

## 1. Collection Exercises

### 1.1 Frequency Count

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Count the frequency of different words in a sentence.

#### 1.1.1 Objective

To choose appropriate collection class for storing key/value pair.

#### 1.1.2 Problem Statement

Write a program to create a list of words present in a sentence passed from command line. The list also contain count of the appearance of each word in that sentence. The program has to display the words in sorted order and its frequency.

If the input is: "DotNet is technology and DotNet is interoperable and DotNet is simple".

Output should be: [and = 2, interoperable = 1, is = 3, DotNet = 3, simple = 1]

### 1.2 Sort String based on length

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Generally strings are compared alphabetically in lexical order, sometimes we need to compare them may be in reverse order or which is the shortest or longest string.

#### 1.2.1 Objective

To develop the capability for selecting the right interface to implement the user defined sorting algorithm.

#### 1.2.2 Problem Statement

Define a sorting mechanism for Strings that compared them by length. So, when we sort the Strings, the result is based on the length of the String

### 1.3 Sort Product Collection

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Refer any online shopping portal, the products will be displayed in some order. The user interface displays the products sorted by brand or by price.

#### 1.3.1 Objective

- Sorting user defined entity classes based on runtime requirement.

#### 1.3.2 Problem Statement

Create an Entity class to hold the following data. You need to choose an appropriate collection to hold it.

Product ID	Brand Name	Description	Price
200	Dell	15 inch Monitor	3400.44
120	Dell	Laptop	45000.00
150	Microsoft	Windows 7	7000.50
100	Logitech	Optical Mouse	540.00

Write a program to perform the following operations

1. Stores the collections of the data shown above
2. An operation to display all the products in a sorted order by default based on their product id.
3. Option for sorting based on Brand name or price based on input provided at runtime.
  - a. If two products contain same brand name, description should be considered.
  - b. Similarly if products have same price, product id's should be considered while displaying them in order

**Sample Output if Sorted by Brand Name:**

Product ID	Brand Name	Description	Price
200	Dell	15 inch Monitor	3400.44
120	Dell	Laptop	45000.00
100	Logitech	Optical Mouse	540.00
150	Microsoft	Windows 7	7000.50