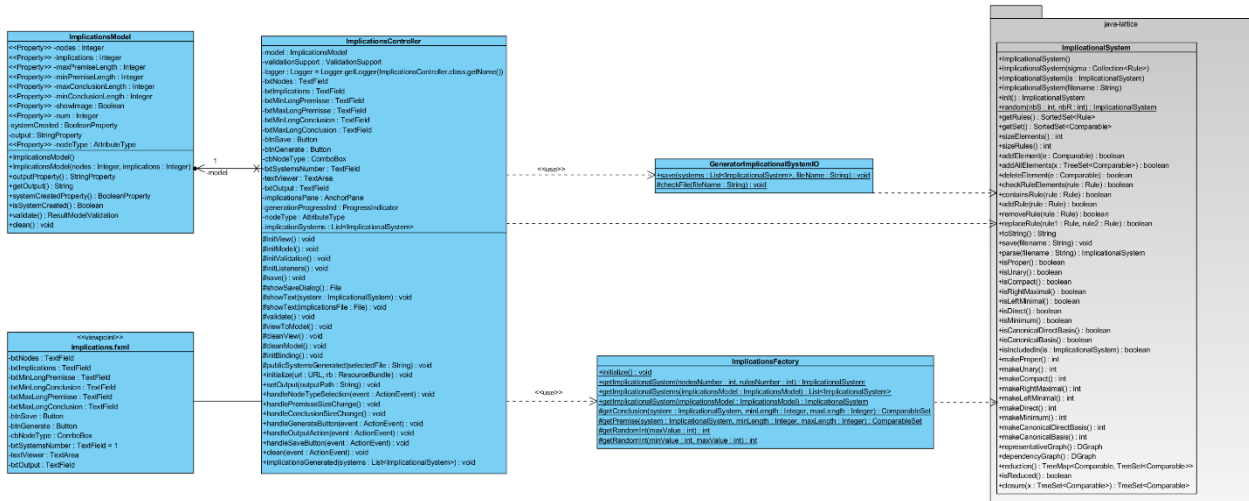








# Generar un sistema aleatorio



## Summary

Name	Description
 implications.fxml	Implications generator main view.
 ImplicationsController	Implications generator view's controller.
 ImplicationsModel	Class which represents the features of implicational system to generate.
 fr.kbertet.lattice.ImplicationalSystem	This class gives a representation for an implicational system (fr.kbertet.lattice.ImplicationalSystem), a set of rules. It belongs to the java-lattice library.
 ImplicationsFactory	Implicational systems factory.
 GeneratorImplicationalSystemIO	Implements the methods to save implicational systems in files.

# Details

---



## implications.fxml

Name	Value
Description	Implications generator main view.
Visibility	public
Stereotypes	viewpoint

## Attributes

private txtNodes : TextField			
Description	System nodes number field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtImplications : javafx.scene.control.TextField			
Description	Implications number field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMinLongPremisse : javafx.scene.control.TextField			
Description	Premises min length field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMinLongConclusion : javafx.scene.control.TextField			
Description	Conclusions min length field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMaxLongPremisse : javafx.scene.control.TextField			
Description	Premises max length field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMaxLongConclusion : javafx.scene.control.TextField			
Description	Conclusions max length field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private btnSave : javafx.scene.control.Button			
Description	Save button.		
Type	javafx.scene.control.Button		
Getter	false	Setter	false
Multiplicity	1		

private btnGenerate : javafx.scene.control.Button			
Description	Generate button.		
Type	javafx.scene.control.Button		
Getter	false	Setter	false
Multiplicity	1		

private cbNodeType : javafx.scene.control.ComboBox			
Description	Dropdown with the node types: numerics (0, 1,, 2, ...), alphabeticals (a, b, c, ...) or alphanumerics (a0, a1, a2, ...).		
Type	javafx.scene.control.ComboBox		
Getter	false	Setter	false
Multiplicity	1		

private txtSystemsNumber : javafx.scene.control.TextField			
Description	Systems number field.		
Initial Value	1		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		


private textViewer : javafx.scene.control.TextArea			
Description	Viewer.		
Type	javafx.scene.control.TextArea		
Getter	false	Setter	false
Multiplicity	1		

private txtOutput : javafx.scene.control.TextField			
Description	Path output file field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

## ImplicationsController

Name	Value
Description	Implications generator view's controller.
Visibility	public

### Attributes

private model : ImplicationsModel			
Description	Model.		
Type	 ImplicationsModel		
Getter	false	Setter	false
Multiplicity	1		

private validationSupport : org.controlsfx.validation.ValidationSupport			
Description	Validation support.		
Type	org.controlsfx.validation.ValidationSupport		
Getter	false	Setter	false
Multiplicity	1		

private logger : java.util.logging.Logger			
Initial Value	Logger.getLogger(ImplicationsController.class.getName())		
Type	java.util.logging.Logger		
Getter	false	Setter	false
Multiplicity	1		

private txtNodes : javafx.scene.control.TextField			
Description	Nodes number field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private txtImplications : javafx.scene.control.TextField			
Description	Implications number field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMinLongPremisse : javafx.scene.control.TextField			
Description	Min length premise field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private txtMaxLongPremisse : javafx.scene.control.TextField			
Description	Max length premise field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		

private txtMinLongConclusion : javafx.scene.control.TextField			
Description	Min length conclusion field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private txtMaxLongConclusion : javafx.scene.control.TextField			
Description	Max length conclusion field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private btnSave : javafx.scene.control.javafx.scene.control.Button			
Description	Save button.		
Type	javafx.scene.control.javafx.scene.control.Button		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private btnGenerate : javafx.scene.control.javafx.scene.control.Button			
Description	Generate button.		
Type	javafx.scene.control.javafx.scene.control.Button		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private cbNodeType : javafx.scene.control.ComboBox			
Description	Node types dropdown.		
Type	javafx.scene.control.ComboBox		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		


private txtSystemsNumber : javafx.scene.control.TextField			
Description	Number systems to generate field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private textViewer : javafx.scene.control.TextArea			
Description	Generated systems viewer.		
Type	javafx.scene.control.TextArea		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private txtOutput : javafx.scene.control.TextField			
Description	Output file path field.		
Type	javafx.scene.control.TextField		
Getter	false	Setter	false
Stereotypes	FXML		

private implicationsPane : javafx.scene.layout.AnchorPane			
Description	Root pane.		
Type	javafx.scene.layout.AnchorPane		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private generationProgressInd : javafx.scene.control.ProgressIndicator			
Description	System generation progress indicator.		
Type	javafx.scene.control.ProgressIndicator		
Getter	false	Setter	false
Multiplicity	1		
Stereotypes	FXML		

private nodeType : AttributeType			
Description	Selected node type.		
Type	 AttributeType		
Getter	false	Setter	false
Multiplicity	1		

private implicationSystems : java.util.List<fr.kbertet.lattice.ImplicationalSystem>			
Description	Generated system.		
Type	java.util.List<fr.kbertet.lattice.ImplicationalSystem>		
Getter	false	Setter	false
Derived	false		
Multiplicity	0..*		

## Operations

public initialize (url : java.net.URL, rb : java.util.ResourceBundle) : void		
Parameters	<b>url</b>	
	Description	URL of the view.
	Multiplicity	1
	Type	java.net.URL
	Direction	inout
	<b>rb</b>	
	Description	Resource Bundle.
	Multiplicity	1
	Type	java.util.ResourceBundle
	Direction	inout
Description	Initializes the controller class.	



protected initView () : void	
Description	Initializes the view.


protected initModel () : void	
Description	Creates an instance of ImplicationsModel.

protected viewToModel () : void	
Description	Reads the view values and saves them into the model.

protected initBindingjav() : void	
Description	Initializes the bindings.

protected initValidation () : void	
Description	Initializes the validation support.

protected initListeners () : void	
Description	Initializes the listeners.

public setOutput (outputPath : String) : void		
Parameters	outputPath	
	Description	Output file path.
	Multiplicity	1
	Type	 String
	Direction	inout
Description	Sets the output file path into the output field.	

public handlePremisseSizeChange () : void	
Description	Cleans the max and min premise length fields decorators. This method is invoked by the max and min premise fields listeners.

public handleConclusionSizeChange () : void	
Description	Cleans the max and min conclusion length fields' decorators. This method is invoked by the max and min conclusion fields listeners.

public handleNodeTypeSelection (event : javafx.event.ActionEvent) : void		
Parameters	event	
	Description	Event.
	Multiplicity	1
	Type	javafx.event.ActionEvent
	Direction	inout
Description	When a node type is selected from the node types dropdown, the node type field is updated.	
Stereotypes	FXML	

public handleOutputAction (event : javafx.event.ActionEvent) : void		
Parameters	event	
	Description	Event thrown when de <i>Search (...)</i> button is pressed.
	Multiplicity	1
	Type	javafx.event.ActionEvent
	Direction	inout
Description	When the <i>Search (...)</i> button is pressed, opens the dialog box to select an output file, and copy the selected file path into Output field.	
Stereotypes	FXML	

public clean (event : javafx.event.ActionEvent) : void		
Parameters	event	
	Description	Event thrown when <i>Clean</i> button is pressed.
	Multiplicity	1
	Type	javafx.event.ActionEvent
	Direction	inout
Description	Handles the event thrown when the Clean button is pressed and cleans the form fields.	
Stereotypes	FXML	

public handleGenerateButton (event : javafx.event.ActionEvent) : void		
Parameters	event	
	Description	Event.
	Multiplicity	1
	Type	javafx.event.ActionEvent
	Direction	inout
Description	Handles the event thrown when the <i>Generate</i> button is pressed and generates the implications with the inserted values.	
Stereotypes	FXML	

public handleSaveButton (event : javafx.event.ActionEvent) : void		
Parameters	event	
	Description	Even thrown when the <i>Save</i> button is pressed.
	Multiplicity	1
	Type	javafx.event.ActionEvent
	Direction	inout
Description	Saves the implicational system in the path inserted into Output filed.	
Stereotypes	FXML	


protected cleanView () : void	
Description	Cleans the view fields.

protected cleanModel () : void	
Description	Cleans the model values.

protected validate () : void	
Description	Performs the model validation.
Exceptions	RuntimeException If validation error exists.


protected save () : void	
Description	Saves the generated implicational systems with the GeneratorImplicationalSystemIO class.

protected showSaveDialog () : java.io.File	
Description	Shows the <i>Save</i> dialog box and returns the selected file.
Return Type Description	Selected file.

protected showText (system : fr.kbertet.lattice.ImplicationalSystem) : void		
Parameters	system	
	Description	Implicational system.
	Multiplicity	1
	Type	 fr.kbertet.lattice.ImplicationalSystem
	Direction	inout
Description	Shows in the viewer an implicational system.	

protected showText (implicationsFile : java.io.File) : void		
Parameters	implicationsFile	
	Description	Implicational system.
	Multiplicity	1
	Type	java.io.File
	Direction	inout
Description	Shows in the viewer a saved system.	

public implicationsGenerated (systems : java.util.List<Implications>) : void		
Parameters	systems	
	Description	Generated implications.
	Multiplicity	1
	Type	java.util.List<Implications>
	Direction	inout
Description	Shows the generated system in the viewer, if was generated only one. If was generated several, shows the <i>Save</i> dialog box.	

protected publicSystemsGenerated (selectedFile : String) : void		
Parameters	selectedFile	
	Description	Output file path.
	Multiplicity	1
	Type	 String
	Direction	inout
Description	Publishes a SystemSaved event by Eventbus.	

## ImplicationsModel

Name	Value
Description	Class which represents the features of implicational system to generate.
Visibility	public

## Attributes

private nodes : Integer			
Description	Nodes number.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private implications : Integer			
Description	Implications number.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private maxPremiseLength : Integer			
Description	Premise attributes max length.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private minPremiseLength : Integer			
Description	Premise attributes min length.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private maxConclusionLength : Integer			
Description	Conclusion attributes max length.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		


private minConclusionLength : Integer			
Description	Conclusion attributes min length.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private showImage : Boolean			
Description	If the graph will be painted.		
Stereotypes	Property		
Type	Boolean		
Getter	true	Setter	true
Multiplicity	1		

private num : Integer			
Description	Number of systems to generate.		
Stereotypes	Property		
Type	Integer		
Getter	true	Setter	true
Multiplicity	1		

private systemCreated : javafx.beans.property.BooleanProperty			
Description	System created flag binding property.		
Type	javafx.beans.property.BooleanProperty		
Getter	false	Setter	false
Multiplicity	1		

private output : javafx.beans.property.StringProperty			
Description	Output file path binding property.		
Type	javafx.beans.property.StringProperty		
Getter	false	Setter	false
Multiplicity	1		

private nodeType : AttributeType			
Description	Node types. It can be numeric, alphabetical or alphanumeric.		
Stereotypes	Property		
Type	 AttributeType		
Getter	true	Setter	true
Multiplicity	1		

# Operations

public ImplicationsModel ()	
Description	Constructor.

public ImplicationsModel (nodes : Integer, implications : Integer)		
Parameters	nodes	
	Description	Nodes number
	Multiplicity	1
	Type	Integer
	Direction	inout
	implications	
	Description	Implications number.
	Multiplicity	1
	Type	Integer
	Direction	inout
Description	Constructor.	

public outputProperty () : javafx.beans.property.StringProperty	
Description	Returns the output file path binding property.
Return Type Description	The output file path binding property.

public getOutput () : String	
Description	Gets the output file path from the outputProperty property.
Return Type Description	Ouptut file path.

public systemCreatedProperty () : javafx.beans.property.BooleanProperty	
Description	Returns the system created flag binding property.
Return Type Description	The system created flag binding property.

public isSystemCreated () : Boolean	
Description	Gets if the system has been created from the systemCreatedProperty property.
Return Type Description	true if the system has been created, false otherwise.



<b>public validate () : ResultModelValidation</b>	
Description	Checks if the model is correct for the implicational system generation.
Return Type Description	Object with the validation results.


<b>public clean () : void</b>	
Description	Cleans the properties values.

## ImplicationsFactory



Name	Value
Description	Random implicational systems factory.
Visibility	public

## Operations


<b>public initialize () : void</b>	
Description	Initializes the factory.

<b>public getImplicationalSystems (implicationsModel : ImplicationsModel) : java.util.List</b>		
Parameters	<b>implicationsModel</b>	
	Description	Restrictions of the systems to generate.
	Multiplicity	1
	Type	 ImplicationsModel
	Direction	inout
Description	Returns n implicational systems fulfilling the established restrictions in the implicationsModel parameter.	
Return Type Description	Implicational systems list.	

**public getImplicationalSystem (nodesNumber : int, rulesNumber : int) :**  
**fr.kbertet.lattice.ImplicationalSystem**

Parameters	<b>nodesNumber</b>	
	Description	Nodes number.
	Multiplicity	1
	Type	 int
	Direction	inout
	<b>rulesNumber</b>	
	Description	Implications number.
	Multiplicity	1
	Type	 int
	Direction	inout
Description	Generates a random system with the nodes and implications number passed by parameter.	
Return Type Description	Generated implicational system.	


**public getImplicationalSystem (implicationsModel : ImplicationsModel) :**  
**fr.kbertet.lattice.ImplicationalSystem**


Parameters	<b>implicationsModel</b>	
	Description	Restrictions of the systems to generate.
	Multiplicity	1
	Type	 ImplicationsModel
	Direction	inout
Description	Returns an implicational systems fulfilling the established restrictions in the implicationsModel parameter.	
Return Type Description	Random implicational system.	

<u>protected getRandomInt (maxValue : int) : int</u>		
Parameters	maxValue	
	Description	Max value.
	Multiplicity	1
	Type	● int
	Direction	inout
Description	Returns a random integer, between 0 and max Value parameter value.	

<u>protected getRandomInt (minValue : int, maxValue : int) : int</u>		
Parameters	minValue	
	Description	Min value.
	Multiplicity	1
	Type	● int
	Direction	inout
	maxValue	
	Description	Max value.
	Multiplicity	1
	Type	● int
	Direction	inout
Description	Returns a random integer, between a min and max value passed as parameters.	
Return Type Description	Random integer value.	

**protected getConclusion (system : fr.kbertet.lattice.ImplicationalSystem,  
minLength : Integer, maxLength : Integer) : ComparableSet**

Parameters	<b>system</b>	
	Description	Implicational system.
	Multiplicity	1
	Type	 fr.kbertet.lattice.ImplicationalSystem
	Direction	inout
	<b>minLength</b>	
	Description	Min nodes number.
	Multiplicity	1
	Type	Integer
	Direction	inout
	<b>maxLength</b>	
	Description	Max nodes number.
	Multiplicity	1
	Type	Integer
	Direction	inout
Description	Returns a conclusion with a max nodes number. If maxLength parameter is null or less than 0, the max nodes number is the system nodes number.	
Return Type Description	Conclusion with a max nodes number.	
Exceptions	RuntimeException if the maxLength parameter is greater than attributes number.	

protected <u>getPremise (system : fr.kbertet.lattice.ImplicationalSystem, minLength : Integer, maxLength : Integer) : ComparableSet</u>	
Parameters	<b>system</b>
	Description
	Implicational system.
	Multiplicity
	1
	Type
	 fr.kbertet.lattice.ImplicationalSystem
	Direction
	inout
	<b>minLength</b>
	Description
	Min nodes number.
	Multiplicity
	1
	Type
	Integer
	Direction
	inout
	<b>maxLength</b>
	Description
	Max nodes number.
	Multiplicity
	1
	Type
	Integer
	Direction
	inout
Description	Returns a premise with a max nodes number. If the maxLength parameter is null or less than 0, the max nodes number is the system nodes number.
Return Type Description	Premise with a max nodes number.
Return Type Description	Random integer value.

## GeneratorImplicationalSystemIO

Name	Value
Description	Implements the methods to save implicational systems in files.
Visibility	public

# Operations

<u>public save (systems : java.util.List&lt; fr.kbertet.lattice.ImplicationalSystem&gt;, fileName : String) : void</u>		
Parameters	systems	
	Description	Implicational systems.
	Multiplicity	1
	Type	java.util.List < fr.kbertet.lattice.ImplicationalSystem>
	Direction	inout
	fileName	
	Description	File names prefix.
	Multiplicity	Unspecified
	Type	● String
	Direction	inout
	Java Detail	N/A
Description	Saves n systems in n files with the names filename_1, filename_2, ..., filename_n.  If the list only contains one element, this is saved in the file with the name fileName.	
Exceptions	java.io.IOException if read / write error occur.	

<u>protected checkFile (fileName : String) : void</u>		
Parameters	fileName	
	Description	File name.
	Multiplicity	1
	Type	● String
	Direction	inout
Description	Checks if the file with name fileName parameter value exists. If no exists, this will be created.	
Exceptions	java.io.IOException if read / write error occur.	