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// Class used to hold a list of Strings interpreted as web addresses.
public class HistoryList {

    private boolean empty = false;    // true if nothing in list
    private String firstWebsite;      // The first web site in the list
    private HistoryList restOfWebSites;// The rest of the list of web sites

    // Create an empty list
    public HistoryList( ) {
        empty = true;
    }

    // Create a larger list from a new website and an existing list
    public HistoryList( String newSite, HistoryList existingList ) {
        firstWebsite = newSite;
        restOfWebSites = existingList;
    }

    // determines whether the collection contains a given entry
    public boolean contains( String site ) {
        if ( empty ) {
            return false;
        } else if ( firstWebsite.equals( site ) ) {
            return true;
        } else {
            return restOfWebSites.contains( site );
        }
    }

    // Produces a single String containing all the entries in the list
    // separated by new lines.
    public String toString() {
        if ( empty ) {
            return "";
        } else {
            return firstWebsite + "\n" + restOfWebSites.toString();
        }
    }

    // Returns a list of all entries that start with a given prefix
    public HistoryList getMatches( String prefix ) {
        if ( empty ) {
            return this;
        } else {
            if ( firstWebsite.startsWith( prefix ) ) {
                return new HistoryList( firstWebsite,
                    restOfWebSites.getMatches( prefix )
                );
            } else {
                return restOfWebSites.getMatches( prefix );
            }
        }
    }
}

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import squint.*;
import javax.swing.*;

/*
 * SkeletalSafari - A GUI interface that simulates the URL completion
 * behavior included in most web browsers.
 */
public class SkeletalBrowser extends GUIManager {
    // Change these values to adjust the size of the program's window
    private final int WINDOW_WIDTH = 300, WINDOW_HEIGHT = 240;

    // Used to enter a new web site address
    private JTextField AddressEntry = new JTextField( 20 );

    // Used to display list of completions for the address being entered
    private JTextArea matches = new JTextArea( 10, 20 );

    // The complete list of web site addresses that have been entered
    private HistoryList history = new HistoryList( );

    // Display the elements of the program's user interface
    public SkeletalBrowser() {
        // Create window to hold all the components
        this.createWindow( WINDOW_WIDTH, WINDOW_HEIGHT );

        contentPane.add( AddressEntry );
        contentPane.add( matches );
    }

    // Whenever the user adds or deletes a character in the text field,
    // update the list of matches
    public void caretRepositioned( JTextField which ) {
        HistoryList matching =
            history.getMatches( AddressEntry.getText() );
        matches.setText(
            history.getMatches( AddressEntry.getText() ).toString() );
    }

    // When the user completes the entry of a new address, add it to the
    // history list if it isn't already there
    public void textEntered( ) {
        if ( ! history.contains( AddressEntry.getText() ) ) {
            history = new HistoryList( AddressEntry.getText(), history );
        }
        AddressEntry.setText( "" );
    }
}

```