Introduction Document for Week5 DQ

This project contains 4 public classes:

1. ShortAddress
   1. This class serves as the blueprint for the ShortAddress object.
   2. Contains the following instance variables:
      1. firstName and secondName, which store the first and family names, respectively with the data type of string.
      2. phoneNumber, which stores the phone number, and is of type long.
   3. Contains set and get methods for the above instance variables.
   4. Contains a toString method, which returns a string representation of all of the above instance variables.
2. FullAddress
   1. This class serves as the blueprint for the FullAddress object.
   2. Extends the ShortAddress class, so it inherits all of its instance variables and methods.
   3. Contains the instance variables not inherited:
      1. houseNumber, which stores the number of house with the data type of integer.
      2. street1Name, which stores the street name with the data type of string.
      3. street2Name, which stores the optional value of string data type (e.g., Apt. 2, Aprtment 2, First floor, etc.)
      4. cityName, which stores the city name with the data types of string.
   4. The toString() method is overridden and another toString() method is created which returns all of the inherited instance variables, as well as the newly created ones here.
3. Week5DQApp
   1. This class is the application class for the project, and is used to create an instance of the ShortAddress and FullAddress classes.
   2. Extends the JFrame class.
   3. Imports:
      1. javax.swing components so that JButtons, JFrames, JRadioButtons, JOptionPane dialog boxes, and JTextFields can be created.
      2. java.awt components so that:
         1. Event listeners and handlers can be created
         2. GridLayout can be used, which specified the arrangement of the components.
   4. Contains instance variables:
      1. firstNameJLabel, secondNameJLabel, phoneJLabel, houseNumJLabel, street1JLabel, street2JLabel, cityJLabel, which are of type JLabel, and used to label their respective JTextFields.
      2. firstNameJTextField, secondNameJTextField, phoneJTextField, houseNumJTextField, street1JTextField, street2JTextField, cityJTextField, which are of type JTextField, and are used for the space that the user will enter the input for their respective instance variable.
      3. firstNameString, secondNameString, phoneString, houseNumString, street1String, street2String, cityString, which get their values from their respective JTextFields using the getText() method. Leading and trailing spaces are removed from the strings using the trim method.
      4. shortJRadioButton and longJRadioButton, which are of type JRadioButton, and are used to tell if the user wants to display the short address or long address, respectively.
      5. radioGroup, which is of type ButtonGroup. The JRadioButtons are added to this group, so that only one of them can be selected.
      6. viewJButton and cancelJButton, which are both of type JButton. The viewJButton is used to initiate the events that display the short or full address. The cancelJButton is used to create the button that is pressed to initiate the events that ends the program.
   5. Contains the private class ButtonHandler, which implements the ActionListener interface.
      1. This private class is used for event handling (what to do when buttons are pressed).
   6. Contains the private class RadioListener, which is used to handle radio button events.
   7. Contains the private methods:
      1. isAllInputValid, which returns true if the input received from the user is valid.
      2. displayInvalidInputMsg, which informs the user that an invalid input was received if:
         1. Any textfield is empty except for street2JTextField.
         2. House number or phone number contains non-numeric characters.
4. Week5DQDriver
   1. This class is used to create an instance of the Week5DQApp class.
   2. The size of the JFrame created is specified.
   3. When the JFrame is closed, the program exits.