

Start at (Row, Column): 1,2

Path: > > > v

Output: 2 3 4 5 0

Example Input 2:

Start at (Row, Column): 2,3

Path: v > > v < < ^ > > v v

Output: 8 3 4 5 0 9 8 3 4 5 0 5

Example Input 3:

Start at (row, Column): 1,4

Path: > v > >

Output: Invalid Path

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4. You are given  $n$  pairs of numbers. In every pair, the first number is always smaller than the second number. A pair  $(c, d)$  can follow another pair  $(a, b)$  if  $b < c$ . Chain of pairs can be formed in this fashion. Find the longest chain which can be formed from a given set of pairs.

Examples:

Input:  $\{(5, 24), \{39, 60\}, \{15, 28\}, \{27, 40\}, \{50, 90\}\}$

Output: Length=3, Pairs= $\{(5, 24), \{27, 40\}, \{50, 90\}\}$

Input:  $\{(20, 30), \{12, 25\}, \{12, 20\}, \{2, 10\}, \{15, 25\}, \{25, 40\}, \{40, 60\}\}$

Output: Length: 4, Pairs=  $\{(2, 10) \{12, 20\} \{20, 30\} \{40, 60\}\} \{ \{2, 10\} \{12, 25\} \{25, 40\} \{40, 60\}\}$

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5. Given array of words, group the anagrams and print. Any word or phrase that exactly reproduces the letters in another order is an anagram. Arrive most efficient algorithm.

Examples:

Input:  $\{\text{tar}, \text{rat}, \text{banana}, \text{atr}, \text{nanaba}\}$

Output: Anagrams:  $\{[\text{tar}, \text{rat}, \text{atr}], [\text{banana}, \text{nanaba}]\}$

Input:  $\{\text{abc}, \text{cde}, \text{xyz}, \text{dec}\}$

Output: Anagrams:  $\{[\text{cde}, \text{dec}]\}$ , Others:  $\{[\text{abc}], [\text{xyz}]\}$

Input:  $\{\text{a}, \text{bc}, \text{c}\}$

Output: Anagrams:  $\{ \}$ , Others:  $\{[\text{a}], [\text{bc}], [\text{c}]\}$

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