LongestIncreasingSubsequence

`public class LongestIncreasingSubsequence`

The **`LongestIncreasingSubsequence`** class contains the main method for testing and the method to find the longest increasing subsequence.

`public static void main(String[] args)`

- **Description**: The main method generates a list of random numbers, prints the original list, finds the longest increasing subsequence, and prints the result.
- **Parameters**: **`String[] args`** (command line arguments, not used in this example)
- **Return Type**: **`void`**

`static List<Integer> findLongestIncreasingSubsequence(List<Integer> numbers)`

- **Description**: This method takes a list of integers as input and returns the longest increasing subsequence.
- **Parameters**:
  - **`List<Integer> numbers`**: The list of integers for which the longest increasing subsequence needs to be found.
- **Return Type**: **`List<Integer>`** representing the longest increasing subsequence.

Algorithm Details

- **Initialization**: Create a 2D list **`lis`** to store the increasing subsequences.
- **Base Case**: For each number in the input list, initialize the corresponding LIS list with that number.
- **Dynamic Programming**: Iterate through the list and update the LIS values based on the current number and previous numbers.
- **Find Maximum Length LIS**: Iterate through all LIS lists and find the one with the maximum length.
- **Return Result**: Return the longest increasing subsequence.