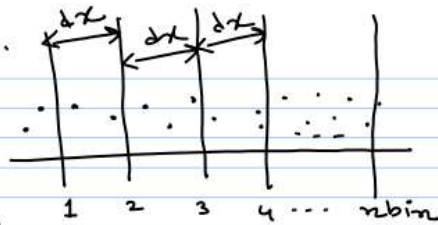


Histogram param

$$x = \{x_1, x_2, \dots, x_N\}$$



$$dx = \frac{x_{\max} - x_{\min}}{nbin}$$

$N, x_{\max}, x_{\min}, nbin, dx$
 $nbin \sim \sqrt{N}$
 if N is not a perfect sq
 $\sqrt{N} \rightarrow$ nearest integer value

$$nbin \sim \sqrt{N}$$

x_1
 x_2
 x_2
 x_3
 \vdots
 x_N
 \downarrow
 $x(i)$
 $i=1, \dots, N$
 $N = \text{total no. of data pts}$

$$x_{\min} = \min\{x_1, \dots, x_N\}$$

$$x_{\max} = \max\{x_1, \dots, x_N\}$$

$nbin = \# \text{ of bin}$

$$x(i) = x_{\min}$$

do $i = 2, N$

if $(x(i) < x_{\min})$ $x_{\min} = x(i)$

end do

$x_{\min} \leftarrow$ ✓

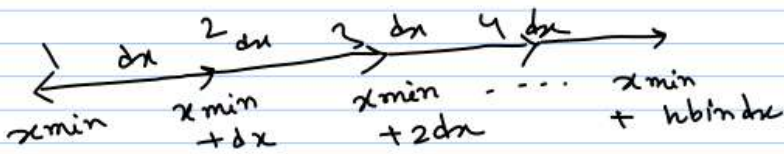
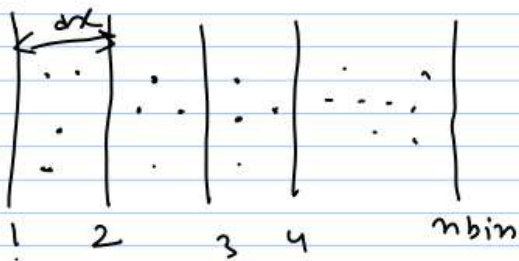
$$x(i) = x_{\max}$$

do $i = 2, N$

if $(x(i) > x_{\max})$ $x_{\max} = x(i)$

end do

$x_{\max} \leftarrow$ ✓



x_1
 x_2
 \vdots
 x_N

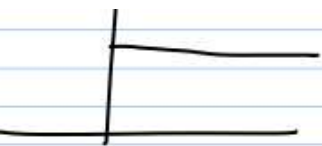
P.D.F

$\leftarrow \text{hist}(\text{nbin}) = \underline{0.0}$
 do $i = 1, \text{nbin}$
 do $j = 1, N$ ✓
 if $\left[x(j) < x_{\min} + i \cdot dx \text{ and } x(j) \geq x_{\min} + (i-1) \cdot dx \right]$
 $\text{hist}(i) = \text{hist}(i) + 1$

endif
 enddo
 enddo

Sum = 0.0

do $i = 1, \text{nbin}$
 Sum = Sum + hist(i)
 enddo
 $\text{hist}(i) = \frac{\text{hist}(i)}{\text{Sum}}$



...

Code //



do $i = 1, n_{bin}$

write(13,*)

end do

$x_{min} + i \cdot dx$, hist(i)

$x_{min} + n_{bin}(dx)$
 $= x_{max}$