

- A rectangular arrangement of $m \cdot n$ numbers (real or complex) or expressions (real or complex valued), having m rows and n columns is called a matrix. ($m, n \in N$)

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & \cdots & a_{1n} \\ a_{21} & a_{22} & a_{23} & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & & \vdots \\ a_{m1} & a_{m2} & a_{m3} & \cdots & a_{mn} \end{bmatrix}$$

Diagram illustrating the structure of a matrix A with m rows and n columns. The elements are arranged in a grid. The first row is labeled $a_{11}, a_{12}, a_{13}, \dots, a_{1n}$. The second row is labeled $a_{21}, a_{22}, a_{23}, \dots, a_{2n}$. The third row is labeled $\vdots, \vdots, \vdots, \vdots$. The last row is labeled $a_{m1}, a_{m2}, a_{m3}, \dots, a_{mn}$. The columns are labeled $a_{11}, a_{21}, \vdots, a_{m1}$ for the first column, $a_{12}, a_{22}, \vdots, a_{m2}$ for the second column, $a_{13}, a_{23}, \vdots, a_{m3}$ for the third column, and $a_{1n}, a_{2n}, \vdots, a_{mn}$ for the n -th column. A bracket on the right side of the matrix is labeled "Rows". A bracket on the bottom side of the matrix is labeled "Columns".

- An element of a matrix is denoted by a_{ij} : Element of i^{th} row & j^{th} column.