

$$T(m,n) = O(m\log n)$$

$$= O(m\log n) = C * M\log n$$

$$= O(n\log n) = C * M\log n$$

$$= C * K\log \frac{n}{2} + C(m-k)\log \frac{n}{2} = C * m\log n$$

$$= C * m(\log n - \log 2) + a * m = C * m\log n$$

$$= 1$$

$$\Rightarrow C * m \log n - C * m + \alpha * m \leq C * m \log n$$

$$\Rightarrow -C * m + \alpha * m \leq 0$$

$$\Rightarrow C * mlog n - C * m + \alpha * m \leq C * mlog n$$

$$\Rightarrow -C * m + \alpha * m \leq O$$

$$\Rightarrow \boxed{\alpha \leq C}$$

$$C = xi + s ?$$

$$Q_n = 6 Q_{n-2} - Q_{n-1}$$

$$= 6 Q_{n-2} \times^n - 6 Q_{n-2} \times^n$$

$$\Rightarrow a_n x^n = 6a_{n-2} x^n - a_{n-1} x^n$$

$$\Leftrightarrow a_n x^n = 6a_{n-2} x^n - a_{n-1} x^n$$

$$\sum_{n=2}^{\infty} a_n = \sum_{n=2}^{\infty} 6a_{n-2} x^n - \sum_{n=2}^{\infty} a_{n-1} x^n$$

$$G(x) = \sum_{n=0}^{\infty} a_n x^n$$

$$\sum_{n=0}^{\infty} \sum_{n=2}^{\infty} G(x) = \sum_{n=2}^{\infty} a_n x^n$$

$$\sum_{n=2}^{\infty} a_n x^n$$

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$$=\frac{3x}{-6x^2}$$

$$G(x) = \frac{3x+1}{-6x^2+x+1}$$

$$=\frac{3}{-6x}$$

$$=\frac{3\pi}{-6x^2}$$

$$=\frac{1}{-6x^2}$$

$$\int \frac{1}{-6x^2 + x + 1}$$

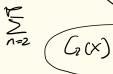
$$\int = \frac{1}{-2x + 1} = \sum_{n=0}^{\infty} a_n x^n$$

$$)=\frac{1}{-6x^{2}}$$

$$\frac{1}{(00)} \cdot G(x) - 2x - a_6 = 6x^2 \cdot G(x) - x \cdot G(x) + a_6x$$

 $=\frac{1}{1-2\chi}=\sum_{n=1}^{\infty}\alpha_n\chi^n$

$$\chi^2$$
.



$$G(x) =$$

$$\left| \begin{array}{c} A_{1} = 2 \\ \hline = \sum_{i=1}^{\infty} a_{i} x^{i} \end{array} \right|$$

$$\frac{1(i)}{1(i)} = \frac{1}{\sum a_n x^n}$$

 $\int T(n) = 3T(\frac{N}{3}) + a(\log n)^{3} N > 2$ T(n) = 6. $\int N \leq 2$ Master therm $Q \neq n^{\frac{1}{2}}$

Master therma (1)2
first rule of Mater theorem.

Diriole & Conque M(n,m)First, find the middle row j of matrix Linearly Scorn row j to find leftmost minimum element, x and corresponding index, K, the leftmost min element for all rows having index less than j can only be exist at position < k. Hence, we can recursively call the top-left part of M[i... (j-1), 1... k] [M[(j+1-..n, K...m)

Pseudo code: find Left most Minual (M): if n == 1, linear search for min value of return X else: $j = \frac{1}{2}$ linear search for row j of M, which is (X() k) $M_1 = M[[\cdots(j-1), 1\cdots k]]$ $M_2 = M[(j+1)...n, K...m]$ I, = findleftmost Min val (M,) Iz, find leftmost Min val (M2) return X, I,, I, (O(mlogh)