Spectro

Class Account

java.lang.Object
        Spectro.Account

```
public class Account
extends java.lang.Object
```

This class is Account type in this application. It includes three parts, an id, an password and an account type

Constructor Summary

Constructors

Constructor and Description
Account() constructor for Account class, initializing Account
Account(java.lang.String id, char[] pw, int type) Constructor for Account class
Account(java.lang.String id, java.lang.String pw, int type) Constructor for Account class

Method Summary

Methods

Modifier and Type	Method and Description
boolean	**equals**(**Account** ac) Check if two Account are equal
int	**getAccountType**() Getter for getting account type
java.lang.String	**getID**() Getter for getting private Id in Account;
java.lang.String	**getPassword**() Getter for getting private password in Account
void	**printAccount**() Print account information on screen
void	**setAccountType**(int type) Setter for changing account type

void	**setID**(java.lang.String id)
	Setter for changing id value
void	**setPassword**(java.lang.String pw)
	Setter for changing password value

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Account

```
public Account()
```

constructor for Account class, initializing Account

Account

```
public Account(java.lang.String id,
       java.lang.String pw,
       int type)
```

Constructor for Account class

Parameters:

id - id

pw - password

type - account type

Account

```
public Account(java.lang.String id,
       char[] pw,
       int type)
```

Constructor for Account class

Parameters:

id - id

pw - password

type - account type

Method Detail

getID

```
public java.lang.String getID()
```

Getter for getting private Id in Account;

Returns:

   id in String

getPassword

```
public java.lang.String getPassword()
```

Getter for getting private password in Account

Returns:

   password in String

getAccountType

```
public int getAccountType()
```

Getter for getting account type

Returns:

   account type in int 1 for teacher, 2 for student

setID

```
public void setID(java.lang.String id)
```

Setter for changing id value

Parameters:

   id -

setPassword

```
public void setPassword(java.lang.String pw)
```

Setter for changing password value

Parameters:

   pw -

setAccountType

```
public void setAccountType(int type)
```

Setter for changing account type

Parameters:

    `type` -

printAccount

```
public void printAccount()
```

Print account information on screen

equals

```
public boolean equals(Account ac)
```

Check if two Account are equal

Parameters:

    `ac` - another Account

Returns:

    true for same, false for difference

Spectro

Class AccountChecker

java.lang.Object
        Spectro.AccountChecker

```
public class AccountChecker
extends java.lang.Object
```

This class is used for checking account.

Constructor Summary

Constructors

Constructor and Description
AccountChecker()

Method Summary

Methods

Modifier and Type	Method and Description
boolean	**idChecker**() This method is used to check whether the format of id is valid.
static boolean	**validChecker**(**Account** ac, **Account** sac) Return a boolean which represents whether two Account is equal or not.

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

AccountChecker

```
public AccountChecker()
```

Method Detail

validChecker

```
public static boolean validChecker(Account ac,
                    Account sac)
```

Return a boolean which represents whether two Account is equal or not. If these two are same return true, otherwise return false. This method is always used for checking whether the input account and the stored account are same.

Parameters:

ac - an Account

sac - another Account

Returns:

boolean true means equal false means different

idChecker

```
public boolean idChecker()
```

This method is used to check whether the format of id is valid. it is not finished.

Returns:

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Summary: Nested | Field | Constr | Method   Detail: Field | Constr | Method

---

Spectro

Class AccountStorage

java.lang.Object
    Spectro.FileMgmt
        Spectro.AccountStorage

---

public class **AccountStorage**
extends FileMgmt

This class that extends FileMgmt is used for operating file that stores Accounts.

See Also:

   FileMgmt

Field Summary

Fields inherited from class Spectro.**FileMgmt**

fileData

Constructor Summary

Constructors

Constructor and Description
AccountStorage()

Method Summary

Methods

Modifier and Type	Method and Description
int	**calulateAmountOfAccount**(java.lang.String fileName) Return an int which is the Amount of Accounts in file that stores Accounts.
Account	**getNextAccount**() return an Account type which is the next Account

Methods inherited from class Spectro.FileMgmt

closeFile, getData, openFile, readFile, readLine, writeFile

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

AccountStorage

```
public AccountStorage()
```

Method Detail

calulateAmountOfAccount

```
public int calulateAmountOfAccount(java.lang.String fileName)
```

Return an int which is the Amount of Accounts in file that stores Accounts.

Parameters:

fileName - the file stores all Account information

Returns:

the Amount of Account

getNextAccount

```
public Account getNextAccount()
```

return an Account type which is the next Account

Returns:

Account that is the next Account in the file

See Also:

Account

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Summary: Nested | Field | Constr | Method   Detail: Field | Constr | Method

Spectro

Class FileMgmt

java.lang.Object
    Spectro.FileMgmt

Direct Known Subclasses:

AccountStorage

```
public class FileMgmt
extends java.lang.Object
```

FileMgmt is the base class for managing files(.txt) operation including reading data from a file and writing data into a file.

Since:

1.7

Field Summary

Fields

Modifier and Type	Field and Description
protected java.util.Scanner	**fileData** The content of the file.

Constructor Summary

Constructors

Constructor and Description
FileMgmt()

Method Summary

Methods

Modifier and Type	Method and Description
void	**closeFile**(java.lang.String fileName) Close a specified file

java.util.Scanner	**getData**()
	This class is used to get the content of the file
void	**openFile**(java.lang.String fileName)
	Open a specified file
java.lang.String	**readFile**(java.lang.String fileName)
	Read a file, and Return the content of that file in String
java.lang.String	**readLine**(java.lang.String fileName, int lineIndex)
	Returns the content of a line in file at the specified index.
void	**writeFile**(java.lang.String fileName, java.lang.String fileContent, boolean appendOrNot)
	Write specified data to a specified file in terms of appending data to the end of the file or not.

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Field Detail

fileData

protected java.util.Scanner fileData

The content of the file.

See Also:

Scanner

Constructor Detail

FileMgmt

public FileMgmt()

Method Detail

getData

public java.util.Scanner getData()

This class is used to get the content of the file

Returns:

> the content of the file

openFile

`public void openFile(java.lang.String fileName)`

Open a specified file

Parameters:

> `fileName` - the file to be open

closeFile

`public void closeFile(java.lang.String fileName)`

Close a specified file

Parameters:

> `fileName` - the file to be closed

readFile

`public java.lang.String readFile(java.lang.String fileName)`

Read a file, and Return the content of that file in String

Parameters:

> `fileName` - the file name of a txt file that store data

Returns:

> the content of the file in String

readLine

`public java.lang.String readLine(java.lang.String fileName,`
`                         int lineIndex)`

Returns the content of a line in file at the specified index.

Parameters:

> `fileName` - the name of a file read from

> `lineIndex` - the index of the desired line

Returns:

the content of the desired line

writeFile

```
public void writeFile(java.lang.String fileName,
              java.lang.String fileContent,
              boolean appendOrNot)
```

Write specified data to a specified file in terms of appending data to the end of the file or not.

Parameters:

`fileName` - name of the file to be written

`fileContent` - the content to be written

`appendOrNot` - append to the original file data or not

See Also:

`FileWriter`

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Spectro

Class ImageDisplay

java.lang.Object
    java.awt.Component
        java.awt.Container
            java.awt.Window
                java.awt.Frame
                    javax.swing.JFrame
                        Spectro.ImageDisplay

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

public class **ImageDisplay**
extends javax.swing.JFrame

display the student interface

See Also:

Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JFrame

`javax.swing.JFrame.AccessibleJFrame`

Nested classes/interfaces inherited from class java.awt.Frame

`java.awt.Frame.AccessibleAWTFrame`

Nested classes/interfaces inherited from class java.awt.Window

`java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type`

Nested classes/interfaces inherited from class java.awt.Container

`java.awt.Container.AccessibleAWTContainer`

Nested classes/interfaces inherited from class java.awt.Component

```
java.awt.Component.AccessibleAWTComponent, java.awt.Component.BaselineResizeBehavior,
java.awt.Component.BltBufferStrategy, java.awt.Component.FlipBufferStrategy
```

Field Summary

Fields inherited from class javax.swing.JFrame

```
accessibleContext, EXIT_ON_CLOSE, rootPane, rootPaneCheckingEnabled
```

Fields inherited from class java.awt.Frame

```
CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR, HAND_CURSOR, ICONIFIED,
MAXIMIZED_BOTH, MAXIMIZED_HORIZ, MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR,
NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR, S_RESIZE_CURSOR, SE_RESIZE_CURSOR,
SW_RESIZE_CURSOR, TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR
```

Fields inherited from class java.awt.Component

```
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT
```

Fields inherited from interface javax.swing.WindowConstants

```
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE
```

Fields inherited from interface java.awt.image.ImageObserver

```
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH
```

Constructor Summary

Constructors

Constructor and Description
ImageDisplay()   Display the student interface

Method Summary

Methods

Modifier and Type	Method and Description
double	**reader**()

```
static void          runStudentGUI()
```

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext, getContentPane,
getDefaultCloseOperation, getGlassPane, getGraphics, getJMenuBar, getLayeredPane,
getRootPane, getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString, processWindowEvent, remove, repaint,
setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane,
setIconImage, setJMenuBar, setLayeredPane, setLayout, setRootPane,
setRootPaneCheckingEnabled, setTransferHandler, update
```

Methods inherited from class java.awt.Frame

```
addNotify, getCursorType, getExtendedState, getFrames, getIconImage,
getMaximizedBounds, getMenuBar, getState, getTitle, isResizable, isUndecorated, remove,
removeNotify, setBackground, setCursor, setExtendedState, setMaximizedBounds,
setMenuBar, setOpacity, setResizable, setShape, setState, setTitle, setUndecorated
```

Methods inherited from class java.awt.Window

```
addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener,
addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle,
createBufferStrategy, createBufferStrategy, dispose, getBackground, getBufferStrategy,
getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner,
getFocusTraversalKeys, getIconImages, getInputContext, getListeners, getLocale,
getModalExclusionType, getMostRecentFocusOwner, getOpacity, getOwnedWindows, getOwner,
getOwnerlessWindows, getShape, getToolkit, getType, getWarningString,
getWindowFocusListeners, getWindowListeners, getWindows, getWindowStateListeners, hide,
isActive, isAlwaysOnTop, isAlwaysOnTopSupported, isAutoRequestFocus, isFocusableWindow,
isFocusCycleRoot, isFocused, isLocationByPlatform, isOpaque, isShowing, isValidateRoot,
pack, paint, postEvent, processEvent, processWindowFocusEvent, processWindowStateEvent,
removeWindowFocusListener, removeWindowListener, removeWindowStateListener, reshape,
setAlwaysOnTop, setAutoRequestFocus, setBounds, setBounds, setCursor,
setFocusableWindowState, setFocusCycleRoot, setIconImages, setLocation, setLocation,
setLocationByPlatform, setLocationRelativeTo, setMinimumSize, setModalExclusionType,
setSize, setSize, setType, setVisible, show, toBack, toFront
```

Methods inherited from class java.awt.Container

```
add, add, add, add, add, addContainerListener, applyComponentOrientation,
areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt,
findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt,
getComponentAt, getComponentCount, getComponents, getComponentZOrder,
getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize,
getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf,
isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout,
list, list, locate, minimumSize, paintComponents, preferredSize, print,
printComponents, processContainerEvent, remove, removeAll, removeContainerListener,
setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy,
setFocusTraversalPolicyProvider, setFont, transferFocusDownCycle, validate,
validateTree
```

Methods inherited from class java.awt.Component

```
action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener,
```

addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener,
addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage,
coalesceEvents, contains, contains, createImage, createImage, createVolatileImage,
createVolatileImage, disable, disableEvents, dispatchEvent, enable, enable,
enableEvents, enableInputMethods, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, getBaseline,
getBaselineResizeBehavior, getBounds, getBounds, getColorModel, getComponentListeners,
getComponentOrientation, getCursor, getDropTarget, getFocusListeners,
getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground,
getGraphicsConfiguration, getHeight, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners,
getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen,
getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners,
getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners,
getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus,
imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered,
isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isValid,
isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag,
mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage,
prepareImage, printAll, processComponentEvent, processFocusEvent,
processHierarchyBoundsEvent, processHierarchyEvent, processInputMethodEvent,
processKeyEvent, processMouseEvent, processMouseMotionEvent, processMouseWheelEvent,
removeComponentListener, removeFocusListener, removeHierarchyBoundsListener,
removeHierarchyListener, removeInputMethodListener, removeKeyListener,
removeMouseListener, removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint,
requestFocus, requestFocus, requestFocusInWindow, requestFocusInWindow, resize, resize,
revalidate, setComponentOrientation, setDropTarget, setEnabled, setFocusable,
setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale,
setMaximumSize, setName, setPreferredSize, show, size, toString, transferFocus,
transferFocusBackward, transferFocusUpCycle

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait

Methods inherited from interface java.awt.MenuContainer

getFont, postEvent

Constructor Detail

ImageDisplay

public ImageDisplay()

Display the student interface

Method Detail

reader

```
public double reader()
```

Returns:

> the value of selected test tube

runStudentGUI

```
public static void runStudentGUI()
```

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Summary: Nested | Field | Constr | Method   Detail: Field | Constr | Method

Spectro

Class LoginGUI

java.lang.Object
      java.awt.Component
            java.awt.Container
                  java.awt.Window
                        java.awt.Frame
                              javax.swing.JFrame
                                    Spectro.LoginGUI

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible,
javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

public class **LoginGUI**
extends javax.swing.JFrame

This class is used to create GUI for Login. This class extends JFrame, which contains all account information and two
buttons.

See Also:

JFrame, Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JFrame

javax.swing.JFrame.AccessibleJFrame

Nested classes/interfaces inherited from class java.awt.Frame

java.awt.Frame.AccessibleAWTFrame

Nested classes/interfaces inherited from class java.awt.Window

java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type

Nested classes/interfaces inherited from class java.awt.Container

java.awt.Container.AccessibleAWTContainer

Nested classes/interfaces inherited from class java.awt.Component

java.awt.Component.AccessibleAWTComponent, java.awt.Component.BaselineResizeBehavior,
java.awt.Component.BltBufferStrategy, java.awt.Component.FlipBufferStrategy

Field Summary

Fields inherited from class javax.swing.JFrame

accessibleContext, EXIT_ON_CLOSE, rootPane, rootPaneCheckingEnabled

Fields inherited from class java.awt.Frame

CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR, HAND_CURSOR, ICONIFIED,
MAXIMIZED_BOTH, MAXIMIZED_HORIZ, MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR,
NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR, S_RESIZE_CURSOR, SE_RESIZE_CURSOR,
SW_RESIZE_CURSOR, TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants

DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver

ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

Constructors

Constructor and Description
LoginGUI() This is the constructor of LoginGUI, which create all components on GUI.

Method Summary

Methods

Modifier and Type	Method and Description
static void	**createAndShwoGUI**() Create and show GUI
int	**getAccountType**() Returns int which presents the selected account type
Account	**readAccountInfo**() Get All input account information

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext, getContentPane,
getDefaultCloseOperation, getGlassPane, getGraphics, getJMenuBar, getLayeredPane,
getRootPane, getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString, processWindowEvent, remove, repaint,
setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane,
setIconImage, setJMenuBar, setLayeredPane, setLayout, setRootPane,
setRootPaneCheckingEnabled, setTransferHandler, update
```

Methods inherited from class java.awt.Frame

```
addNotify, getCursorType, getExtendedState, getFrames, getIconImage,
getMaximizedBounds, getMenuBar, getState, getTitle, isResizable, isUndecorated, remove,
removeNotify, setBackground, setCursor, setExtendedState, setMaximizedBounds,
setMenuBar, setOpacity, setResizable, setShape, setState, setTitle, setUndecorated
```

Methods inherited from class java.awt.Window

```
addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener,
addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle,
createBufferStrategy, createBufferStrategy, dispose, getBackground, getBufferStrategy,
getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner,
getFocusTraversalKeys, getIconImages, getInputContext, getListeners, getLocale,
getModalExclusionType, getMostRecentFocusOwner, getOpacity, getOwnedWindows, getOwner,
getOwnerlessWindows, getShape, getToolkit, getType, getWarningString,
getWindowFocusListeners, getWindowListeners, getWindows, getWindowStateListeners, hide,
isActive, isAlwaysOnTop, isAlwaysOnTopSupported, isAutoRequestFocus, isFocusableWindow,
isFocusCycleRoot, isFocused, isLocationByPlatform, isOpaque, isShowing, isValidateRoot,
pack, paint, postEvent, processEvent, processWindowFocusEvent, processWindowStateEvent,
removeWindowFocusListener, removeWindowListener, removeWindowStateListener, reshape,
setAlwaysOnTop, setAutoRequestFocus, setBounds, setBounds, setCursor,
setFocusableWindowState, setFocusCycleRoot, setIconImages, setLocation, setLocation,
setLocationByPlatform, setLocationRelativeTo, setMinimumSize, setModalExclusionType,
setSize, setSize, setType, setVisible, show, toBack, toFront
```

Methods inherited from class java.awt.Container

```
add, add, add, add, add, addContainerListener, applyComponentOrientation,
areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt,
findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt,
getComponentAt, getComponentCount, getComponents, getComponentZOrder,
getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize,
getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf,
isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout,
list, list, locate, minimumSize, paintComponents, preferredSize, print,
printComponents, processContainerEvent, remove, removeAll, removeContainerListener,
```

setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy,
setFocusTraversalPolicyProvider, setFont, transferFocusDownCycle, validate,
validateTree

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener,
addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener,
addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage,
coalesceEvents, contains, contains, createImage, createImage, createVolatileImage,
createVolatileImage, disable, disableEvents, dispatchEvent, enable, enable,
enableEvents, enableInputMethods, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, getBaseline,
getBaselineResizeBehavior, getBounds, getBounds, getColorModel, getComponentListeners,
getComponentOrientation, getCursor, getDropTarget, getFocusListeners,
getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground,
getGraphicsConfiguration, getHeight, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners,
getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen,
getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners,
getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners,
getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus,
imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered,
isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isValid,
isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag,
mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage,
prepareImage, printAll, processComponentEvent, processFocusEvent,
processHierarchyBoundsEvent, processHierarchyEvent, processInputMethodEvent,
processKeyEvent, processMouseEvent, processMouseMotionEvent, processMouseWheelEvent,
removeComponentListener, removeFocusListener, removeHierarchyBoundsListener,
removeHierarchyListener, removeInputMethodListener, removeKeyListener,
removeMouseListener, removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint,
requestFocus, requestFocus, requestFocusInWindow, requestFocusInWindow, resize, resize,
revalidate, setComponentOrientation, setDropTarget, setEnabled, setFocusable,
setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale,
setMaximumSize, setName, setPreferredSize, show, size, toString, transferFocus,
transferFocusBackward, transferFocusUpCycle

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait

Methods inherited from interface java.awt.MenuContainer

getFont, postEvent

Constructor Detail

LoginGUI

```
public LoginGUI()
```

This is the constructor of LoginGUI, which create all components on GUI.

An account in this application contains three parts, ID, password and account type. Therefore, this GUI should be composed of one field for inputing id, one field to input password, two JRadioButton to select account type, and two buttons, one is for sign in and the other is for exit.

See Also:

Account

Method Detail

getAccountType

```
public int getAccountType()
```

Returns int which presents the selected account type

Returns:

selected account type 1 is teacher, 2 is student

readAccountInfo

```
public Account readAccountInfo()
```

Get All input account information

Returns:

input account

See Also:

Account

createAndShwoGUI

```
public static void createAndShwoGUI()
```

Create and show GUI

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Spectro

Class Spectro

java.lang.Object
       Spectro.Spectro

```
public class Spectro
extends java.lang.Object
```

main method of this application

Constructor Summary

Constructors

Constructor and Description
Spectro()

Method Summary

Methods

Modifier and Type	Method and Description
static void	**main**(java.lang.String[] args)

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Spectro

```
public Spectro()
```

Method Detail

main

```
public static void main(java.lang.String[] args)
```

Parameters:

   `args` -

Spectro

Class TeacherGUI

java.lang.Object
    java.awt.Component
        java.awt.Container
            java.awt.Window
                java.awt.Frame
                    javax.swing.JFrame
                        Spectro.TeacherGUI

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible,
javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

public class **TeacherGUI**
extends javax.swing.JFrame

This class is used to create teacher GUI including an area that allows user to input words and 5 formatted field used to
change Samples' values.

See Also:

Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JFrame

javax.swing.JFrame.AccessibleJFrame

Nested classes/interfaces inherited from class java.awt.Frame

java.awt.Frame.AccessibleAWTFrame

Nested classes/interfaces inherited from class java.awt.Window

java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type

Nested classes/interfaces inherited from class java.awt.Container

java.awt.Container.AccessibleAWTContainer

Nested classes/interfaces inherited from class java.awt.Component

java.awt.Component.AccessibleAWTComponent, java.awt.Component.BaselineResizeBehavior,
java.awt.Component.BltBufferStrategy, java.awt.Component.FlipBufferStrategy

Field Summary

Fields inherited from class javax.swing.JFrame

accessibleContext, EXIT_ON_CLOSE, rootPane, rootPaneCheckingEnabled

Fields inherited from class java.awt.Frame

CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR, HAND_CURSOR, ICONIFIED,
MAXIMIZED_BOTH, MAXIMIZED_HORIZ, MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR,
NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR, S_RESIZE_CURSOR, SE_RESIZE_CURSOR,
SW_RESIZE_CURSOR, TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants

DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver

ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

Constructors

Constructor and Description
TeacherGUI() constructor of class TeacherGUI which creates the GUI for displaying.

Method Summary

Methods

Modifier and Type	Method and Description
static void	**createAndShowGUI**() This method is used to create and show GUI.

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext, getContentPane,
getDefaultCloseOperation, getGlassPane, getGraphics, getJMenuBar, getLayeredPane,
getRootPane, getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString, processWindowEvent, remove, repaint,
setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane,
setIconImage, setJMenuBar, setLayeredPane, setLayout, setRootPane,
setRootPaneCheckingEnabled, setTransferHandler, update
```

Methods inherited from class java.awt.Frame

```
addNotify, getCursorType, getExtendedState, getFrames, getIconImage,
getMaximizedBounds, getMenuBar, getState, getTitle, isResizable, isUndecorated, remove,
removeNotify, setBackground, setCursor, setExtendedState, setMaximizedBounds,
setMenuBar, setOpacity, setResizable, setShape, setState, setTitle, setUndecorated
```

Methods inherited from class java.awt.Window

```
addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener,
addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle,
createBufferStrategy, createBufferStrategy, dispose, getBackground, getBufferStrategy,
getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner,
getFocusTraversalKeys, getIconImages, getInputContext, getListeners, getLocale,
getModalExclusionType, getMostRecentFocusOwner, getOpacity, getOwnedWindows, getOwner,
getOwnerlessWindows, getShape, getToolkit, getType, getWarningString,
getWindowFocusListeners, getWindowListeners, getWindows, getWindowStateListeners, hide,
isActive, isAlwaysOnTop, isAlwaysOnTopSupported, isAutoRequestFocus, isFocusableWindow,
isFocusCycleRoot, isFocused, isLocationByPlatform, isOpaque, isShowing, isValidateRoot,
pack, paint, postEvent, processEvent, processWindowFocusEvent, processWindowStateEvent,
removeWindowFocusListener, removeWindowListener, removeWindowStateListener, reshape,
setAlwaysOnTop, setAutoRequestFocus, setBounds, setBounds, setCursor,
setFocusableWindowState, setFocusCycleRoot, setIconImages, setLocation, setLocation,
setLocationByPlatform, setLocationRelativeTo, setMinimumSize, setModalExclusionType,
setSize, setSize, setType, setVisible, show, toBack, toFront
```

Methods inherited from class java.awt.Container

```
add, add, add, add, add, addContainerListener, applyComponentOrientation,
areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt,
findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt,
getComponentAt, getComponentCount, getComponents, getComponentZOrder,
getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize,
getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf,
isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout,
list, list, locate, minimumSize, paintComponents, preferredSize, print,
printComponents, processContainerEvent, remove, removeAll, removeContainerListener,
setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy,
setFocusTraversalPolicyProvider, setFont, transferFocusDownCycle, validate,
validateTree
```

Methods inherited from class java.awt.Component

```
action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener,
addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener,
addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage,
coalesceEvents, contains, contains, createImage, createImage, createVolatileImage,
createVolatileImage, disable, disableEvents, dispatchEvent, enable, enable,
enableEvents, enableInputMethods, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, firePropertyChange, getBaseline,
getBaselineResizeBehavior, getBounds, getBounds, getColorModel, getComponentListeners,
getComponentOrientation, getCursor, getDropTarget, getFocusListeners,
getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground,
getGraphicsConfiguration, getHeight, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners,
getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen,
getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners,
getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners,
getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus,
imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered,
isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isValid,
isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag,
mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage,
prepareImage, printAll, processComponentEvent, processFocusEvent,
processHierarchyBoundsEvent, processHierarchyEvent, processInputMethodEvent,
processKeyEvent, processMouseEvent, processMouseMotionEvent, processMouseWheelEvent,
removeComponentListener, removeFocusListener, removeHierarchyBoundsListener,
removeHierarchyListener, removeInputMethodListener, removeKeyListener,
removeMouseListener, removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint,
requestFocus, requestFocus, requestFocusInWindow, requestFocusInWindow, resize, resize,
revalidate, setComponentOrientation, setDropTarget, setEnabled, setFocusable,
setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale,
setMaximumSize, setName, setPreferredSize, show, size, toString, transferFocus,
transferFocusBackward, transferFocusUpCycle
```

Methods inherited from class java.lang.Object

```
clone, equals, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait
```

Methods inherited from interface java.awt.MenuContainer

```
getFont, postEvent
```

Constructor Detail

TeacherGUI

```
public TeacherGUI()
```

constructor of class TeacherGUI which creates the GUI for displaying.

Method Detail

createAndShowGUI

```
public static void createAndShowGUI()
```

This method is used to create and show GUI.