Distribución Uniforme

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Distribución Uniforme

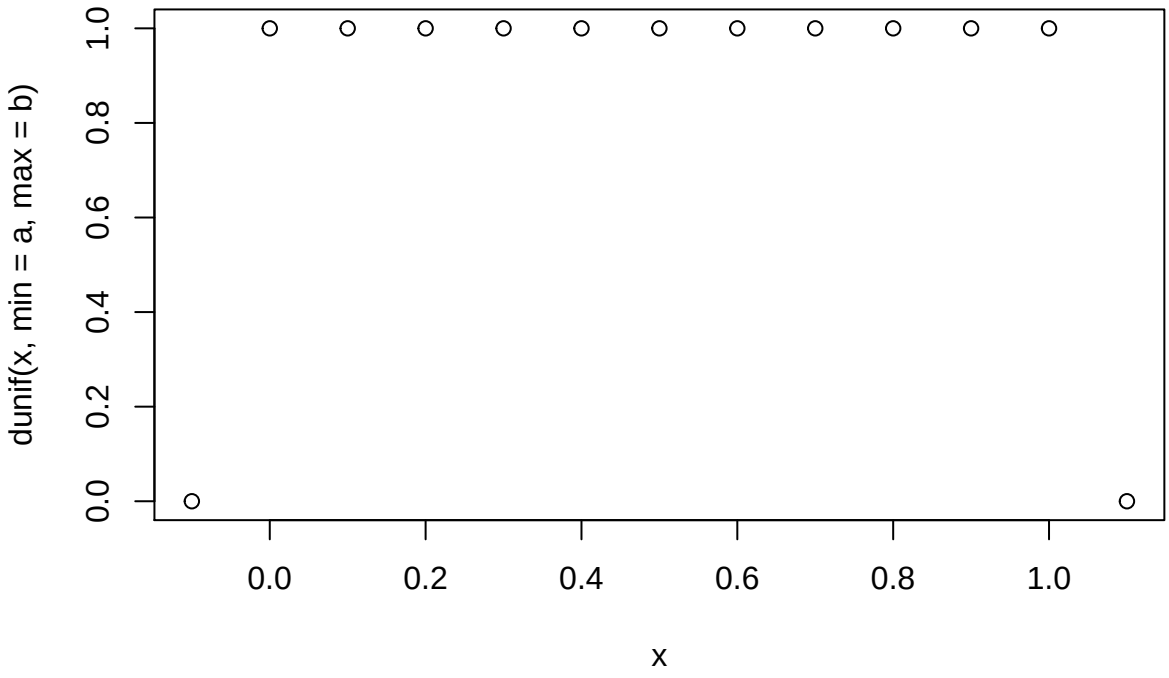
Supongamos que $X \sim U([0,1])$ entonces podemos estudiar sus parámetros

En R

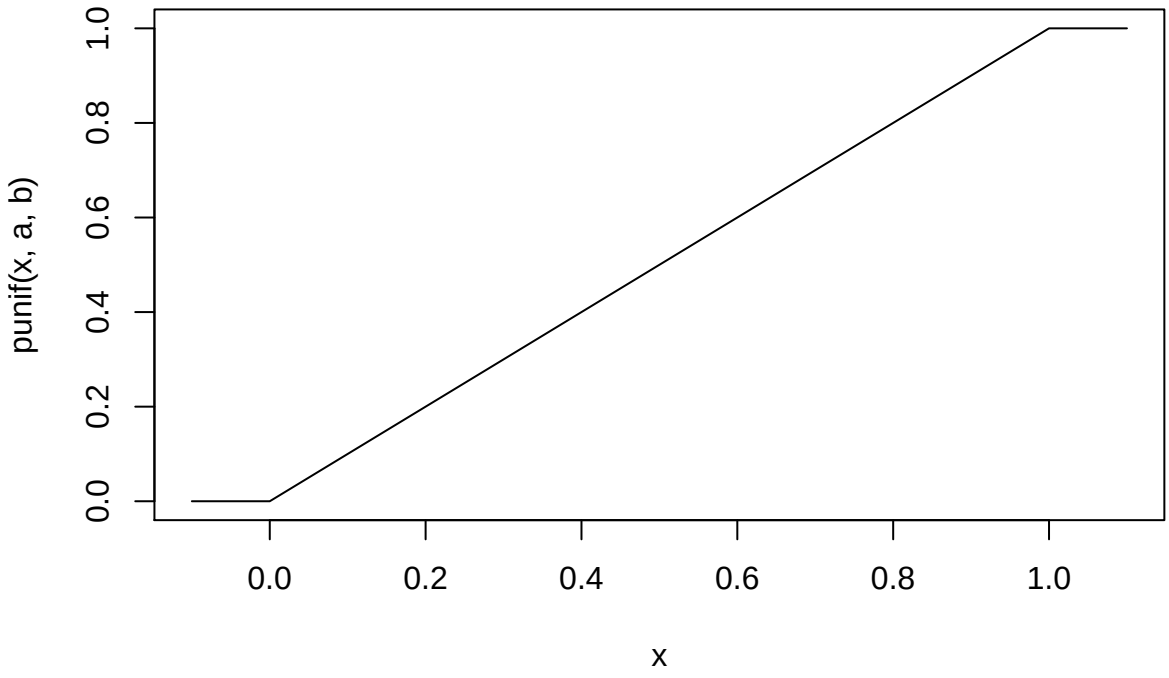
```
a = 0 # minimo
b = 1 # maximo

dunif(0.3, min = a, max = b) # Funcion de densidad
```

```
## [1] 1
```

```
x = seq(-0.1, 1.1, 0.1)
plot(x, dunif(x, min = a, max = b))
```



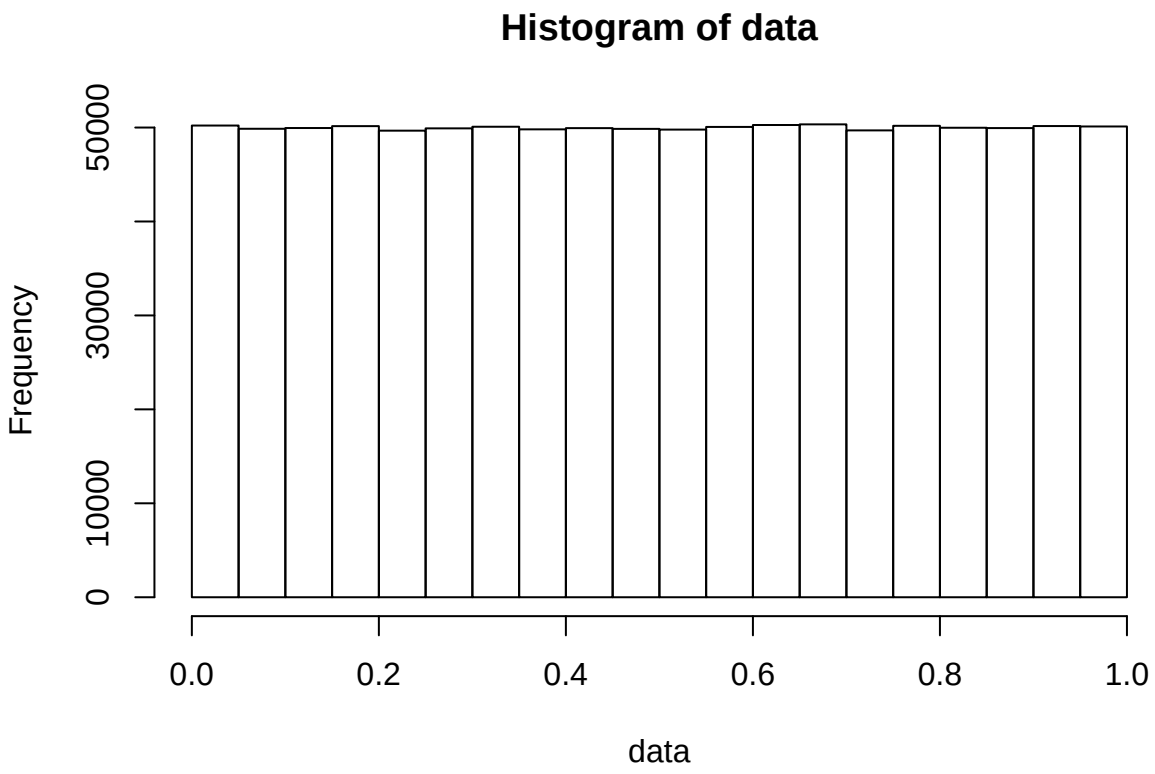

```
plot(x, punif(x, a, b), type = "l") # Funcion de distribución (type='l' dibuja continua)
```




```
qunif(0.5, a, b)
```

```
## [1] 0.5
```

```
runif(1000000, a, b) -> data
hist(data)
```



En Python

```
from scipy.stats import uniform
import matplotlib.pyplot as plt
import numpy as np

a = 0 # Loc
b = 1 # scale

loc = a
scale = b-a

fig, ax = plt.subplots(1,1)

rv = uniform(loc = loc, scale = scale)

mean, var, skew, kurt = rv.stats(moments = 'mvsk')
print("Media %f"%mean)
```

```
## Media 0.500000
```

```
print("Varianza %f"%var)
```

```
## Varianza 0.083333
```

```
print("Sesgo %f"%skew)
```

```
## Sesgo 0.000000
```

```
print("Curtosis %f"%kurt)
```

```
## Curtosis -1.200000
```

```
x = np.linspace(-0.1, 1.1, 120)
ax.plot(x, rv.pdf(x), 'k-', lw = 2, label = "U(0,1)")

r = rv.rvs(size = 100000)
ax.hist(r, density = True, histtype = "stepfilled", alpha = 0.25)
```

```
## (array([0.99530978, 0.99990983, 0.99800981, 1.00870992, 1.00290986,
##         0.98870972, 1.00550988, 0.99870982, 1.0067099 , 0.99560979]), array([3.01316224e-06, 1.000020
##         3.99999081e-01, 4.99998098e-01, 5.99997115e-01, 6.99996132e-01,
##         7.99995149e-01, 8.99994166e-01, 9.99993183e-01]), <a list of 1 Patch objects>)
```

```
ax.legend(loc = 'best', frameon = False)
plt.show()
```