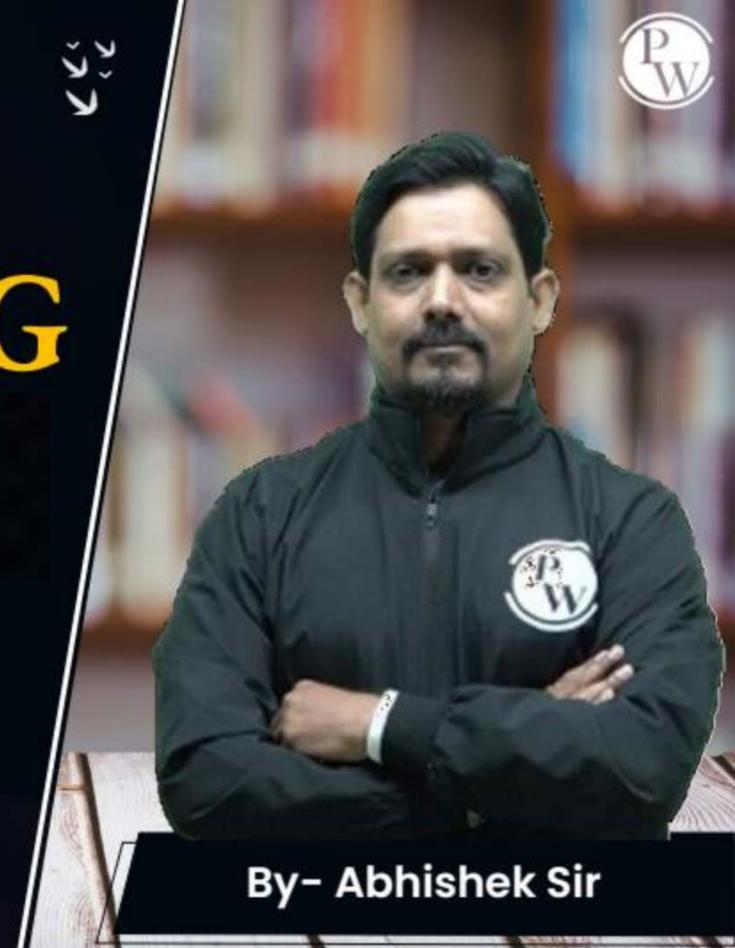
CS & IT ENGINEERING

Data Structure & Programming

Array

DPP.- 01

Discussion Notes





#Q. Consider a 1D array a with 9 elements. If the base address of the array is 108 and the size of each array element is 4 bytes, the address of a[7] is-_____ (Assume array index starts from 0)



#Q. Consider a 1D array a[-127......+255] where -127 and +255 are the starting index and ending index of the array respectively. The number of elements in the array is ______.

$$LB - uB 308 - LB + 1 255 - (-127) + 1 = 265 + 127 + 1 = 383$$



#Q. Consider a 1D array a with 19 elements. If the base address of the array is 108 and the size of each array element is 4 bytes, the address of a[7] is
(Assume array index starts from -11)_____

starts from -11) _____

$$A(7) = BA + (i - LB) \times S_{12}e^{-108} + (7 - (-11)) \times 4B$$
 $108 + 18 \times 4 = 108 + 72$
 180

0724



#Q. Consider a 2D array a[-127 to +255][-13 to +14]. The number of elements in the array is 0724. LB, UB, UB, UB,

No of element Rows:
$$255 - (-127) + 1$$
 383×28
 3064

6 No of element in column $14 - (-13) + 1 - (28)$
 366×6



#Q. Consider the natural numbers from 1 to 256 are stored in a 2D array arr[-28 to 3][-3 to 3]. Find the element present at location arr[-16][1]. (Suppose, the elements are stored in row-major order) 89

1 (Bare Adoloes)
$$A [-16][1]$$

 $1 + [(-16 - (-28)) \times (3 - (-3) + 1) + (1 - (-3))]_{\times 1}$
 $1 + [12 \times 7 + 4] \times (1) = (89)$



#Q. Consider the natural numbers from 1 to 256 are stored in a 2D array arr[-28 to 3][-3 to 3]. Find the address of the location arr[-16][1] if the starting address of the array is 625 and size of each element is 4 bytes. (Suppose, the elements are stored in row-major order)

$$625 + \left[(-16 - (-28)) \times (3 - (-3) + 1) + (1 - (-3)) \right] \times 4$$

$$625 + \left[(88) \times 4 = 625 + (625) + (625$$



#Q. Consider the whole numbers from 0 to 127 are stored in a 2D array arr[0 to 15][0 to 7]. Find the element present at location arr[6][4]. (Suppose, the elements are stored in column-major order) 70

$$0 + [(4-0) \times 16 + (6-0)] \times 1$$

$$0 + [64+6] = (70)$$



#Q. Consider a 2D array arr[-15 to 15][-7 to 7]. Find the address of the location arr[-1][5] if the starting address of the array is 500 and size of each element is 4 bytes. (Suppose, the elements are stored in column-major order) $\frac{2044}{2}$.

$$A_{\infty}$$
 [-1][5]
 $500 + [(5 - (-7)) \times (15 - (-15) + 1) + (-1 - (-15)) \times 4$
 $500 + [12 \times 31 + 14] \times 4$
 $500 + [372 + 14] \times 4 = (2044)$



THANK - YOU