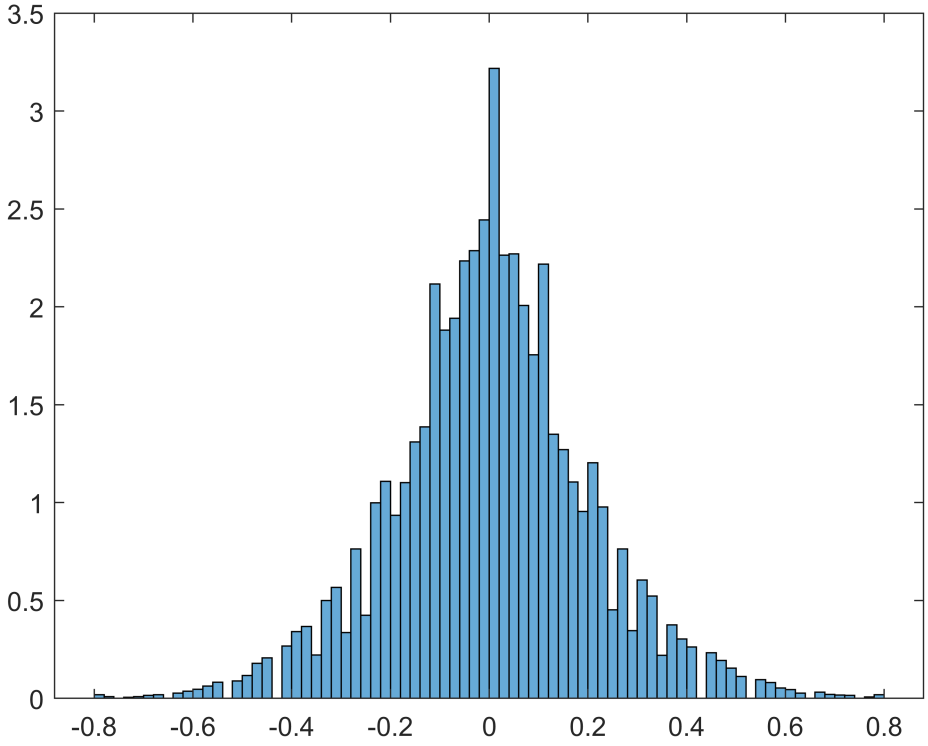

```
mean(xG)
```

```
ans = -0.0017
```

```
var(xG)
```

```
ans = 0.9989
```

```
%Audio Signal
load handel.mat
histogram(y,'Normalization','pdf');
```


3.5
3
2.5
2
1.5
1
0.5
0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8