

Image Annotator

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

AutoSaveThread	A thread worker class that calls save function of label class every 30 seconds	5
CustomResizer	Class for the resizer box	6
DarkStyle	Proxy style class to implement a dark theme on the app	9
CustomResizer::HandleItem	Class for the resizer item	10
HashNode	A node for StringDateHash	11
ImageEditor	Custom image editor component for annotating images and labelling image	13
Labeller	Class for UI and controller methods for the main page	24
LabellerModel	Class for model methods for the main page	32
StringDateHash	Custom Hash table container with <code>QString</code> as key and <code>QDate</code> as value	38

Chapter 3

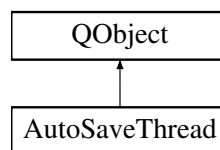
Class Documentation

3.1 AutoSaveThread Class Reference

A thread worker class that calls save function of label class every 30 seconds.

```
#include <auto_save_thread.h>
```

Inheritance diagram for AutoSaveThread:



Public Member Functions

- **AutoSaveThread** ([Labeller](#) *newLabeller)

Private Slots

- void [process](#) ()

Private Attributes

- [Labeller](#) * **labeller**

3.1.1 Detailed Description

A thread worker class that calls save function of label class every 30 seconds.

3.1.2 Member Function Documentation

3.1.2.1 process

```
void AutoSaveThread::process ( ) [private], [slot]
```

A slot that calls `doAutoSave` function from the `labller` class

The documentation for this class was generated from the following files:

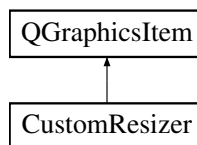
- SRC/auto_save_thread.h
- SRC/auto_save_thread.cpp

3.2 CustomResizer Class Reference

Class for the resizer box.

```
#include <custom_resizer.h>
```

Inheritance diagram for CustomResizer:



Classes

- class [HandleItem](#)
Class for the resizer item.

Public Types

- enum { **Type** = UserType }
Used by QGraphicsRectItem to indentify the item type.

Public Member Functions

- **CustomResizer** (QGraphicsItem *parent=0)
- int [type](#) () const override
- virtual QRectF [boundingRect](#) () const override
- virtual void **paint** (QPainter *painter, const QStyleOptionGraphicsItem *option, QWidget *widget=0) override
- void [setTopLeft](#) (const QPointF &pos)
- void [setTopRight](#) (const QPointF &pos)
- void [setBottomRight](#) (const QPointF &pos)
- void [setBottomLeft](#) (const QPointF &pos)
- void [setTop](#) (qreal y)
- void [setRight](#) (qreal x)
- void [setBottom](#) (qreal y)
- void [setLeft](#) (qreal x)

Private Types

- enum [Position](#) {
Top = 0x1, **Bottom** = 0x2, **Left** = 0x4, **TopLeft** = Top | Left,
BottomLeft = Bottom | Left, **Right** = 0x8, **TopRight** = Top | Right, **BottomRight** = Bottom | Right }
Enum to represent the position of resizer item.

Private Member Functions

- void [doResize](#) ()
- void [updateHandleItemPositions](#) ()

Private Attributes

- QList< [HandleItem](#) * > [handleItems](#)
List of individual resizer items.
- QRectF [rect](#)
Bounding rectangle.

3.2.1 Detailed Description

Class for the resizer box.

3.2.2 Member Function Documentation

3.2.2.1 boundingRect()

```
QRectF CustomResizer::boundingRect ( ) const [override], [virtual]
```

Returns `rect`

3.2.2.2 doResize()

```
void CustomResizer::doResize ( ) [private]
```

Updattes postions of necessary resizer items and updates size of QGraphicsItem

3.2.2.3 setBottom()

```
void CustomResizer::setBottom (
    qreal y )
```

Sets bottom resizer item

3.2.2.4 setBottomLeft()

```
void CustomResizer::setBottomLeft (
    const QPointF & pos )
```

Sets bottom left resizer item

3.2.2.5 setBottomRight()

```
void CustomResizer::setBottomRight (
    const QPointF & pos )
```

Sets bottom right resizer item

3.2.2.6 setLeft()

```
void CustomResizer::setLeft (
    qreal x )
```

Sets left resizer item

3.2.2.7 setRight()

```
void CustomResizer::setRight (
    qreal x )
```

Sets right resizer item

3.2.2.8 setTop()

```
void CustomResizer::setTop (
    qreal y )
```

Sets top resizer item

3.2.2.9 setTopLeft()

```
void CustomResizer::setTopLeft (
    const QPointF & pos )
```

Sets top left resizer item

3.2.2.10 setTopRight()

```
void CustomResizer::setTopRight (
    const QPointF & pos )
```

Sets top right resizer item

3.2.2.11 type()

```
int CustomResizer::type ( ) const [override]
```

Returns custom type value

3.2.2.12 updateHandleItemPositions()

```
void CustomResizer::updateHandleItemPositions ( ) [private]
```

Upadtes postions of individual resizer items

The documentation for this class was generated from the following files:

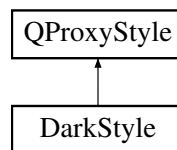
- SRC/custom_resizer.h
- SRC/custom_resizer.cpp

3.3 DarkStyle Class Reference

Proxy style class to implement a dark theme on the app.

```
#include <dark_style.h>
```

Inheritance diagram for DarkStyle:



Public Member Functions

- **DarkStyle** (QStyle *style)
- QStyle * **baseStyle** () const
- void **polish** (QPalette &palette) override
- void **polish** (QApplication *app) override

Private Member Functions

- QStyle * **styleBase** (QStyle *style=Q_NULLPTR) const

3.3.1 Detailed Description

Proxy style class to implement a dark theme on the app.

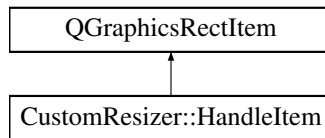
The documentation for this class was generated from the following files:

- SRC/dark_style.h
- SRC/dark_style.cpp

3.4 CustomResizer::HandleItem Class Reference

Class for the resizer item.

Inheritance diagram for CustomResizer::HandleItem:



Public Types

- enum { **Type** = UserType + 1 }
Custom type value used by QGraphicsRectItem to indentify the item type.

Public Member Functions

- **HandleItem** (int [positionFlags](#), CustomResizer *parent)
- int [type](#) () const override
- int [getPositionFlags](#) () const

Protected Member Functions

- virtual QVariant [itemChange](#) (GraphicsItemChange change, const QVariant &value) override
<https://doc.qt.io/qt-5/qgraphicsitem.html#itemChange>

Private Member Functions

- QPointF [restrictPosition](#) (const QPointF &newPos)

Private Attributes

- CustomResizer * [parent](#)
Container for the pointer to the parent resizer class.
- int [positionFlags](#)
int to represent the position of the resizer reative to related containers

3.4.1 Detailed Description

Class for the resizer item.

3.4.2 Member Function Documentation

3.4.2.1 getPositionFlags()

```
int CustomResizer::HandleItem::getPositionFlags ( ) const
```

Returns `positionFlags`

3.4.2.2 restrictPosition()

```
QPointF CustomResizer::HandleItem::restrictPosition (
    const QPointF & newPos ) [private]
```

Returns QPointF based on the position flag

Parameters

<i>newPos</i>	
---------------	--

3.4.2.3 type()

```
int CustomResizer::HandleItem::type ( ) const [override]
```

Returns custom type value

The documentation for this class was generated from the following files:

- SRC/custom_resizer.h
- SRC/custom_resizer.cpp

3.5 HashNode Class Reference

A node for [StringDateHash](#)

```
#include <string_date_hash.h>
```

Public Member Functions

- **HashNode** (const QString &key, const QDateTime &value)
- QString [getKey](#) () const
- QDateTime [getValue](#) () const
- void [setValue](#) (QDateTime value)
- void [setNext](#) (HashNode *next)
- HashNode * [getNext](#) () const

Private Attributes

- QString **key**
- QDateTime **value**
- [HashNode](#) * **next**

Friends

- bool **operator**> ([HashNode](#) const &left, [HashNode](#) const &right)
- bool **operator**< ([HashNode](#) const &left, [HashNode](#) const &right)

3.5.1 Detailed Description

A node for [StringDateHash](#)

3.5.2 Member Function Documentation

3.5.2.1 getKey()

```
QString HashNode::getKey ( ) const
```

Returns `key`

3.5.2.2 getNext()

```
HashNode * HashNode::getNext ( ) const
```

Returns next [HashNode](#)

3.5.2.3 getValue()

```
QDateTime HashNode::getValue ( ) const
```

Returns `value`

3.5.2.4 setNext()

```
void HashNode::setNext (
    HashNode * next )
```

Sets additional value for the node with a key that returns same hash value

Parameters

<i>next</i>	
-------------	--

3.5.2.5 setValue()

```
void HashNode::setValue (
    QDateTime value )
```

Sets *value*

Parameters

<i>value</i>	
--------------	--

The documentation for this class was generated from the following files:

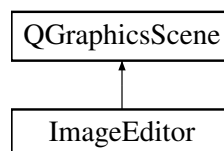
- SRC/string_date_hash.h
- SRC/string_date_hash.cpp

3.6 ImageEditor Class Reference

Custom image editor component for annotating images and labelling image.

```
#include <image_editor.h>
```

Inheritance diagram for ImageEditor:



Public Types

- enum [CursorType](#) { [Draw](#), [Text](#), [Select](#) }
Cursor type enum for identifying the current state of the cursor.
- enum [AnnotationShapeType](#) { [Rectangle](#), [FreeHand](#), [Points](#) }
Annotation shape enum for identifying the current state of the shape being drawn.

Public Slots

- void [deleteSelectedItem](#) ()
- void [copySelectedItem](#) ()
- void [pasteSelectedItem](#) ()
- void [pasteSelectedItemInPlace](#) ()
- void [connectClickElipses](#) ()
- void [deleteClickElipses](#) ()

Signals

- void [cursorTypeChanged](#) ()
- void [annotationShapeChanged](#) ()
- void [drawingRectangle](#) ()
- void [finishedDrawingRectangle](#) ()

Public Member Functions

- void [setImage](#) (const QString fileName)
- void [loadAnnotations](#) ()
- void [saveImageState](#) ()
- void [updateCursorType](#) (const [CursorType](#) newCursorType)
- void [updateAnnotationShapeType](#) (const [AnnotationShapeType](#) newAnnotationShape)
- void [updateClassLabel](#) (const QString newClassLabel)
- void [updateApplicationRectState](#) (const QString fileName, const QList< QRectF > rectItems)
- void [updateApplicationPolygonState](#) (const QString fileName, const QList< QPolygonF > polygonItems)
- void [updateApplicationTextState](#) (const QString fileName, const QList< QPair< QString, QPointF >> textItems)
- void [clearItems](#) ()
- [CursorType](#) [getCursorType](#) () const
- [AnnotationShapeType](#) [getAnnotationShapeType](#) () const
- QHash< QString, QList< QRectF > > [getApplicationRectState](#) () const
- QHash< QString, QList< QPolygonF > > [getApplicationPolygonState](#) () const
- QHash< QString, QList< QPair< QString, QPointF > > > [getApplicationTextState](#) () const
- void [forceReload](#) ()

Protected Member Functions

- void [mousePressEvent](#) (QGraphicsSceneMouseEvent *event) override
- void [mouseMoveEvent](#) (QGraphicsSceneMouseEvent *event) override
- void [mouseReleaseEvent](#) (QGraphicsSceneMouseEvent *event) override
- void [contextMenuEvent](#) (QGraphicsSceneContextMenuEvent *event) override
- void [keyPressEvent](#) (QKeyEvent *event) override

Private Types

- enum [ClipboardContent](#) { [Label](#), [Rect](#), [Poly](#) }

Clipboard content enum for identifying the current content held by the clipboard.

Private Member Functions

- void [createActions](#) ()
- void [openImage](#) (const QString fileName)
- void [drawPolygon](#) (const QPolygonF newPolygon)
- void [drawRectangle](#) (const QRectF newRectangle)
- void [drawText](#) (const QString newText, const QPointF newPoint)
- bool [savedStateExists](#) (const QString fileName)

Private Attributes

- bool [imageSet](#)
Boolean for whether or not an image is set for better performance with comparisson operators.
- bool [drawing](#)
Boolean for drawing state.
- bool [clipbord](#)
Boolean for for whether clipobord containers are empty or not for better performance with comparisson operators.
- [CursorType](#) [cursorType](#)
Container for the cursor state.
- [AnnotationShapeType](#) [annotationShape](#)
Container for the state of shape being drawn.
- QString [classLabel](#)
Container for the class state (Text that would be added)
- QString [currFileName](#)
Container for the file name.
- QPoint [origin](#)
Point where mouse was pressed, used QRubberBand.
- QPoint [lastPoint](#)
Point where mouse was released, used QRubberBand.
- QPointF [originF](#)
Point where the mouse was pressed, used by shape being drawn.
- QPointF [lastPointF](#)
Point where the mouse was released, used by shape being drawn.
- QString [clipbordText](#)
Container for the text copied by user.
- QPointF [clipbordPoint](#)
Container for the position of item copied by user.
- QPointF [clipbordClickPoint](#)
Container for position of the mouse when the context menu was created.
- qreal [clipbordHeight](#)
Container for height of the QGraphicsRectItem which was copied.
- qreal [clipbordWidth](#)
Container for width of the QGraphicsRectItem which was copied.
- QPointF [clipbordPolygon](#)
Container for the polygon of the QGraphicsPolygonItem which was copied.
- QPointF [clipbordPolygonItemPoint](#)
Container for the position of the QGraphicsPolygonItem which was copied.
- [ClipbordContent](#) [clipbordContent](#)
Container to identify the type of item that has been copied.
- QAction * **copyAction**
- QAction * **pasteAction**
- QAction * **deleteAction**
- QRubberBand * [rubberBand](#)
<https://doc.qt.io/qt-5/qrubberband.html>
- QList< QPointF > [clickPoints](#)
Container to store points marked by the user to create a polygon.
- QList< QGraphicsLineItem * > [clickLines](#)
Container to store line markers used when creating a polygon.
- QList< QGraphicsEllipseItem * > [clickEplipses](#)
Container to store eplipse markers used when creating a polygon.

- `QHash< QString, QList< QPolygonF > >` [applicationPolygonState](#)
A container for the information on the polygons drawn on the image and the relevant image file path.
- `QHash< QString, QList< QRectF > >` [applicationRectState](#)
A container for the information on the rectangles drawn on the image and the relevant image file path.
- `QHash< QString, QList< QPair< QString, QPointF > > >` [applicationTextState](#)
A container for the information on the text boxes added on the image and the relevant image file path.

3.6.1 Detailed Description

Custom image editor component for annotating images and labelling image.

3.6.2 Member Enumeration Documentation

3.6.2.1 AnnotationShapeType

```
enum ImageEditor::AnnotationShapeType
```

Annotation shape enum for identifying the current state of the shape being drawn.

Enumerator

Rectangle	For drawing rectangles
FreeHand	For drawing free hand
Points	For drawing with points

3.6.2.2 ClipbordContent

```
enum ImageEditor::ClipbordContent [private]
```

Clipbord content enum for identifying the current content held by the clipbord.

Enumerator

Label	Clipbord contains a text item
Rect	Clipbord contains a rectangle
Poly	Clipbord contains a polygon

3.6.2.3 CursorType

```
enum ImageEditor::CursorType
```


Cursor type enum for identifying the current state of the cursor.

Enumerator

Draw	Cursor for drawing shapes
Text	Cursor for adding text
Select	Cursor for moving, resizing, copying, pasting and deleting shapes and text

3.6.3 Member Function Documentation

3.6.3.1 annotationShapeChanged

```
void ImageEditor::annotationShapeChanged ( ) [signal]
```

Sends a signal to the labeller class when annotation shape changes

3.6.3.2 clearItems()

```
void ImageEditor::clearItems ( )
```

Clears all items on the scene except the image

3.6.3.3 connectClickElipses

```
void ImageEditor::connectClickElipses ( ) [slot]
```

Creates a polygon of `clickPoints`

3.6.3.4 contextMenuEvent()

```
void ImageEditor::contextMenuEvent (
    QGraphicsSceneContextMenuEvent * event ) [override], [protected]
```

<https://doc.qt.io/qt-5/qgraphicsitem.html#contextMenuEvent>

3.6.3.5 copySelectedItem

```
void ImageEditor::copySelectedItem ( ) [slot]
```

Stores information of selected item in relevant containers

3.6.3.6 createActions()

```
void ImageEditor::createActions ( ) [private]
```

Creates copy, paste and delete actions which is attached to the context menu created when user right clicks on the image editor

3.6.3.7 cursorTypeChanged

```
void ImageEditor::cursorTypeChanged ( ) [signal]
```

Sends a signal to the labeller class when cursor type changes

3.6.3.8 deleteClickElipses

```
void ImageEditor::deleteClickElipses ( ) [slot]
```

Delete all `clickElipses`

3.6.3.9 deleteSelectedItem

```
void ImageEditor::deleteSelectedItem ( ) [slot]
```

Deletes selected Qgraphics item

3.6.3.10 drawingRectangle

```
void ImageEditor::drawingRectangle ( ) [signal]
```

Sends a signal to the labeller class when a rectangle is being drawn

3.6.3.11 drawPolygon()

```
void ImageEditor::drawPolygon (
    const QPolygonF newPolygon ) [private]
```

Adds QGraphicsPolygonItem on scene

Parameters

<i>QPolygonF</i>	https://doc.qt.io/qt-5/qpolygonf.html
------------------	---

3.6.3.12 drawRectangle()

```
void ImageEditor::drawRectangle (
    const QRectF newRectangle ) [private]
```

Adds QGraphicsRectItem on scene

Parameters

<i>newRectangle</i>	https://doc.qt.io/qt-5/qrectf.html
---------------------	---

3.6.3.13 drawText()

```
void ImageEditor::drawText (
    const QString newText,
    const QPointF newPoint ) [private]
```

Adds text on scene

Parameters

<i>newText</i>	
<i>newPoint</i>	

3.6.3.14 finishedDrawingRectangle

```
void ImageEditor::finishedDrawingRectangle ( ) [signal]
```

Sends a signal to the labeller class when a rectangle is finished being drawn

3.6.3.15 forceReload()

```
void ImageEditor::forceReload ( )
```

Force reloads curent image to load any annotations from the annotation file

3.6.3.16 getAnnotationShapeType()

```
ImageEditor::AnnotationShapeType ImageEditor::getAnnotationShapeType ( ) const
```

Returns annotationShape

3.6.3.17 getApplicationPolygonState()

```
QHash< QString, QList< QPolygonF > > ImageEditor::getApplicationPolygonState ( ) const
```

Returns applicationPolygonState

3.6.3.18 getApplicationRectState()

```
QHash< QString, QList< QRectF > > ImageEditor::getApplicationRectState ( ) const
```

Returns applicationRectState

3.6.3.19 getApplicationTextState()

```
QHash< QString, QList< QPair< QString, QPointF > > > ImageEditor::getApplicationTextState ( ) const
```

Returns applicationTextState

3.6.3.20 getCursorType()

```
ImageEditor::CursorType ImageEditor::getCursorType ( ) const
```

Returns cursorType

3.6.3.21 keyPressEvent()

```
void ImageEditor::keyPressEvent (   
    QKeyEvent * event ) [override], [protected]
```

<https://doc.qt.io/qt-5/qgraphicsitem.html#keyPressEvent>

3.6.3.22 loadAnnotations()

```
void ImageEditor::loadAnnotations ( )
```

Loads saved state annotations onto image if any exists

3.6.3.23 mouseMoveEvent()

```
void ImageEditor::mouseMoveEvent (   
    QGraphicsSceneMouseEvent * event ) [override], [protected]
```

<https://doc.qt.io/qt-5/qgraphicsitem.html#mouseMoveEvent>

3.6.3.24 mousePressEvent()

```
void ImageEditor::mousePressEvent (
    QGraphicsSceneMouseEvent * event ) [override], [protected]
```

<https://doc.qt.io/qt-5/qgraphicsitem.html#mousePressEvent>

3.6.3.25 mouseReleaseEvent()

```
void ImageEditor::mouseReleaseEvent (
    QGraphicsSceneMouseEvent * event ) [override], [protected]
```

<https://doc.qt.io/qt-5/qgraphicsitem.html#mouseReleaseEvent>

3.6.3.26 openImage()

```
void ImageEditor::openImage (
    const QString fileName ) [private]
```

Adds image on scene

Parameters

<i>fileName</i>	
-----------------	--

3.6.3.27 pasteSelectedItem

```
void ImageEditor::pasteSelectedItem ( ) [slot]
```

Creates QGraphicsItem based on information from relevant containers

3.6.3.28 pasteSelectedItemInPlace

```
void ImageEditor::pasteSelectedItemInPlace ( ) [slot]
```

Creates QGraphicsItem based on information from relevant containers and additionally the mouse position

3.6.3.29 savedStateExists()

```
bool ImageEditor::savedStateExists (
    const QString fileName ) [private]
```

Checks if image has any existing annotation and labels

Parameters

<i>fileName</i>	Absolute path to image
-----------------	------------------------

3.6.3.30 saveImageState()

```
void ImageEditor::saveImageState ( )
```

Saves information of the text and shapes on the image into relevant hash tables

3.6.3.31 setImage()

```
void ImageEditor::setImage (
    const QString fileName )
```

Sets image being viewed on the editor

Parameters

<i>fileName</i>	Absolute path to an image
-----------------	---------------------------

3.6.3.32 updateAnnotationShapeType()

```
void ImageEditor::updateAnnotationShapeType (
    const AnnotationShapeType newAnnotationShape )
```

Updates annotationShape

Parameters

<i>newCursorType</i>	
----------------------	--

3.6.3.33 updateApplicationPolygonState()

```
void ImageEditor::updateApplicationPolygonState (
    const QString fileName,
    const QList< QPolygonF > polygonItems )
```

Updates applicationPolygonState

Parameters

<i>fileName</i>	
<i>polygonItems</i>	

3.6.3.34 updateApplicationRectState()

```
void ImageEditor::updateApplicationRectState (
    const QString fileName,
    const QList< QRectF > rectItems )
```

Updates applicationRectState

Parameters

<i>fileName</i>	
<i>rectItems</i>	

3.6.3.35 updateApplicationTextState()

```
void ImageEditor::updateApplicationTextState (
    const QString fileName,
    const QList< QPair< QString, QPointF >> textItems )
```

Updates applicationTextState

Parameters

<i>fileName</i>	
<i>textItems</i>	

3.6.3.36 updateClassLabel()

```
void ImageEditor::updateClassLabel (
    const QString newClassLabel )
```

Updates the text used when adding text on the image

Parameters

<i>newClassLabel</i>	
----------------------	--

3.6.3.37 updateCursorType()

```
void ImageEditor::updateCursorType (
    const CursorType newCursorType )
```

Updates `cursorType`

Parameters

<i>newCursorType</i>	
----------------------	--

The documentation for this class was generated from the following files:

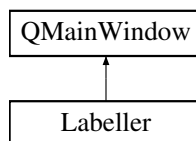
- SRC/image_editor.h
- SRC/image_editor.cpp

3.7 Labeller Class Reference

Class for UI and controller methods for the main page.

```
#include <labeller.h>
```

Inheritance diagram for Labeller:



Public Slots

- void [doAutoSave](#) ()

Public Member Functions

- **Labeller** (QWidget *parent=nullptr)

Private Slots

- void [setImageList](#) ()
- void [setImageListToResult](#) ()
- void [setClassList](#) ()
- void [setImageDir](#) ()
- void [setClassFile](#) ()
- void [setAnnotationFile](#) ()
- void [setSelectedImageFile](#) ()
- void [setCursorTypeLabel](#) ()
- void [setShapeTypeLabel](#) ()
- void [clearClassItemLineEdit](#) ()
- void [setCursorToCross](#) ()
- void [setCursorToArrow](#) ()
- void [on_imageBrowseButton_clicked](#) ()
- void [on_classBrowseButton_clicked](#) ()
- void [on_annotationBrowseButton_clicked](#) ()
- void [on_addNameItemButton_clicked](#) ()
- void [on_deleteClassItemButton_clicked](#) ()
- void [on_sortClassAscButton_clicked](#) ()
- void [on_sortClassDscButton_clicked](#) ()
- void [on_imageList_clicked](#) ()
- void [on_sortImagesAsc_clicked](#) ()
- void [on_sortImagesDsc_clicked](#) ()
- void [on_sortImagesdateAsc_clicked](#) ()
- void [on_sortImagesDateDsc_clicked](#) ()
- void [on_restoreImages_clicked](#) ()
- void [on_searchImages_clicked](#) ()
- void [on_saveButton_clicked](#) ()
- void [on_actionMark_Object_triggered](#) ()
- void [on_actionAdd_Text_triggered](#) ()
- void [on_actionSelect_triggered](#) ()
- void [on_actionDelete_triggered](#) ()
- void [on_actionCopy_triggered](#) ()
- void [on_actionPaste_triggered](#) ()
- void [on_clearButton_clicked](#) ()
- void [on_classList_clicked](#) ()
- void [on_actionRectangle_triggered](#) ()
- void [on_actionSmart_annotate_triggered](#) ()
- void [on_actionSmart_Click_triggered](#) ()
- void [on_connectButton_clicked](#) ()
- void [on_clearPoints_clicked](#) ()
- void [on_actionHow_to_use_triggered](#) ()
- void [on_actionAbout_triggered](#) ()

Private Member Functions

- void [createListeners](#) ()
- QPointF [parsePoint](#) (QString point)

Private Attributes

- Ui::Labeller * [ui](#)
- [LabellerModel](#) * [labellerModel](#)
- [ImageEditor](#) * [imageEditor](#)

3.7.1 Detailed Description

Class for UI and controller methods for the main page.

3.7.2 Member Function Documentation

3.7.2.1 clearClassItemLineEdit

```
void Labeller::clearClassItemLineEdit ( ) [private], [slot]
```

Clears value of classItemLineEdit

3.7.2.2 createListeners()

```
void Labeller::createListeners ( ) [private]
```

Initiates all listeners

3.7.2.3 doAutoSave

```
void Labeller::doAutoSave ( ) [slot]
```

Calls save function if an annotation file is selected

3.7.2.4 on_actionAbout_triggered

```
void Labeller::on_actionAbout_triggered ( ) [private], [slot]
```

Triggered when About is clicked from the menu

3.7.2.5 on_actionAdd_Text_triggered

```
void Labeller::on_actionAdd_Text_triggered ( ) [private], [slot]
```

Triggered when the add text option is selected from menu

3.7.2.6 on_actionCopy_triggered

```
void Labeller::on_actionCopy_triggered ( ) [private], [slot]
```

Triggered when the copy option is selected from menu

3.7.2.7 on_actionDelete_triggered

```
void Labeller::on_actionDelete_triggered ( ) [private], [slot]
```

Triggered when the delete option is selected from menu

3.7.2.8 on_actionHow_to_use_triggered

```
void Labeller::on_actionHow_to_use_triggered ( ) [private], [slot]
```

Triggered when How To Use ? is clicked from the menu

3.7.2.9 on_actionMark_Object_triggered

```
void Labeller::on_actionMark_Object_triggered ( ) [private], [slot]
```

Triggered when the mark object option is selected from menu

3.7.2.10 on_actionPaste_triggered

```
void Labeller::on_actionPaste_triggered ( ) [private], [slot]
```

Triggered when the paste option is selected from menu

3.7.2.11 on_actionRectangle_triggered

```
void Labeller::on_actionRectangle_triggered ( ) [private], [slot]
```

Triggered when Rectangle is clicked from the menu

3.7.2.12 on_actionSelect_triggered

```
void Labeller::on_actionSelect_triggered ( ) [private], [slot]
```

Triggered when the select option is selected from menu

3.7.2.13 on_actionSmart_annotate_triggered

```
void Labeller::on_actionSmart_annotate_triggered ( ) [private], [slot]
```

Triggered when Smart Annotate is clicked from the menu

3.7.2.14 on_actionSmart_Click_triggered

```
void Labeller::on_actionSmart_Click_triggered ( ) [private], [slot]
```

Triggered when Smart Click is clicked from the menu

3.7.2.15 on_addNameItemButton_clicked

```
void Labeller::on_addNameItemButton_clicked ( ) [private], [slot]
```

Triggered when the addNameItemButton is clicked

3.7.2.16 on_annotationBrowseButton_clicked

```
void Labeller::on_annotationBrowseButton_clicked ( ) [private], [slot]
```

Triggered when the annotationBrowseButton is clicked

3.7.2.17 on_classBrowseButton_clicked

```
void Labeller::on_classBrowseButton_clicked ( ) [private], [slot]
```

Triggered when the classBrowseButton is clicked

3.7.2.18 on_classList_clicked

```
void Labeller::on_classList_clicked ( ) [private], [slot]
```

Triggered when classList is clicked

3.7.2.19 on_clearButton_clicked

```
void Labeller::on_clearButton_clicked ( ) [private], [slot]
```

Triggered when the clearButton is clicked

3.7.2.20 on_clearPoints_clicked

```
void Labeller::on_clearPoints_clicked ( ) [private], [slot]
```

Triggered when clearPoints is clicked

3.7.2.21 on_connectButton_clicked

```
void Labeller::on_connectButton_clicked ( ) [private], [slot]
```

Triggered when connectButton is clicked

3.7.2.22 on_deleteClassItemButton_clicked

```
void Labeller::on_deleteClassItemButton_clicked ( ) [private], [slot]
```

Triggered when the deleteClassItemButton is clicked

3.7.2.23 on_imageBrowseButton_clicked

```
void Labeller::on_imageBrowseButton_clicked ( ) [private], [slot]
```

Triggered when the imageBrowseButton is clicked

3.7.2.24 on_imageList_clicked

```
void Labeller::on_imageList_clicked ( ) [private], [slot]
```

Triggered when the imageList is clicked

3.7.2.25 on_restoreImages_clicked

```
void Labeller::on_restoreImages_clicked ( ) [private], [slot]
```

Triggered when the restoreImages is clicked

3.7.2.26 on_saveButton_clicked

```
void Labeller::on_saveButton_clicked ( ) [private], [slot]
```

Triggered when the saveButton is clicked

3.7.2.27 on_searchImages_clicked

```
void Labeller::on_searchImages_clicked ( ) [private], [slot]
```

Triggered when the searchImages is clicked

3.7.2.28 on_sortClassAscButton_clicked

```
void Labeller::on_sortClassAscButton_clicked ( ) [private], [slot]
```

Triggered when the sortClassAscButton is clicked

3.7.2.29 on_sortClassDscButton_clicked

```
void Labeller::on_sortClassDscButton_clicked ( ) [private], [slot]
```

Triggered when the sortClassDscButton is clicked

3.7.2.30 on_sortImagesAsc_clicked

```
void Labeller::on_sortImagesAsc_clicked ( ) [private], [slot]
```

Triggered when the sortImagesAsc is clicked

3.7.2.31 on_sortImagesdateAsc_clicked

```
void Labeller::on_sortImagesdateAsc_clicked ( ) [private], [slot]
```

Triggered when the sortImagesdateAsc is clicked

3.7.2.32 on_sortImagesDateDsc_clicked

```
void Labeller::on_sortImagesDateDsc_clicked ( ) [private], [slot]
```

Triggered when the sortImagesDateDsc is clicked

3.7.2.33 on_sortImagesDsc_clicked

```
void Labeller::on_sortImagesDsc_clicked ( ) [private], [slot]
```

Triggered when the sortImagesDsc is clicked

3.7.2.34 parsePoint()

```
QPointF Labeller::parsePoint (
    QString point ) [private]
```

Parses point string from .annotations file to QPointF

3.7.2.35 setAnnotationFile

```
void Labeller::setAnnotationFile ( ) [private], [slot]
```

Sets text for annotationDirLabel

3.7.2.36 setClassFile

```
void Labeller::setClassFile ( ) [private], [slot]
```

Sets text for classFileLabel

3.7.2.37 setClassList

```
void Labeller::setClassList ( ) [private], [slot]
```

Populates classList

3.7.2.38 setCursorToArrow

```
void Labeller::setCursorToArrow ( ) [private], [slot]
```

Sets cursor shape arrow cursor

3.7.2.39 setCursorToCross

```
void Labeller::setCursorToCross ( ) [private], [slot]
```

Sets cursor shape cross cursor

3.7.2.40 setCursorTypeLabel

```
void Labeller::setCursorTypeLabel ( ) [private], [slot]
```

Sets text for cursorLabel

3.7.2.41 setImageDir

```
void Labeller::setImageDir ( ) [private], [slot]
```

Sets text for imageDirLabel

3.7.2.42 setImageList

```
void Labeller::setImageList ( ) [private], [slot]
```

Populates imageList

3.7.2.43 setImageListToResult

```
void Labeller::setImageListToResult ( ) [private], [slot]
```

Populates imageList with the search result

3.7.2.44 setSelectedImageFile

```
void Labeller::setSelectedImageFile ( ) [private], [slot]
```

Sets text for annotationDirLabel

3.7.2.45 setShapeTypeLabel

```
void Labeller::setShapeTypeLabel ( ) [private], [slot]
```

Sets text for shapeLabel

The documentation for this class was generated from the following files:

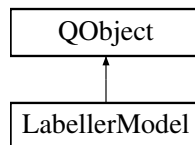
- SRC/labeller.h
- SRC/labeller.cpp

3.8 LabellerModel Class Reference

Class for model methods for the main page.

```
#include <labeller_model.h>
```

Inheritance diagram for LabellerModel:



Public Types

- enum [SortingType](#) {
[NameAsc](#), [NameDesc](#), [DateAsc](#), [DateDesc](#),
[None](#) }

Sorting type enum to identify type of sorting.

Signals

- void **imageFilesChanged** ()
- void **imageFileResultChanged** ()
- void **classNamesChanged** ()
- void **annotationFileChanged** ()
- void **imageDirChanged** ()
- void **classFileChanged** ()
- void **classListChangedSorted** ()
- void **imageFilesChangedSorted** ()
- void **selectedImageFileChanged** ()
- void **clearClassItemLineEdit** ()

Public Member Functions

- **LabellerModel** (QObject *parent=0)
- [StringDateHash](#) * [getImageFiles](#) () const
- QString [getSelectedImageFile](#) () const
- QString [getImageFileResult](#) () const
- QString [getAnnotationFile](#) () const
- QString [getImageDir](#) () const
- QString [getNameFile](#) () const
- QStringList [getClassNames](#) () const
- [SortingType](#) [getClassListSorting](#) () const
- [SortingType](#) [getImageFilesSorting](#) () const
- void [updateImageFiles](#) (const QFileInfoList newImageFiles)
- void [updateImageFiles](#) (const QString newImageFileResult)
- void [updateSelectedImageFile](#) (const QString newSelectedImageFile)
- void [updateAnnotationFile](#) (const QString newAnnotationFile)
- void [updateImageDir](#) (const QString newImageDir)
- void [updateNameFile](#) (const QString newNameFile)
- void [updateClassNames](#) (const QStringList newClassNames)
- void [addClassName](#) (const QString newClassName)
- void [updateClassListSorting](#) (const [SortingType](#) newClassListSorting)
- void [updateImageFilesSorting](#) (const [SortingType](#) newImageFilesSorting)

Private Attributes

- [StringDateHash](#) * [imageFiles](#)
Container for the image files from selected directory.
- QStringList [classNames](#)
Container for the class names from selected class file.
- QString [annotationFile](#)
Container for the annotation file path.
- QString [nameFile](#)
Container for the class file path.
- QString [imageDir](#)
Container for the image directory path.
- QString [selectedImageFile](#)
Container for the selected image file path.
- QString [imageFileResult](#)
Container for the image search list.
- [SortingType](#) [imageFilesSorting](#)
Container for the selected image file sorting.
- [SortingType](#) [classListSorting](#)
Container for the selected class list sorting.

3.8.1 Detailed Description

Class for model methods for the main page.

3.8.2 Member Enumeration Documentation

3.8.2.1 SortingType

```
enum LabellerModel::SortingType
```

Sorting type enum to identify type of sorting.

Enumerator

NameAsc	Sort by name ascended
NameDesc	Sort by name descended
DateAsc	Sort by date ascended
DateDesc	Sort by date descended
None	No sorting

3.8.3 Member Function Documentation

3.8.3.1 addClassName()

```
void LabellerModel::addClassName (
    const QString newClassName )
```

Adds item to `classNames`

Parameters

<i>newClassName</i>	
---------------------	--

3.8.3.2 getAnnotationFile()

```
QString LabellerModel::getAnnotationFile ( ) const
```

Returns `annotationFile`

3.8.3.3 getClassListSorting()

```
LabellerModel::SortingType LabellerModel::getClassListSorting ( ) const
```

Returns `imageFilesSorting`

3.8.3.4 getClassNames()

```
QStringList LabellerModel::getClassNames ( ) const
```

Returns `classNames`

3.8.3.5 getImageDir()

```
QString LabellerModel::getImageDir ( ) const
```

Returns `imageDir`

3.8.3.6 getImageFileResult()

```
QString LabellerModel::getImageFileResult ( ) const
```

Returns `imageFileResult`

3.8.3.7 getImageFiles()

```
StringDateHash * LabellerModel::getImageFiles ( ) const
```

Returns `imageFiles`

3.8.3.8 getImageFilesSorting()

```
LabellerModel::SortingType LabellerModel::getImageFilesSorting ( ) const
```

Returns `classListSorting`

3.8.3.9 getNameFile()

```
QString LabellerModel::getNameFile ( ) const
```

Returns `nameFile`

3.8.3.10 getSelectedImageFile()

```
QString LabellerModel::getSelectedImageFile ( ) const
```

Returns `selectedImageFile`

3.8.3.11 updateAnnotationFile()

```
void LabellerModel::updateAnnotationFile (
    const QString newAnnotationFile )
```

Updates `annotationFile`

Parameters

<i>newAnnotationFile</i>	
--------------------------	--

3.8.3.12 updateClassListSorting()

```
void LabellerModel::updateClassListSorting (
    const SortingType newClassListSorting )
```

Updates classListSorting

Parameters

<i>newClassListSorting</i>	
----------------------------	--

3.8.3.13 updateClassNames()

```
void LabellerModel::updateClassNames (
    const QStringList newClassNames )
```

Updates classNames

Parameters

<i>newClassNames</i>	
----------------------	--

3.8.3.14 updateImageDir()

```
void LabellerModel::updateImageDir (
    const QString newImageDir )
```

Updates imageDir

Parameters

<i>newImageDir</i>	
--------------------	--

3.8.3.15 updateImageFiles() [1/2]

```
void LabellerModel::updateImageFiles (
    const QFileInfoList newImageFiles )
```

Upadtes imageFiles

Parameters

<i>newImageFiles</i>	
----------------------	--

3.8.3.16 updateImageFiles() [2/2]

```
void LabellerModel::updateImageFiles (
    const QString newImageFileResult )
```

Updates imageFiles

3.8.3.17 updateImageFilesSorting()

```
void LabellerModel::updateImageFilesSorting (
    const SortingType newImageFilesSorting )
```

Updates imageFileResult

Parameters

<i>newImageFilesSorting</i>	
-----------------------------	--

3.8.3.18 updateNameFile()

```
void LabellerModel::updateNameFile (
    const QString newNameFile )
```

Updates nameFile

Parameters

<i>newNameFile</i>	
--------------------	--

3.8.3.19 updateSelectedImageFile()

```
void LabellerModel::updateSelectedImageFile (
    const QString newSelectedImageFile )
```

Updates selectedImageFile

Parameters

<i>newSelectedImageFile</i>

The documentation for this class was generated from the following files:

- SRC/labeller_model.h
- SRC/labeller_model.cpp

3.9 StringDateHash Class Reference

Custom Hash table container with `QString` as key and `QDate` as value.

```
#include <string_date_hash.h>
```

Public Member Functions

- bool [get](#) (const `QString` &key, `QDateTime` &value) const
- void [put](#) (const `QString` &key, const `QDateTime` &value)
- void [remove](#) (const `QString` &key)
- int [getSize](#) () const
- int [getCapacity](#) () const
- `QStringList` [getKeys](#) () const
- `QStringList` [sortByKeyAsc](#) () const
- `QStringList` [sortByKeyDesc](#) () const
- `QStringList` [sortByDateAsc](#) () const
- `QStringList` [sortByDateDesc](#) () const

Private Member Functions

- int [hashFunc](#) (const `QString` &key) const
Hash function.
- **StringDateHash** (const [StringDateHash](#) &other)
- const [StringDateHash](#) & **operator=** (const [StringDateHash](#) &other)

Static Private Member Functions

- static void **merge** ([HashNode](#) *begin, [HashNode](#) *middle, [HashNode](#) *end, [HashNode](#) *res)
- static void **mergesort** ([HashNode](#) *begin, [HashNode](#) *end, [HashNode](#) *res)

Private Attributes

- int `capacity` = 1
Container for total capacity of the table.
- std::vector< `HashNode` * > `table`
Container for the table.

3.9.1 Detailed Description

Custom Hash table container with `QString` as key and `QDate` as value.

3.9.2 Member Function Documentation

3.9.2.1 `get()`

```
bool StringDateHash::get (
    const QString & key,
    QDateTime & value ) const
```

Returns if value exists

Parameters

<i>key</i>	
<i>value</i>	

3.9.2.2 `getCapacity()`

```
int StringDateHash::getCapacity ( ) const
```

Returns `capacity`

3.9.2.3 `getKeys()`

```
QStringList StringDateHash::getKeys ( ) const
```

Returns a list of all keys

3.9.2.4 `getSize()`

```
int StringDateHash::getSize ( ) const
```

Returns total number of values stored in the hash table

3.9.2.5 put()

```
void StringDateHash::put (
    const QString & key,
    const QDateTime & value )
```

Adds or updates an hashnode in the hash table

Parameters

<i>key</i>	
<i>value</i>	

3.9.2.6 remove()

```
void StringDateHash::remove (
    const QString & key )
```

Removes hashnode in the table

Parameters

<i>key</i>	
------------	--

3.9.2.7 sortByDateAsc()

```
QStringList StringDateHash::sortByDateAsc ( ) const
```

Returns a list of all key values sorted by ascending order of dates

3.9.2.8 sortByDateDesc()

```
QStringList StringDateHash::sortByDateDesc ( ) const
```

Returns a list of all key values sorted by descending order of dates

3.9.2.9 sortByKeyAsc()

```
QStringList StringDateHash::sortByKeyAsc ( ) const
```

Returns a list of all key values sorted by ascending

3.9.2.10 sortByKeyDesc()

```
QStringList StringDateHash::sortByKeyDesc ( ) const
```

Returns a list of all key values sorted by descending

The documentation for this class was generated from the following files:

- SRC/string_date_hash.h
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