**Longest Increasing Subsequence Source Code**

**package** longestsubsquence;

**public** **class** LongestIncreasingSubsequence {

**public** **static** **int**[] findLongestIncreasingSubsequence(**int**[] numbers) {

**if** (numbers == **null** || numbers.length == 0) {

**return** **new** **int**[0];

}

**int** n = numbers.length;

**int**[] lengths = **new** **int**[n];

**int**[] previousIndices = **new** **int**[n];

**int** maxLength = 1;

**int** endIndex = 0;

**for** (**int** i = 0; i < n; i++) {

lengths[i] = 1;

previousIndices[i] = -1;

**for** (**int** j = 0; j < i; j++) {

**if** (numbers[j] < numbers[i] && lengths[j] + 1 > lengths[i]) {

lengths[i] = lengths[j] + 1;

previousIndices[i] = j;

}

}

**if** (lengths[i] > maxLength) {

maxLength = lengths[i];

endIndex = i;

}

}

**int**[] longestIncreasingSubsequence = **new** **int**[maxLength];

**int** index = maxLength - 1;

**while** (endIndex >= 0) {

longestIncreasingSubsequence[index] = numbers[endIndex];

endIndex = previousIndices[endIndex];

index--;

}

**return** longestIncreasingSubsequence;

}

**public** **static** **void** main(String[] args) {

**int**[] numbers = {3, 10, 2, 1, 20, 15, 17, 18};

**int**[] longestIncreasingSubsequence = *findLongestIncreasingSubsequence*(numbers);

System.***out***.print("Longest increasing subsequence: ");

**for** (**int** num : longestIncreasingSubsequence) {

System.***out***.print(num + " ");

}

System.***out***.println("\nLength of the the Longest increasing subsequence: " +longestIncreasingSubsequence.length);

}

}

/\*

output

Longest increasing subsequence: 3 10 15 17 18

Length of the the Longest increasing subsequence: 5

\*/