

1. Min-Max

```
function min_max(A)
    n=length(A);
    max=A(1);
    min=A(1);
    for i=2:n
        if A(i)>max
            max=A(i);
        end
        if A(i)<min
            min=A(i);
        end
    end
    fprintf('Max: %d\nMin: %d\n',max,min);
end
```

Result:

```
>> min_max([-21, -4, -742, -1556, -77, -367, -63])
Max: -4
Min: -1556
```

2. Fibonacci

```
a=0;
b=1;
fprintf('%d ',a);
while b<2000
    temp=a;
    a=b;
    b=b+temp;
    fprintf('%d ',a)
end
fprintf('\n');
```

Result:

```
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597
```

3. Gaussian

```
clc;
clear;
n=1e5;
r1=rand(1,n);
r2=rand(1,n);
r=sin(2*pi*r2).*(-2*log(r1)).^0.5;
```

```
d=0.25; %bin size
k=30; % Number of bins
```

```
bin=zeros(1,k+1);
```

```
for j=1:n
    for i=1:k+1
        if r(j)>(i-k/2)*d && r(j)<(i-k/2+1)*d
            bin(i)=bin(i)+1;
        end
    end
end
```

```
end
```

```
hold on
```

```
scatter(-d*k/2:d*k/2, bin)
```

```
%Generating Histogram without using histogram function
```

```
bin2=zeros(1,10*k+1);
```

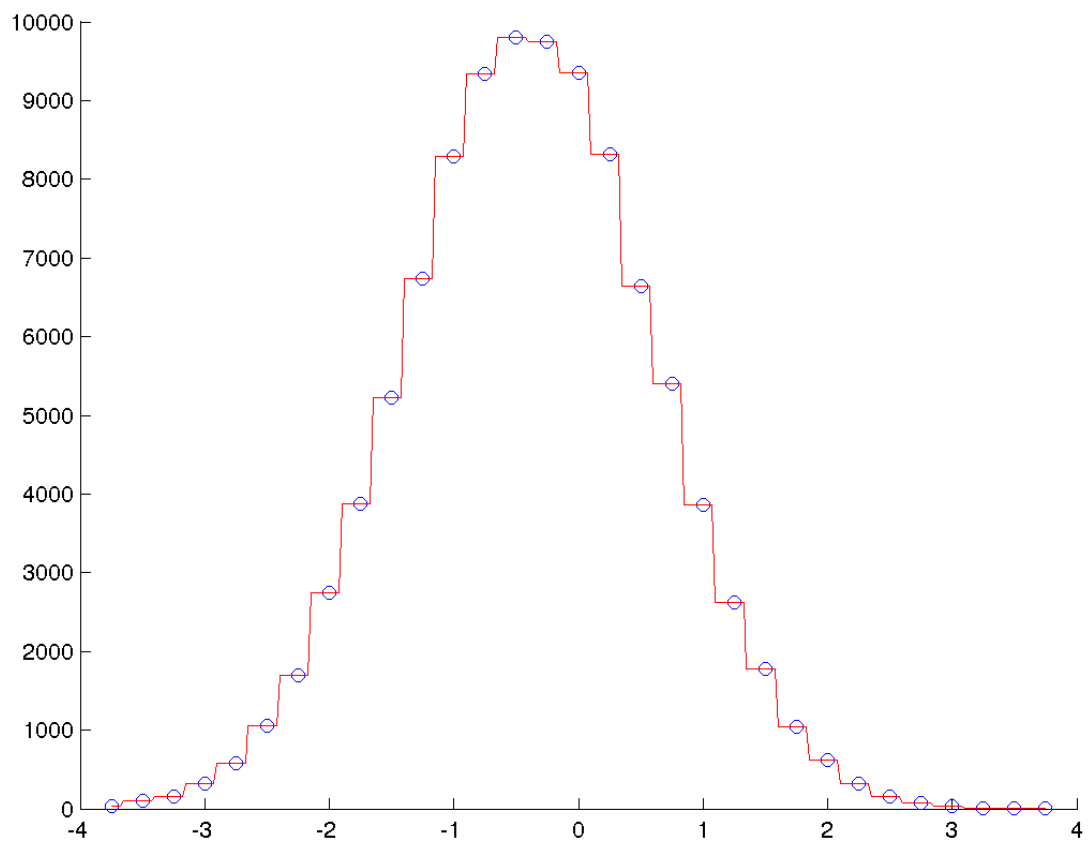
```
for i=1:10*k+1
```

```
    bin2(i)=bin(int8(i/10)+1);
```

```
end
```

```
plot (-d*k/2:d/10:d*k/2,bin2,'r')
```

Result: binsize = 0.25



Result: binsize = 0.1

