

# Capitolo 1

## Classi e Metodi in BloodlineSeeker

- **class Main**
  - VERSION : String
  - + main(String[] args) : void
  - run() : void
  - programConfiguration() : void
  - parseArgs(String[] inputArgs) : boolean
  - runTests() : void
  - printHelp() : void
  - printVersion() : void

### 1.1 Pacchetto frontend

- **final class FrontendManager**
  - + APP\_LOGO : Image
  - + APP\_TITLE : String
  - + setupGUI() : void
  - + loadFonts() : void
  - + switchToMainWindow() : void
  - + createLauncherWindow() : void
  - + saveDynastyGraph() : void

### 1.1.1 Pacchetto mainwindow

- **class MainWindowManager**
  - window : MainWindow
  - isSetup : boolean
  - + setupMainWindow() : boolean
  - createMainWindow() : void
  - setLookAndFeel() : void
  - getWindow() : MainWindow
  - + changeGraph(Dynasty dynasty, Member member) : void
  - + getImage() : BufferedImage
  - + searchMembers() : void
  - + updateScrollPane(String query) : void
  - showSuggestion(String suggestion) : void
  - showResultNotFound() : void
  - + openLink(String link) : void
  - + buildNewTitle(Member member, Dynasty dynasty) : String
  - + updateWindowTitle(String toAppend) : void
  - + refresh() : void
  - + getWindowScrollPaneController() : ScrollPaneController
  - + getWindowImageController() : ImageController
  - + getWindowImageHolder() : ImageHolder
  - + getWindowScrollPane() : ScrollPane
  - + getWindowSearchBar() : SearchBar
  - + getWindowButtonBox() : ButtonBox
  - + getWindowInfoBox() : InfoBox
  - + getWindowContentPane() : JComponent

- **class ButtonBox extends JPanel**
  - + «create» ButtonBox()
  - serialVersionUID : long
  - downloadButton : AntiAliasedImageButton
  - wikipediaButton : AntiAliasedImageButton

- downloadText : AntiAliasedTextLabel
- wikipediaText : AntiAliasedTextLabel
- setup() : void
- addComponent() : void
- createImageButton(String icon, String pressedIcon, int x, int y, int width, int height) : AntiAliasedImageButton
- createLabel(String text, int x, int y, int width, int height) : AntiAliasedTextLabel
- createDownloadButton() : void
- createWikipediaButton() : void
- createDownloadText() : void
- createWikipediaText() : void

- **class InfoBox extends JPanel**

- + «create» InfoBox()
- serialVersionUID : long
- mouseWheelLabel : AntiAliasedImageLabel
- wasdLabel : AntiAliasedImageLabel
- wasdText : AntiAliasedTextLabel
- mouseWheelText : AntiAliasedTextLabel
- setup() : void
- createComponent() : void
- createTextLabel(String text, int x, int y, int width, int height) : AntiAliasedTextLabel
- createImageLabel(String icon, int x, int y, int width, int height) : AntiAliasedImageLabel
- createWasdIcon() : void
- createMauseWheelIcon() : void
- createWasdText() : void
- createMauseWheelText() : void

- **class ImageEditor**

- LABEL\_WIDTH : int
- LABEL\_HEIGHT : int

- SHIFT\_COMPUTE : int
- ZOOM\_COPMUTE : int
- MIN\_ZOOM\_IMAGE\_SIZE : int
- image : BufferedImage
- imageWidth : int
- imageHeight : int
- imageMinDimension : int
- startX : int
- startY : int
- shift : int
- shiftValue : int
- zoom : int
- zoomValue : int
- maxZoom : int
- + setImageToEdit(BufferedImage newImage) : void
- + editImage() : ImageIcon
- + editImage(int zoomChange) : ImageIcon
- + editImage(int xChange, int yChange) : ImageIcon
- adjustImage(BufferedImage image) : BufferedImage
- changeX(int xChange) : void
- changeY(int yChange) : void
- zoomChange(int zoomChange) : void
- resizeImage(BufferedImage image, int width, int height) : BufferedImage
- toImageIcon(BufferedImage image) : ImageIcon
- setImageSize(int width, int height) : void
- computeShift() : int
- computeZoom() : int
- getMinDimension() : int
- + getImage() : BufferedImage

• **class ImageHolder extends JPanel**

- + «create» ImageHolder()

- serialVersionUID : long
- label : AntiAliasedImageLabel
- setup() : void
- createLabel() : void
- + getLabel() : AntiAliasedImageLabel
- setMouseListener() : void

  

- **class ImageController**
  - + «create» ImageController()
  - VERTICAL\_DISPLACEMENT : int
  - HORIZONTAL\_DISPLACEMENT : int
  - RECTANGLE\_BACKGROUND : int
  - RECTANGLE\_HEIGHT : int
  - GRAPH\_MARGIN : int
  - UPPER\_LEFT\_X\_SHIFT : int
  - UPPER\_LEFT\_Y\_SHIFT : int
  - imageEditor : ImageEditor
  - defaultImage : ImageIcon
  - searchBarTextField : JTextField
  - label : AntiAliasedImageLabel
  - canBrowse : boolean
  - + zoom(int zoom) : void
  - + move(int xChange , int yChange) : void
  - setImageToEdit(ImageIcon image) : void
  - + changeGraph(BufferedImage newImage) : void
  - + setDefaultImage() : void
  - canBrowse() : boolean
  - findColoredRectangle(BufferedImage graphImage) : Point
  - findHorizontalRectBound(BufferedImage graphImage, int startX, int startY, int increment) : int
  - findVerticalRectBound(BufferedImage graphImage, int startX, int startY, int increment) : int

- + findCenter(BufferedImage graphImage) : Point
- + getGraph() : BufferedImage
- + getBrowse() : boolean
  
- **class SearchBar extends JPanel**
  - + «create» SearchBar()
  - DEFAULT\_TEXT : String
  - serialVersionUID : long
  - searchIcon : ImageIcon
  - activeSearchIcon : ImageIcon
  - searchActionListener : SearchBarActionListener
  - textField; : AntiAliasedTextField
  - button : AntiAliasedImageButton
  - panel : JPanel
  - setup() : void
  - createTextField() : void
  - createPanel() : void
  - createButton() : void
  - + getText() : String
  - + removeFocus() : void
  - + setText(String string) : void
  - + getTextField() : AntiAliasedTextField
  - addActionListener() : void
  - setUI() : void
  
- **final class SuggestionMessage extends JPanel**
  - serialVersionUID : long
  - defaultLabel : String
  - HTML\_OPEN\_TAG : String
  - HTML\_CLOSE\_TAG : String
  - textPanel : JPanel
  - buttonPanel : JPanel

- + suggestion) : SuggestionMessage(String
- setup() : void
- createTextPanel() : void
- createButtonPanel(String suggestion) : void
- createSuggestionLabel() : AntiAliasedTextLabel
- createSearchButton(String suggestion) : AntiAliasedTextButton

- **class ScrollPane extends JPanel**

- + «create» ScrollPane()
- serialVersionUID : long
- SCROLL\_INCREMENT : int
- SCROLLBAR\_WIDTH : int
- SCROLLBAR\_ARC : int
- ORIGIN\_POINT : Point
- scrollPane : JScrollPane
- cardHolder : JPanel
- setup() : void
- createCardHolder() : void
- createScrollPane() : void
- setUI() : void
- + getCardHolder() : JPanel
- + resetScrollBar() : void

- **final class ResultNotFoundMessage extends JPanel**

- + «create» ResultNotFoundMessage()
- DEFAULT\_LABEL : String
- serialVersionUID : long
- suggestionLabel : AntiAliasedTextLabel
- setup() : void
- createNotFoundLabel() : void

- **class ScraperResultCard extends JPanel**

- + «create» ScraperResultCard (int y, String romanIndex, Dynasty dynasty, Member member)
- serialVersionUID : long
- indexLabel : AntiAliasedTextLabel
- nameLabel : AntiAliasedTextLabel
- dynastyLabel : AntiAliasedTextLabel
- wikipediaButton : AntiAliasedImageButton
- graphButton : AntiAliasedImageButton
- dynasty : Dynasty
- member : Member
- romanIndex : String
- setup(int y) : void
- createComponents() : void
- createImageButton(String icon, String pressedIcon, int x, int y, int width, int height) : AntiAliasedImageButton
- createLabel(String text, Font font, int x, int y, int width, int height) : AntiAliasedTextLabel
- createIndexLabel(String romanIndex) : void
- createNameLabel(String memberName) : void
- createDynastyLabel(String dynastyName) : void
- createWikipediaButton() : void
- createGraphButton() : void
- setUI() : void

- **final class** ScrollPaneController

- + «create» ScrollPaneController()
- PANEL\_WIDTH : int
- PANEL\_HEIGHT : int
- VERTICAL\_CARD\_GAP : int
- CARD\_HEIGHT : int
- cardHolder : JPanel
- scrollPane : ScrollPane
- createSuggestion(String suggestion) : void

- createCards(ArrayList<ScraperResult> data) : void
- createCard(int index ,ScraperResult scraperResult) : ScraperResultCard
- removeAll() : void
- + showScrollPaneResults(ArrayList<ScraperResult> data) : void
- + showScrollPaneSuggestion(String suggestion) : void
- computeY(int i) : int
- + showResultNotFoundCard() : void

- **class MainWindow extends JFrame**

- + «create» MainWindow()
- serialVersionUID : long
- WINDOW\_DIM : Dimension
- scrollPaneController : ScrollPaneController
- imageController : ImageController
- imageHolder : ImageHolder
- scrollPane : ScrollPane
- searchbar : SearchBar
- buttonBox : ButtonBox
- infoBox : InfoBox
- background : JPanel
- setup() : void
- createStaticComponents() : void
- + createDynamicComponents() : void
- createBackgroundPanel() : void
- createSearchBar() : void
- createInfoBox() : void
- createButtonBox() : void
- createImageHolder() : void
- createScrollPane() : void
- createImageController() : void
- createScrollPaneController() : void
- sleep() : void

- `setActionListener() : void`
- `setKeyBindingController() : void`
- + `getScrollPaneController() : ScrollPaneController`
- + `getImageController() : ImageController`
- + `getImageHolder() : ImageHolder`
- + `getScrollPane() : ScrollPane`
- + `getButtonBox() : ButtonBox`
- + `getInfoBox() : InfoBox`
- + `getSearchBar() : SearchBar`

  

- **class** `OpenDynastyLinkActionListener implements ActionListener`
  - + `actionPerformed(ActionEvent e) : void`
- **class** `ImageHolderMouseWheelListener implements MouseWheelListener`
  - + `mouseWheelMoved(MouseWheelEvent wheel) : void`
- **class** `ImageHolderFocusMouseListener extends MouseAdapter`
  - + `mouseClicked(MouseEvent e) : void`
- **class** `KeyBindingController`
  - + `addKeyBindingController() : void`
- **class** `RightKeyAction extends AbstractAction`
  - `serialVersionUID : long`
  - + `actionPerformed(ActionEvent e) : void`
- **class** `UpKeyAction extends AbstractAction`
  - `serialVersionUID : long`
  - + `actionPerformed(ActionEvent e) : void`
- **class** `DownKeyAction extends AbstractAction`
  - `serialVersionUID : long`

- + actionPerformed(ActionEvent e) : void
- **class EscKeyAction extends AbstractAction**
  - serialVersionUID : long
  - + actionPerformed(ActionEvent e) : void
- **class LeftKeyAction extends AbstractAction**
  - serialVersionUID : long
  - + actionPerformed(ActionEvent e) : void
- **class SuggestionSearchBarActionListener implements ActionListener**
  - + «create» SuggestionSearchBarActionListener(String suggestion)
  - suggestion : String
  - + actionPerformed(ActionEvent e) : void
- **class SearchBarActionListener implements ActionListener**
  - + actionPerformed(ActionEvent e) : void
- **class GenerateGraphActionListener implements ActionListener**
  - + «create» GenerateGraphActionListener(Dynasty dynasty, Member member)
  - dynasty : Dynasty
  - member : Member
  - + actionPerformed(ActionEvent e) : void
- **class OpenMemberLinkActionListener implements ActionListener**
  - link : String
  - + «create» OpenMemberLinkActionListener(String link)
  - + actionPerformed(ActionEvent e) : void

### 1.1.2 Pacchetto launcher

- **final class** ConsoleRunner **extends** Thread
  - DOWNLOAD\_START\_MSG : String
  - DOWNLOAD\_COMPLETE\_MSG : String
  - SAVING\_COMPLETE\_MSG : String
  - + run() : void
    - updateConsoleAndSleep(String consoleMsg, long timeSleep) : void
- **class** ConsolePage **extends** JPanel
  - + «create» ConsolePage()
  - CONSOLE\_MAX\_LINES : int
  - serialVersionUID : long
  - consoleOutput : AntiAliasedTextLabel
  - linesQueue : Queue<String>
  - lastLine : String
  - setup() : void
  - createConsoleOutputLabel() : void
  - formatOutput() : String
  - + updateConsole(String newLine) : void
- **class** DownloadPage **extends** JPanel
  - + «create» DownloadPage()
  - serialVersionUID : long
  - UPPER\_DESC\_LABEL\_MSG : String
  - LOWER\_DESC\_LABEL\_MSG : String
  - checkBoxPanel : CheckBoxPanel
  - setup() : void
  - setDescriptionLabel() : void
  - createLabel(String text, int x, int y, int width, int height) : AntiAliasedTextLabel
  - createCheckBoxPanel() : void
  - + setStartButton() : void
  - + getCheckBoxPanel() : CheckBoxPanel

- **class CheckBoxPanel extends JPanel**
  - + «create» CheckBoxPanel()
  - serialVersionUID : long
  - SPACING\_AMOUNT : int
  - SPACING\_CHAR : char
  - SELENIUM\_CHECKBOX\_MSG : String
  - HTTP\_CHECKBOX\_MSG : String
  - seleniumCheckBox : AntiAliasedTextCheckBox
  - httpCheckBox : AntiAliasedTextCheckBox
  - setup() : void
  - createCheckBox() : void
  - createCheckBox(String checkboxMsg, boolean selected, int x, int y, int width, int height) : AntiAliasedTextCheckBox
  - buildRepeatedCharString(char ch, int amount) : String
  - + getHTTP() : AntiAliasedTextCheckBox
  - + getSelenium() : AntiAliasedTextCheckBox
- **class StartButton extends AntiAliasedTextButton**
  - + «create» StartButton()
  - serialVersionUID : long
  - TEXT : String
  - setup() : void
- **class CreditPanel extends JPanel**
  - + «create» CreditPanel()
  - serialVersionUID : long
  - alessioBandieraLabel : AntiAliasedTextLabel
  - matteoBenvenutiLabel : AntiAliasedTextLabel
  - simoneBiancoLabel : AntiAliasedTextLabel
  - andreaLadoganaLabel : AntiAliasedTextLabel
  - setup() : void
  - createNames() : void

- createNameLabel(String name, int x, int y, int width, int height) : AntiAliasedTextLabel
- 
- **class** PageButtonPanel **extends** JPanel
    - + «create» PageButtonPanel()
    - serialVersionUID : long
    - LOAD\_MSG : String
    - DOWNLOAD\_MSG : String
    - loadButton : AntiAliasedTextButton
    - downloadButton : AntiAliasedTextButton
    - setup() : void
    - createButtons() : void
    - createButton(String text, Border border, int x, int y, int width, int height) : AntiAliasedTextButton
    - + getLoadButton() : AntiAliasedTextButton
    - + getDownloadButton() : AntiAliasedTextButton
- 
- **class** LoadPage **extends** JPanel
    - + «create» LoadPage()
    - serialVersionUID : long
    - UPPER\_DESC\_LABEL\_MSG : String
    - LOWER\_DESC\_LABEL\_MSG : String
    - EMPTY\_LOAD\_MSG : String
    - SUCCESS\_LOAD\_MSG : String
    - FAIL\_LOAD\_MSG : String
    - scrapingStatus : boolean
    - setup() : void
    - createDescriptionLabel() : void
    - createLabel(String text, int x, int y, int width, int height) : AntiAliasedTextLabel
    - + setScrapingStatusLabel() : void
    - setStartButton() : void

- **final class** LauncherManager
  - window : LauncherWindow
  - isSetup : boolean
  - pageStatus : boolean
  - + setupLauncher() : boolean
  - createLauncherWindow() : void
  - setLookAndFeel() : void
  - + switchPage() : void
  - + updateConsole(String newStatus) : void
  - getWindow() : LauncherWindow
  - + getPageStatus() : boolean
  - + getWindowPageButtonPanel() : PageButtonPanel
  - + getWindowContentPanel() : JPanel
  - + getWindowLoadPage() : LoadPage
  - + getWindowDownloadPage() : DownloadPage
  - + closeWindow() : void
  - + setWindowTitle(String newWindowTitle) : void
  - + switchToConsolePage() : void
  - + getWindowTitle() : String
  - + toggleSelenium() : void
- **class** LauncherWindow **extends** JFrame
  - + «create» LauncherWindow()
  - serialVersionUID : long
  - WINDOW\_DIM : Dimension
  - background : JPanel
  - contentPanel : JPanel
  - pageButtonPanel : PageButtonPanel
  - loadPage : LoadPage
  - downloadPage : DownloadPage
  - consolePanel : ConsolePage
  - addComponent() : void

- setup() : void
- cratePages() : void
- cratePageButtonPanel() : void
- createPanel(Border border, Color color, int x, int y, int width, int height) : JPanel
- createContentPanel() : void
- createCreditPanel() : void
- createBackground() : void
- clear() : void
- + showConsole() : void
- + setWindowTitle(String newWindowTitle) : void
- + getContentPanel() : JPanel
- + getLoadPage() : LoadPage
- + getDownloadPage() : DownloadPage
- + getConsolePage() : ConsolePage
- + getPageButtonPanel() : PageButtonPanel
- + getWindowTitle() : String

  

- **class** SwitchPageActionListener implements ActionListener
  - + «create» SwitchPageActionListener(boolean isLoadPage)
  - + actionPerformed(ActionEvent e) : void
  
- **class** StartMainWindowActionListener implements ActionListener
  - + actionPerformed(ActionEvent arg0) : void
  
- **class** SwitchToConsolePageActionListener implements ActionListener
  - + actionPerformed(ActionEvent arg0) : void
  
- **class** CheckBoxActionListener implements ActionListener
  - + actionPerformed(ActionEvent e) : void

### 1.1.3 Pacchetto utils

- **class** ImageSaver **extends** Thread
  - + saveDynastyGraph() : void
  - createFileName(String folderName, String fileName, String extension) : String
  - + run() : void
- **enum** Margin
  - «create» Margin(int top, int left, int bottom, int right)
  - inset : Insets
  - + get() : Insets
- **enum** ComponentColor
  - «create» ComponentColor(int red, int green, int blue)
  - color : Color
  - + get() : Color
- **final class** FontLoader
  - + loadFont(String fontFile) : void
- **final class** ImageLoader
  - + asImageIcon(String path) : ImageIcon
  - + asImage(String path) : Image
  - + getImageURL(String path) : URL
  - + asBufferedImage(String path) : BufferedImage
- **class** Point
  - + «create» Point(int x, int y)
  - x : int
  - y : int
  - + getX() : int
  - + getY() : int

- **enum** QuattrocentoFont

- «create» QuattrocentoFont(String fontName, int fontStyle, int fontSize)
- font : Font
- + get() : Font

- **enum** ComponentBorder

- «create» ComponentBorder(Color color, int size)
- border : Border
- color, int top, int left, int bottom, int right) : ComponentBorder(Color)
- top, int left, int bottom, int right) : ComponentBorder(int)
- outsideBorder, Border insideBorder) : ComponentBorder(Border)
- + get() : Border

- **enum** FontPath

- «create» FontPath(String fontPath)
- path : String
- + get() : String

- **enum** ImagePath

- IMAGE\_DIR : String
- path : String
- «creates» ImagePath(String imagePath)
- + get() : String

- **enum** RomanLiteral

- «creates» RomanLiteral(int decimal)
- decimal : int
- + get() : int
- + decimalToRoman(int decimal) : String

### 1.1.4 Pacchetto elements.antialiased

- **class AntiAliasedImageLabel extends JLabel**
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntiAliasedImageButton extends JButton**
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntialiasedTextFileChooser extends JFileChooser**
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntiAliasedTextCheckBox extends JCheckBox**
  - + «creates» AntiAliasedTextCheckBox(String text)
  - + «creates» AntiAliasedTextCheckBox()
  - + «creates» AntiAliasedTextCheckBox(String test , boolean bool)
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntiAliasedTextLabel extends JLabel**
  - + «creates» AntiAliasedTextLabel()
  - + «create» AntiAliasedTextLabel(String text)
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntiAliasedTextField extends JTextField**
  - serialVersionUID : long
  - + paintComponent(Graphics graphics) : void
- **class AntiAliasedTextButton extends JButton**
  - + «create» AntiAliasedTextButton()

```
+ «create» AntiAliasedTextButton(String text)
- serialVersionUID : long
+ paintComponent(Graphics graphics) : void
```

## 1.2 Pacchetto backend

- **final class** BackendManager
  - + DATA\_PATH : String
  - + PNG\_PATH : String
  - + JSON\_PATH : String
  - debugMode : boolean
  - seleniumMode : boolean
  - headlessMode : boolean
  - dynasties : ArrayList<Dynasty>
  - loadedDynasty : Dynasty
  - loadedMember : Member
  - runner : ScraperRunner
  - scraper : DynastiesScraper
  - + setupGraphviz() : void
  - + loadFromScraper() : void
  - + loadFromFiles() : boolean
    - JSONToDynasty(String dynastyJSONpath) : void
  - + saveSession() : void
  - + loadedDynastyToPNG() : void
  - + loadedDynastyToBufferedImage() : BufferedImage
  - + loadedMemberToPNG() : void
  - + loadedMemberToBufferedImage() : BufferedImage
    - listDir(String dirPath) : ArrayList<String>
  - + printDebug(String debugMsg) : void
  - + setDebugMode(boolean debugMode) : void
  - + setSeleniumMode(boolean seleniumMode) : void
  - + setHeadlessMode(boolean headlessMode) : void

```
+ setLoadedDynasty(Dynasty dynasty) : void
+ setLoadedMember(Member member) : void
+ getSeleniumMode() : boolean
+ getScraperStatus() : String
+ getDynasties() : ArrayList<Dynasty>
+ getLoadedDynasty() : Dynasty
+ getLoadedMember() : Member
+ isScraperRunnerActive() : boolean
+ isDebugModeActive() : boolean
```

### 1.2.1 Pacchetto controllers

- **class BinariesController**

```
+ TEMP_PATH : String
+ GRAPHVIZ_LOCAL_ZIP_PATH : String
+ GRAPHVIZ_TEMP_PATH : String
+ GRAPHVIZ_TEMP_EXE_PATH : String
+ DRIVERS_LOCAL_PATH : String
+ DRIVERS_TEMP_PATH : String
- getTempPath() : String
+ extractGraphVizBinaries() : void
+ extractDriverBinary(SeleniumDriver driver) : void
- extractZip(InputStream zipInputStream, String outputPath) : void
- removeTempDirectory(String folderToRemove) : void
+ clearTempDirectories() : void
```

- **class SearchQueryController**

```
+ findMatchingDynastyAsResults(String query) : ArrayList<ScraperResult>
+ findMatchingMembersAsResults(String query) : ArrayList<ScraperResult>
- findMatchingMemberAsNames(String query) : ArrayList<String>
+ findSuggestion(String query) : String
- findShortestSuggestion(ArrayList<String> possibleSuggestions) : String
- getSortedSubstrings(String query) : ArrayList<String>
+ sortResults(ArrayList<ScraperResult> results) : void
```

### 1.2.2 Pacchetto scraper

- **class** Dynasty **implements** JSONable
  - + «create» Dynasty(String name, String wikipediaLink)
  - name : String
  - wikipediaLink : String
  - members : ArrayList<Member>
  - membersResults : ArrayList<ScraperResult>
  - buildDynasty(HashMap<String, JSONObject> membersIDs, String name, String wikipediaLink) : Dynasty
  - getMembersIDs(JSONArray membersArray) : HashMap<String, JSONObject>
  - completeRelatives(HashMap<String, JSONObject> membersIDs, Member member, Relative relativeType, JSONArray relativesIDs) : void
  - + fromJSONObject(JSONObject json) : Dynasty
  - + fromJSONFile(String jsonPath) : Dynasty
  - + toJSONObject() : JSONObject
  - + toString() : String
  - + setName(String name) : void
  - + setLink(String wikipediaLink) : void
  - + addMember(Member member) : void
  - + addMemberResult(Member member) : void
  - + getName() : String
  - + getWikipediaLink() : String
  - + getMembers() : ArrayList<Member>
  - + getMembersResults() : ArrayList<ScraperResult>
- **final class** DynastyVisualizer
  - CENTER\_MEMBER\_PRIMARY\_COLOR : String
  - CENTER\_MEMBER\_SECONDARY\_COLOR : String
  - EMPEROR\_MEMBER\_PRIMARY\_COLOR : String
  - EMPEROR\_MEMBER\_SECONDARY\_COLOR : String
  - NODE\_FONTSIZE : String
  - SUBGRAPH\_RANK\_SEPARATION : int

```
- SUBGRAPH_NODE_SEPARATION : double
- SUBGRAPH_PADDING : double
- MAX_DEPTH : int
- centerMember : Member
+ toGraph(Dynasty dynasty) : MutableGraph
+ toGraph(Member member) : MutableGraph
- linkToRelativesIterative(MutableNode memberNode,
Member member, Relative relative) : void
- linkToRelativesRecursive(ArrayList<String> existingIDs,
MutableGraph familyGraph, Relative relative, Member member,
MutableNode memberNode, int depth) : void
- linkToRelativeNode(MutableNode memberNode, Member memberRelative,
Relative relative) : void
- createFamily(ArrayList<String> existingIDs, Member member,
int depth) : MutableGraph
- createMemberNode(Member member) : MutableNode
- generateBlankGraph(String subGraphName) : MutableGraph
- generateBlankSubGraph(String subGraphName) : MutableGraph
- renderGraph(MutableGraph graph) : Renderer
+ toRenderedGraph(Dynasty dynasty) : Renderer
+ toRenderedGraph(Member member) : Renderer
+ toBufferedImage(Dynasty dynasty) : BufferedImage
+ toBufferedImage(Member member) : BufferedImage
+ toImageFile(Dynasty dynasty, String outputPath) : void
+ toImageFile(Member member, String outputPath) : void
```

- **final class** ScraperResult implements Comparable<ScraperResult>

```
+ «creates» ScraperResult(Member member, Dynasty dynasty)
- member : Member
- dynasty : Dynasty
+ getMember() : Member
+ getDynasty() : Dynasty
```

- compareRank(ScraperResult other) : int
  - compareRankAndStatus(ScraperResult other) : int
  - + compareTo(ScraperResult other) : int
- 
- **enum** Relative
    - + matchRelative(String field) : Relative
- 
- **class** Member **implements** JSONable
    - + «create» Member(String name, String wikipediaLink)
    - + «create» Member(String name, String wikipediaLink, boolean isEmperor)
    - ID\_counter : int
    - ID : String
    - name : String
    - wikipediaLink : String
    - isEmperor : boolean
    - parents : ArrayList<Member>
    - children : ArrayList<Member>
    - spouses : ArrayList<Member>
    - + getRelatives(Relative relative) : ArrayList<Member>
    - getRelativesIDs(Relative relative) : ArrayList<String>
    - + getAllRelatives() : ArrayList<Member>
    - + addRelative(Member member, Relative relative) : void
    - + toJSONObject() : JSONObject
    - + toString() : String
    - + setID(String ID) : void
    - + setEmperorStatus(boolean isEmperor) : void
    - + setWikipediaLink(String wikipediaLink) : void
    - + getID() : String
    - + getName() : String
    - + getWikipediaLink() : String
    - + isEmperor() : boolean

- **final class ScraperRunner extends Thread**
  - + «create» ScraperRunner(DynastiesScraper scraper)
  - scraper : DynastiesScraper
  - scrapedDynasties : ArrayList<Dynasty>
  - + isScraperActive() : boolean
  - + run() : void
  - + getScraperDynasties() : ArrayList<Dynasty>
- **class WikipediaScraper**
  - + «create» WikipediaScraper()
  - + «create» WikipediaScraper(boolean useSelenium, boolean useHeadless)
    - WIKI\_DOMAIN : String
    - ScraperStatusHolder : ScraperStatusHolder
    - driver : WebDriver
    - useSelenium : boolean
    - useHeadless : boolean
    - isScraperActive : boolean
    - debugMode : boolean
  - + start() : void
  - + kill() : void
    - spawnDriver() : void
    - testBrowserInstance(Browser browser) : void
    - selectDriverBasedOnBrowser(Browser browser) : void
    - selectDriverBasedOnOS(SeleniumDriver windowsDriver, SeleniumDriver unix-Driver) : SeleniumDriver
  - + getPageHTML(String pageURL) : String
  - + getPageHTMLwithHTTP(String pageURL) : String
  - + getPageHTMLwithSelenium(String pageURL) : String
  - + getWikipediaSummary(String pageURL) : HashMap<String, HashMap<String, String>>
    - parseRow(HashMap<String, HashMap<String, String> summaryData, Element row) : void
    - parseChunk(HashMap<String, String> tdData, String rowChunk) : void

```
parseParenthesis(String text) : String
- isValidAnchor(Element anchor) : boolean
  setStatus(String status) : void
+ setDebugMode(boolean debugMode) : void
+ setSeleniumMode(boolean useSelenium) : void
+ setHeadlessMode(boolean useHeadless) : void
+ getStatus() : String
+ isActive() : boolean

• final class ScraperStatusHolder
  + «create» ScraperStatusHolder()
  + void updateStatus(String status) : synchronized
  + String getStatus() : synchronized

• class DynastiesScraper extends WikipediaScraper
  - MAIN_EMPEROR_PAGE : String
  - RELATIVE_FIELDS : String[]
  - VALID_NAME_FILTER : String
  - TRAILING_INVALID_CHARS : String
  - TRAILING_SINGLE_CHAR : String
  - INVALID_CHARS : String
  + scrapeDynasties() : ArrayList<Dynasty>
  - getEmperorDynasties() : HashMap<Dynasty, HashMap<String, String>>
  - parseEmperorsTable(Element wikipediaTable) : HashMap<String, String>
  - createDynastyMember(HashMap<String, Member> existingMembers, Dynasty dynasty, String name, String link, boolean isEmperor) : Member
  - createNewMember(HashMap<String, Member> existingMembers, Dynasty dynasty, String name, String link, boolean isEmperor) : Member
  - addRelativesToMember(HashMap<String, Member> existingMembers, HashMap<String, HashMap<String, String>> summary, Dynasty dynasty, Member member, String relativeKey) : void
  - filterName(String name) : String
  - isValidTitle(Element elem) : boolean
  - isValidName(String name) : boolean
```

- isValidLink(String link) : boolean
- isValidMemberData(String name, String link) : boolean
- isValidField(String field) : boolean

### 1.2.3 Pacchetto utils

- **enum** OperatingSystem
  - + get() : OperatingSystem
- **enum** SeleniumDriver
  - «create» SeleniumDriver(String path)
  - path : String
  - + get(String driversFolder) : String
- **interface** JSONNable
  - + toJSONObject() : JSONObject
  - + toJSONFile(String outputPath) : void
- **enum** Browser