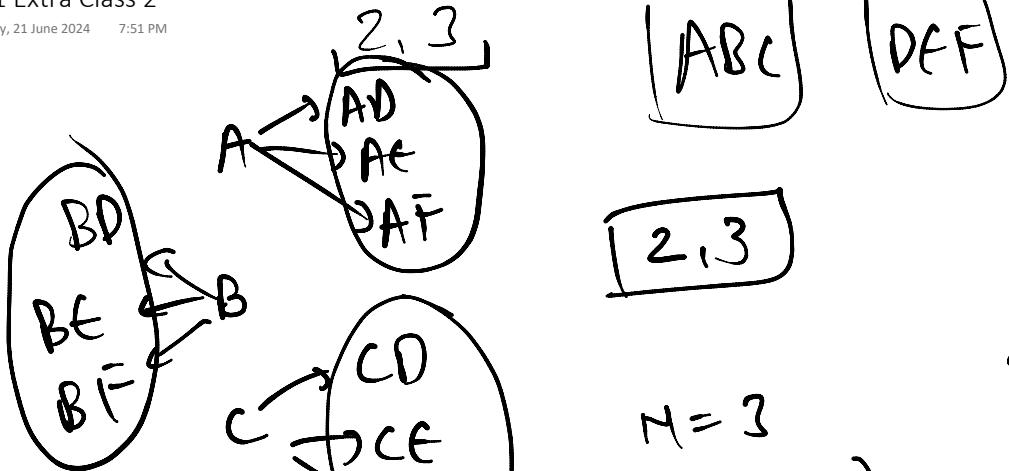
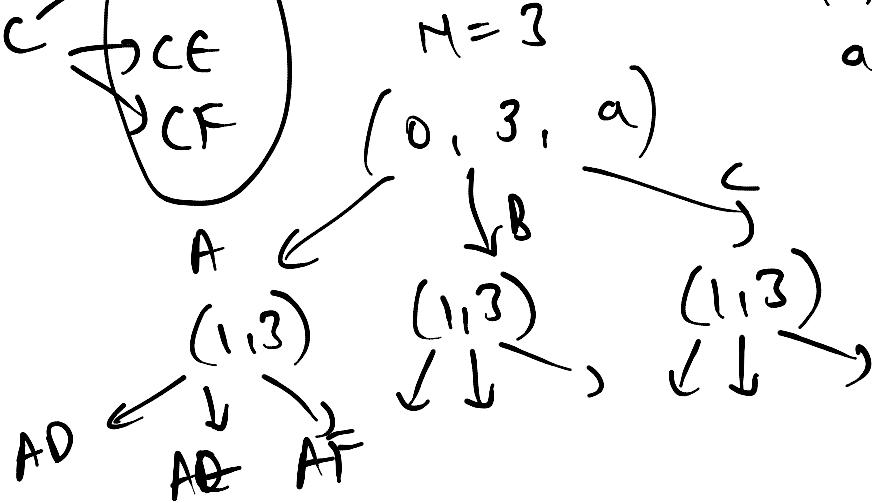


#### 4.1 Extra Class 2

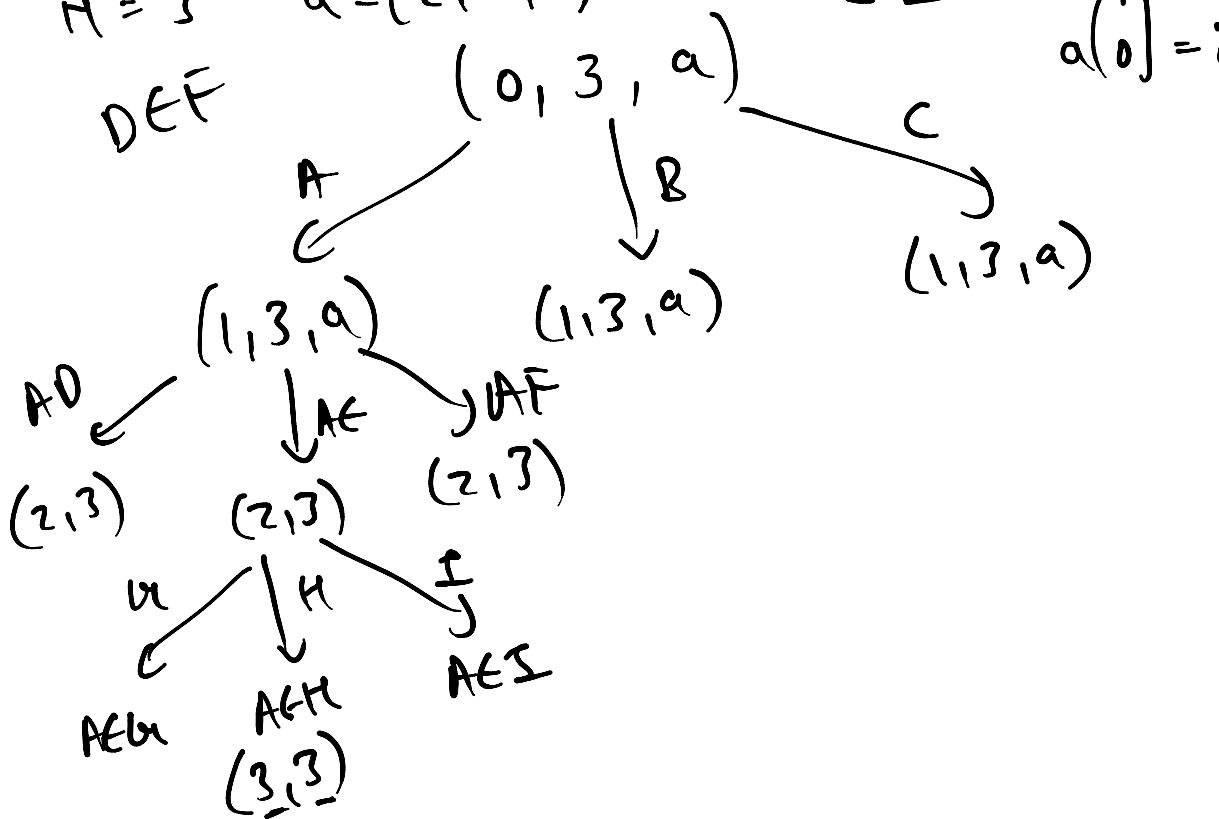
Friday, 21 June 2024 7:51 PM



$$\begin{aligned} a(0) &= 2 \\ a(1) &= 3 \end{aligned}$$



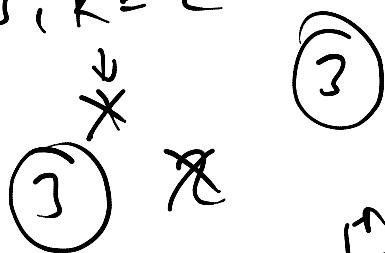
$$n = 3 \quad a = (2, 3, 4) \quad 2, 3, 4$$



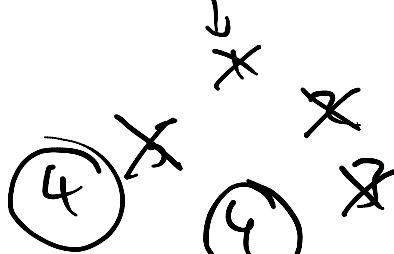
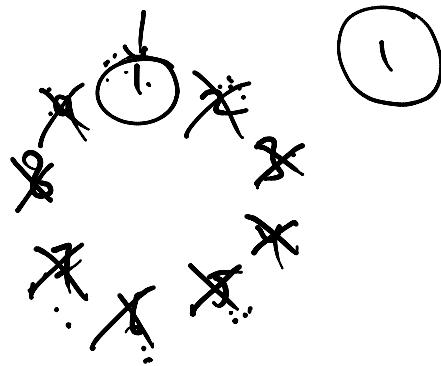
# Josephus Problem:-

$$n = 9, k = 4$$

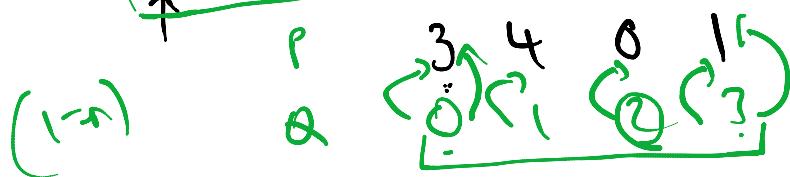
$$n = 3, k = 2$$



$$\boxed{n = 5, k = 3}$$



$$\rightarrow \boxed{0, 1, 2, 3, 4} \quad (k=3)$$

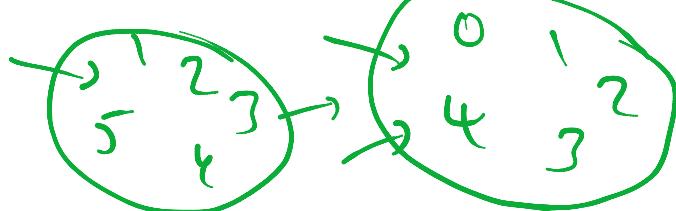
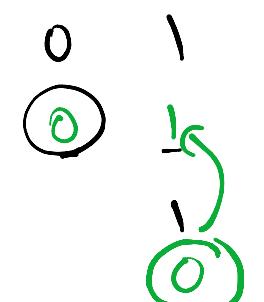


$$P = (a+k)^0 / n!$$

if ( $n == 1$ )  
return 1;

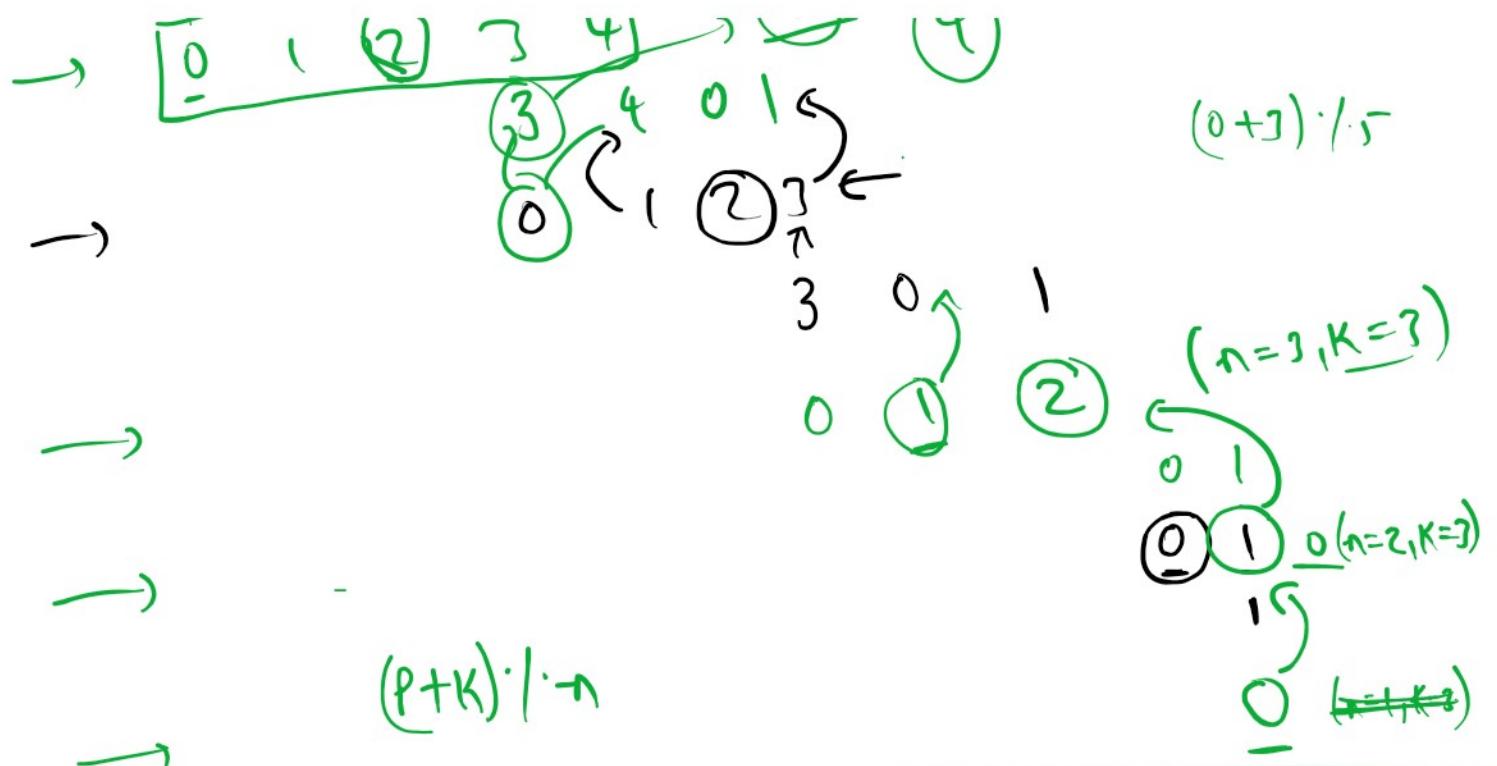
else {  
return  $f(n-1, k) + (1+a+n-1) / (n+1)$

$$\boxed{n = 5, k = 3}$$

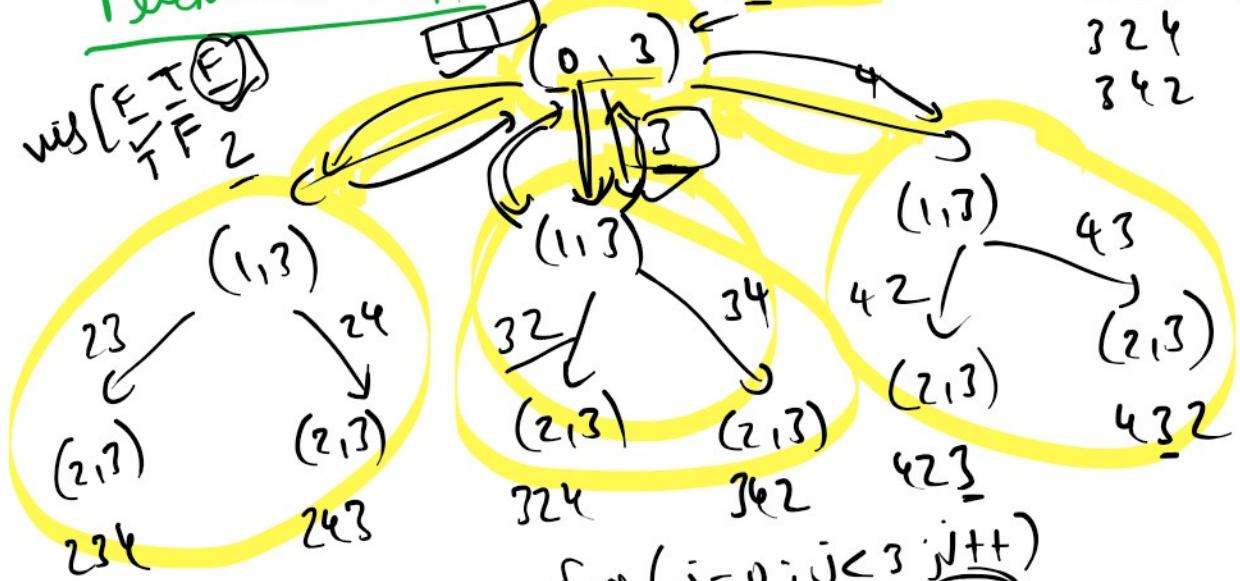


$$\rightarrow \boxed{0, 1, 2, 3, 4}$$

.....

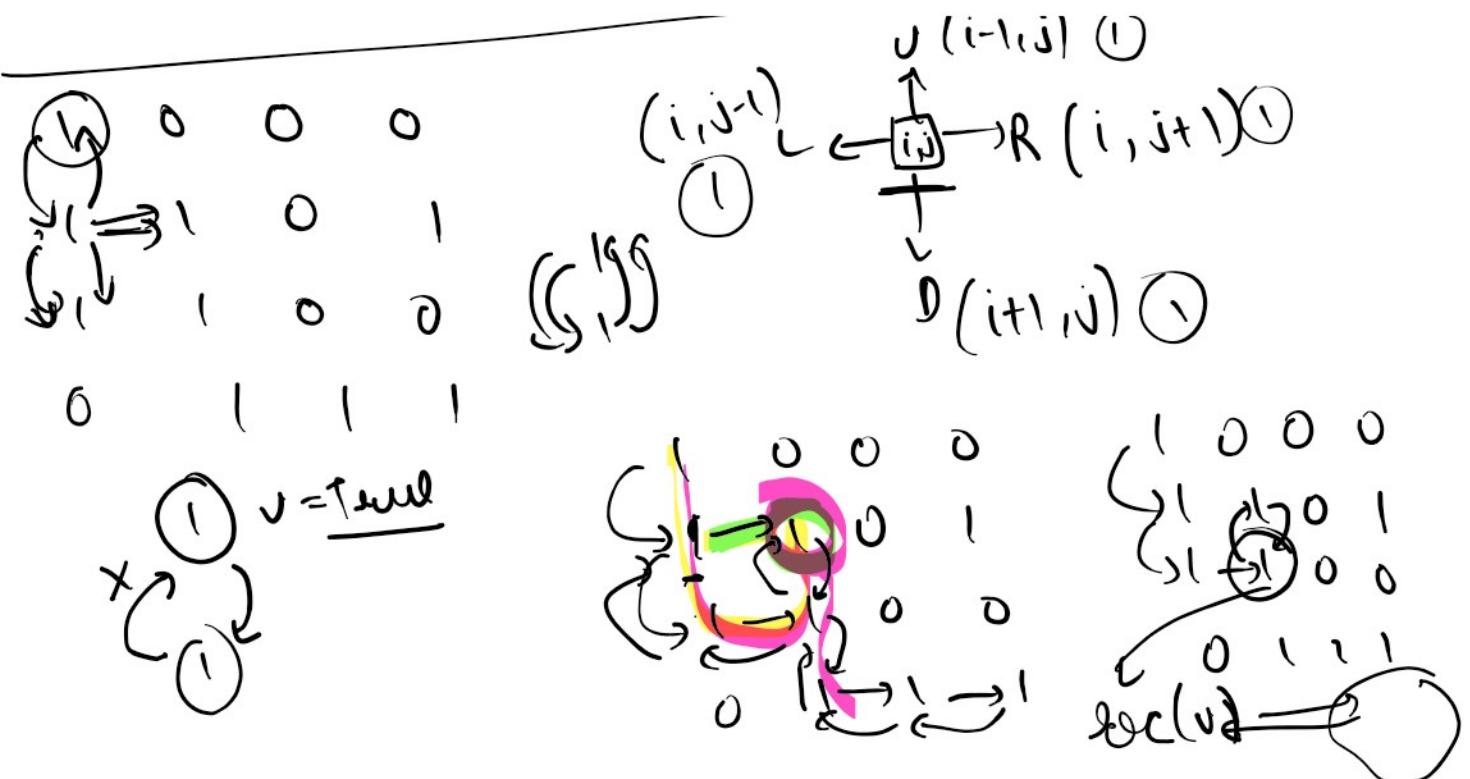


Permutation :-



$\left\{ \begin{array}{l} \text{for } (j=0; j < 3; j++) \\ \quad \text{if } \text{taken}[j] = \text{False} \\ \quad \quad \text{permutation} \\ \quad \quad \quad \text{taken}[j] = \text{True}; \end{array} \right.$

3
   
 $\uparrow (i-1, j) \quad ①$



$$\begin{array}{c}
 \text{S}^{\circ} \\
 \text{P} = 10 \\
 \text{r} = 5
 \end{array}
 \xrightarrow{\quad}
 \begin{array}{c}
 2^3 + 2^1 \\
 8 \\
 2 \\
 \hline
 10
 \end{array}
 \xrightarrow{\quad}
 \begin{array}{cccccc}
 2 & 2 & 2 & 2 & 2 & 2 \\
 | & | & | & | & | & | \\
 1 & 0 & 1 & 0 & 1 & 0 \\
 \downarrow & \uparrow & \downarrow & \uparrow & \downarrow & \downarrow
 \end{array}$$

$$\begin{array}{r}
 2^2 5^2 2^2 5^2 2^2 5^2 \\
 \times 2^2 5^2 2^2 5^2 2^2 5^2 \\
 \hline
 2^{12} 5^{12} 
 \end{array}$$

$\circled{10}$   $5^8 5^0 5^2 5^0$   
 $= \underline{\underline{5^{10}}}$

$$\begin{array}{r}
 10^1 \\
 -1 \\
 \hline
 0
 \end{array}$$

$n=5^x$   
 $m=5^y$

$$\begin{array}{r}
 5^1 \\
 5^0 \\
 \hline
 5^0
 \end{array}$$