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Bharat Katyal

# **Searching & Sorting Project**

COP 2805C

Programming Assignment

1. Describe auto-boxing, including why it is useful. (Google for this one) Write a few lines of code that auto-box an int into an Integer, and un-box an Integer to an int.

Auto boxing is important because java treats primitive data types differently. Autoboxing refers to converting a primitive value into an object of a corresponding wrapper class which is known as unboxing. An example is converting and int to an Integer class.

// Create an Integer Object with a value set to 12

Integer number = new ~~Integer~~(12);

int num1 = number; // Example of unboxing to primitive data type

Integer i = 12; // boxing

int a= i; // unboxing

2. Create a class called Person.  The Person class will have the following attributes: first name, last name, and phone number.

John", "Smith", "610-555-7384");  
"Sarah", "Barnes", "215-555-3827");  
"Mark", "Riley", "733-555-2969");  
"Laura", "Getz", "663-555-3984");  
"Larry", "Smith", "464-555-3489");  
"Frank", "Phelps", "322-555-2284");  
"Mario", "Guzman", "804-555-9066");  
"Marsha", "Grant", "243-555-2837"

Create a class called TestData.  Declare an ArrayList of Strings.  Add the names above (Person object) to the ArrayList.  Output the Person objects from the ArrayList into the console using the enhanced for-loop.

3. Sort the list using the method Collections.sort.  Output the sorted List.  Shuffle the list, and output the shuffled list.  Note that Collections (with an s) is a class, while Collection is an interface.  The Collections class has many useful static methods for processing interfaces, including the sort method.

4. Describe why an equals method and a compareTo method are required to achieve searching and sorting of the elements of a list.

Equals method is important because it allows you to compare two objects. For example in my code I used the equals method to output any persons with the last name “Smith”.

compareTo allows you to see sort through strings and tells you if they are equal.

The main difference between the two is that equals will take any object as parameters but compareTo will only take strings and tell you if they are equal or not.

Text

Description automatically generated