## You try it

Random variables $Y_1, Y_2, \dots, Y_n$ are iid $U(0,1)$ random variables. Find the distribution of $Y_{(1)} = \min(Y_1, Y_2, \dots, Y_n)$. Does it have a "named" distribution?

pdf of $Y_{(1)}$ is $n(1-F(y))^{n-1} f(y)$

$f(y) = 1 \quad 0 < y < 1 \quad (0 \text{ o.w.})$

$F(y) = \int_0^y 1 \, dt = t \Big|_0^y = y$

$$F(y) = \begin{cases} 0 & y \le 0 \\ y & 0 < y \le 1 \\ 1 & y > 1 \end{cases}$$

pdf of $Y_{(1)}$ is $n(1-y)^{n-1}, \quad 0 < y < 1$

beta pdf $y^{\alpha-1}(1-y)^{\beta-1} \times \text{constant}$

$\alpha = 1, \quad \beta = n$

beta $(1, n)$