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| **Inheritance Extract Class Refactoring Suggestions** | | |
| Original Class  [*N*split] | Extract Class | |
| New Class  [Superclass]  [Subclass] | Methods/Fields |
| AbstractHandle  [2] | AbstractHandle\_new\_1  [-]  [BezierControlPointHandle, BezierNodeHandle\_new\_1, BezierScaleHandle, ChangeConnectionHandle\_new\_1,  LocatorHandle,  RotateHandle, RoundRectRadiusHandle, TriangleRotationHandler] | updateBounds()  viewTransformChanged()  contains(Point)  dispose()  getCursor()  figureAttributeChanged(FigureEvent)  addHandleListener(HandleListener)  isCombinableWith(Handle)  figureRemoved(FigureEvent)  getDrawBounds()  draw(Graphics2D)  createSecondaryHandles()  figureAreaInvalidated(FigureEvent)  figureRequestRemove(FigureEvent)  figureChanged(FigureEvent)  trackDoubleClick(Point, int)  keyPressed(KeyEvent)  invalidate()  figureAdded(FigureEvent)  keyReleased(KeyEvent)  keyTyped(KeyEvent)  removeHandleListener(HandleListen  er)  getOwner()  owner  setView(DrawingView)  view  getBounds()  bounds  AbstractHandle\_new\_2\_Instance |
| AbstractHandle\_new\_2  [-]  [-] | fireHandleRequestRemove(Rectangle)  drawCircle(Graphics2D,Color,Color)  fireHandleRequestSecondaryHandles()  drawRectangle(Graphics2D,Color,Col  or)  listenerList  basicGetBounds()  fireAreaInvalidated(Rectangle)  AbstractHandle(Figure)  drawDiamond(Graphics2D,Color,Col  or)  getHandlesize()  fireUndoableEditHappened(Undoable  Edit) |
| BezierNodeHandle [2] | BezierNodeHandle\_new\_1  [AbstractHandle\_new\_1]  [-] | index  trackEnd(Point,Point, int)  getDrawBounds()  trackStep(Point,Point, int)  getOwner()  isCombinableWith(Handle)  trackDoubleClick(Point, int)  draw(Graphics2D)  createSecondaryHandles()  trackStart(Point, int)  BezierNodeHandle\_new\_2\_Instance |
| BezierNodeHandle\_new\_2  [-]  [-] | drawCircle(Graphics2D,Color,Color)  drawDiamond(Graphics2D,Color,  Color)  getHandlesize()  BezierNodeHandle(BezierFigure, int)  basicGetBounds()  fireAreaInvalidated(Rectangle)  drawRectangle(Graphics2D,Color,  Color)  fireHandleRequestRemove(Rectangle)  fireHandleRequestSecondaryHandles()  getLocation()  fireAreaInvalidated(BezierPath$Node)  view  edit  oldNode  getBezierFigure() |
| ChangeConnectionHandle  [2] | ChangeConnectionHandle\_new\_1  [AbstractHandle\_1]  [-] | view  draw(Graphics2D)  trackStep(Point,Point, int)  trackStart(Point, int)  trackEnd(Point,Point, int)  isCombinableWith(Handle)  getOwner()  getLocation()  basicGetBounds()  ChangeConnectionHandle(Figure)  getHandlesize()  drawCircle(Graphics2D,Color,Color)  ChangeConnectionHandle\_new\_2\_  Instance |
| ChangeConnectionHandle\_new\_2  [-]  [-] | start  getTarget()  liner  setLocation(Point2D$Double)  getSource()  canConnect(Figure,Figure)  findConnector(Point2D$Double,Figure,  ConnectionFigure)  findConnectionTarget(Point2D$Double,Drawing)  originalTarget  findConnectableFigure(Point2D$Doub  le,Drawing)  connect(Connector)  disconnect()  targetFigure  setConnection(ConnectionFigure)  getConnection()  setTargetFigure(Figure)  connection  getTargetFigure() |
| AbstractFigure  [3] | AbstractFigure\_new\_1  [-]  [AbstractCompositeFigure\_new\_1, AttributedFigure\_new\_1] | getDrawing()  drawing  addUndoableEditListener(UndoableEd  itListener)  includes(Figure)  getCursor(Point2D$Double)  basicTransform(AffineTransform)  addNotify(Drawing)  removeNotify(Drawing)  drawDecorator(Graphics2D)  removeFigureListener(FigureListener)  isVisible()  invalidate()  addFigureListener(FigureListener)  basicSetBounds(Point2D$Double,Point2  D$Double)  remap(Map)  getBounds()  getTooltip(Point2D$Double)  updateDecoratorBounds()  getDecomposition()  setConnectorsVisible(boolean,Connecti  onFigure)  getLayer()  willChange()  getTool(Point2D$Double)  findCompatibleConnector(Connector,  boolean)  findFigureInside(Point2D$Double)  getStartPoint()  handleDrop(Point2D$Double,Collectio  n,DrawingView)  setVisible(boolean)  createHandles(int)  getDrawBounds()  getActions(Point2D$Double)  contains(Point2D$Double)  removeUndoableEditListener(Undoabl  eEditListener)  handleMouseClick(Point2D$Double,M  ouseEvent,DrawingView)  isInteractive()  clone()  isConnectorsVisible()  getEndPoint()  getPreferredSize()  requestRemove()  findConnector(Point2D$Double,Connec  tionFigure)  changed()  canConnect()  draw(Graphics2D)  getDecorator()  setDecorator(Figure)  decorator  getLock()  AbstractFigure\_new\_2\_Instance  AbstractFigure\_new\_3\_Instance |
| AbstractFigure\_new\_2  [-]  [-] | basicClone(HashMap)  setInteractive(boolean)  setBounds(Point2D$Double,Point2D$D  ouble)  getFigureDrawBounds()  isInteractive  getFontRenderContext()  getCourtingConnection()  toString()  courtingConnection  isConnectorsVisible  transform(AffineTransform)  remap(HashMap)  setBounds(Rectangle2D$Double) |
| AbstractFigure\_new\_3  [-] [AbstractCompositeFigure\_new\_2, AttributedFigure\_new\_2] | validate()  drawFigure(Graphics2D)  isVisible  getChangingDepth()  changingDepth  isChanging()  AbstractFigure()  setDrawDecoratorFirst(boolean)  isDrawDecoratorFirst  isDrawDecoratorFirst()  fireAreaInvalidated()  fireFigureChanged()  fireUndoableEditHappened(Undoable  Edit)  fireFigureChanged(Rectangle2D$  Double)  fireAreaInvalidated(Rectangle2D$  Double)  fireFigureRemoved()  fireFigureAdded()  fireFigureRequestRemove()  listenerList  fireAttributeChanged(AttributeKey,  Object,Object)  fireFigureChanged(FigureEvent) |
| MoveHandle  [2] | MoveHandle\_new\_1  [LocatorHandle]  [-] | trackEnd(Point,Point, int)  fireUndoableEditHappened(Undoable  Edit)  getOwner()  drawRectangle(Graphics2D,Color,  Color)  MoveHandle(Figure,Locator)  draw(Graphics2D)  MoveHandle\_new\_2\_Instance |
| MoveHandle\_new\_2  [-]  [-] | north(Figure)  east(Figure)  south(Figure)  geometry  west(Figure)  view  trackStart(Point, int)  trackStep(Point,Point, int)  oldPoint |
| AbstractCompositeFigure  [3] | AbstractCompositeFigure\_new\_1  [AbstractFigure\_new\_1]  [AbstractAttributedCompositeFigure\_new\_1, GraphicalCompositeFigure\_new\_1, GroupFigure] | getChildrenFrontToBack()  clone()  invalidate()  removeNotify(Drawing)  remove(Figure)  getPreferredSize()  createHandles(int)  getChild(int)  contains(Point2D$Double)  add(Figure)  basicSetBounds(Point2D$Double,  Point2D$Double)  addNotify(Drawing)  getDrawing()  getRestoreData()  getStartPoint()  basicAdd(int,Figure)  restoreTo(Object)  isConnectorsVisible()  basicRemove(Figure)  basicTransform(AffineTransform)  basicRemoveChild(int)  setAttribute(AttributeKey,Object)  removeAllChildren()  getEndPoint()  basicRemoveAllChildren()  getChildCount()  basicSetAttribute(AttributeKey,Object)  findFigureInside(Point2D$Double)  add(int,Figure)  layout()  getDecomposition()  getAttributes()  basicAdd(Figure)  willChange()  getAttribute(AttributeKey)  changed()  removeChild(int)  getDrawBounds()  drawBounds  getLayouter()  setLayouter(Layouter)  layouter  getChildren()  children  getBounds()  bounds  invalidateBounds()  remap(HashMap)  getFigureDrawBounds()  AbstractCompositeFigure\_new\_2\_  Instance  AbstractCompositeFigure\_new\_3\_  Instance |
| AbstractCompositeFigure\_new\_2  [-] [GraphicalCompositeFigure\_new\_2] | sendToBack(Figure)  fireFigureChanged(FigureEvent)  AbstractCompositeFigure()  drawFigure(Graphics2D)  fireAreaInvalidated(Rectangle2D$  Double)  isChanging()  fireUndoableEditHappened(Undoable  Edit)  validate()  getChangingDepth() |
| AbstractCompositeFigure\_new\_3  [-]  [AbstractAttributedCompositeFigure\_new\_2] | hasAttribute(AttributeKey)  addAll(Collection)  childHandler  sendToFront(Figure)  drawConnectors(Graphics2D)  findChild(Point2D$Double)  basicAddAll(Collection)  findChildIndex(Point2D$Double)  undoableEditHappened(Undoable  EditEvent)  removeAttribute(AttributeKey)  write(DOMOutput)  read(DOMInput) |
| AttributedFigure  [4] | AttributedFigure\_new\_1 [AbstractFigure\_new\_1] [BezierFigure\_new\_1, DiamondFigure, EllipseFigure, RectangleFigure, RoundRectangleFigure\_new\_1, TriangleFigure] | hasAttribute(AttributeKey)  clone()  changed()  invalidate()  setAttribute(AttributeKey,Object)  createHandles(int)  isConnectorsVisible()  getAttribute(AttributeKey)  willChange()  basicSetAttribute(AttributeKey,Object)  getBounds()  getAttributes()  setAttributes(HashMap)  attributes  getStrokeMiterLimitFactor()  getFigureDrawBounds()  setBounds(Point2D$Double,Point2D$  Double)  AttributedFigure\_new\_2\_Instance  AttributedFigure\_new\_3\_Instance  AttributedFigure\_new\_4\_Instance |
| AttributedFigure\_new\_2  [-]  [BezierFigure\_new\_2, RoundRectangleFigure\_new\_2] | removeAttribute(AttributeKey)  AttributedFigure()  fireUndoableEditHappened(Undoable  Edit)  drawFigure(Graphics2D)  fireAttributeChanged(AttributeKey,  Object,Object)  validate() |
| AttributedFigure\_new\_3  [-]  [-] | read(DOMInput)  write(DOMOutput)  getAttributeKey(String)  writeAttributes(DOMOutput)  readAttributes(DOMInput)  isAttributeEnabled(AttributeKey)  forbiddenAttributes  setAttributeEnabled(AttributeKey,  boolean) |
| AttributedFigure\_new\_4  [-]  [-] | getStroke()  drawConnectors(Graphics2D)  drawStroke(Graphics2D)  applyAttributesTo(Figure)  drawText(Graphics2D)  drawFill(Graphics2D) |
| LineConnectionFigure  [2] | LineConnectionFigure\_new\_1  [-]  [DependencyFigure] | reverseConnection()  getPointCount()  getStartPoint()  removeNotify(Drawing)  changed()  setPoint(int,Point2D$Double)  basicTransform(AffineTransform)  setEndPoint(Point2D$Double)  addNotify(Drawing)  canConnect(Figure,Figure)  remap(Map)  readPoints(DOMInput)  getNode(int)  writeAttributes(DOMOutput)  handleMouseClick(Point2D$Double,  MouseEvent,DrawingView)  willChange()  setStartPoint(Point2D$Double)  basicAddNode(int,BezierPath$Node)  fireUndoableEditHappened(UndoableE  dit)  LineConnectionFigure()  canConnect(Figure)  clone()  basicSplitSegment(Point2D$Double,  float)  writePoints(DOMOutput)  createHandles(int)  write(DOMOutput)  updateConnection()  basicSetEndPoint(Point2D$Double)  getEndFigure()  basicRemoveNode(int)  lineout()  validate()  connectsSame(ConnectionFigure)  read(DOMInput)  getBezierPath()  setPoint(int, int,Point2D$Double)  basicSetNode(int,BezierPath$Node)  basicSetStartPoint(Point2D$Double)  getEndPoint()  getStartFigure()  readAttributes(DOMInput)  getNodeCount()  canConnect()  getLiner()  setLiner(Liner)  liner  getStartConnector()  setStartConnector(Connector)  startConnector  getEndConnector()  setEndConnector(Connector)  endConnector  LineConnectionFigure\_new\_2\_Instance |
| LineConnectionFigure\_new\_2  [-]  [-] | handleConnect(Figure,Figure)  connectionHandler  basicSetEndConnector(Connector)  basicSetStartConnector(Connector)  handleDisconnect(Figure,Figure)  path  writeLiner(DOMOutput)  fireFigureRequestRemove()  readLiner(DOMInput) |
| AbstractAttributedCompositeFigure  [3] | AbstractAttributedCompositeFigure\_new\_1 [AbstractCompositeFigure\_new\_1]  [-] | applyAttributesTo(Figure)  basicSetAttribute(AttributeKey,Object)  getChildren()  willChange()  basicTransform(AffineTransform)  getBounds()  changed()  isConnectorsVisible()  getFigureDrawBounds()  fireAttributeChanged(AttributeKey,  Object,Object)  clone()  invalidate()  createHandles(int)  setAttribute(AttributeKey,Object)  getAttribute(AttributeKey)  getAttributes()  setAttributes(HashMap)  attributes  drawFill(Graphics2D)  AbstractAttributedCompositeFigure()  fireUndoableEditHappened(Undoable  Edit)  drawFigure(Graphics2D)  validate()  AbstractAttributedCompositeFigure\_  new\_2\_Instance  AbstractAttributedCompositeFigure\_  new\_3\_Instance |
| AbstractAttributedCompositeFigure\_new\_2  [-]  [-] | removeAttribute(AttributeKey)  hasAttribute(AttributeKey)  drawConnectors(Graphics2D)  write(DOMOutput)  read(DOMInput)  drawChildren(Graphics2D)  drawText(Graphics2D)  drawStroke(Graphics2D) |
| AbstractAttributedCompositeFigure\_new\_3  [-]  [-] | forbiddenAttributes  writeAttributes(DOMOutput)  getStrokeMiterLimitFactor()  setAttributeEnabled(AttributeKey,  boolean)  getAttributeKey(String)  readAttributes(DOMInput)  isAttributeEnabled(AttributeKey)  getStroke()  basicSetAttributeOnChildren(Attribute  Key,Object) |
| GraphicalCompositeFigure  [3] | GraphicalCompositeFigure\_new\_1  [AbstractCompositeFigure\_new\_1]  [ListFigure, TaskFigure\_new\_1] | applyAttributesTo(Figure)  changed()  basicSetAttribute(AttributeKey,Object)  clone()  superBasicSetBounds(Point2D$Double,  Point2D$Double)  fireAttributeChanged(AttributeKey,  Object,Object)  getLayouter()  createHandles(int)  getFigureDrawBounds()  basicSetBounds(Point2D$Double,Point2  D$Double)  remove(Figure)  setAttribute(AttributeKey,Object)  getBounds()  getDrawing()  remap(HashMap)  contains(Point2D$Double)  basicTransform(AffineTransform)  removeNotify(Drawing)  addNotify(Drawing)  getAttribute(AttributeKey)  willChange()  invalidate()  getAttributes()  attributes  GraphicalCompositeFigure\_new\_2\_  Instance  GraphicalCompositeFigure\_new\_3\_  Instance |
| GraphicalCompositeFigure\_new\_2  [AbstractCompositeFigure\_new\_2]  [-] | fireAreaInvalidated(Rectangle2D$  Double)  isChanging()  GraphicalCompositeFigure(Figure)  fireFigureChanged(FigureEvent)  drawFigure(Graphics2D)  fireUndoableEditHappened(Undoable  Edit)  getPresentationFigure()  setPresentationFigure(Figure)  presentationFigure  presentationFigureHandler |
| GraphicalCompositeFigure\_new\_3  [-]  [-] | drawPresentationFigure(Graphics2D)  readAttributes(DOMInput)  chop(Point2D$Double)  GraphicalCompositeFigure()  writeAttributes(DOMOutput)  getAttributeKey(String)  forbiddenAttributes  setAttributeEnabled(AttributeKey,  boolean)  basicSetPresentationFigureBounds(Poin  t2D$Double,Point2D$Double) |
| BezierFigure  [4] | BezierFigure\_new\_1  [AttributedFigure\_new\_1]  [LineFigure\_new\_1] | basicSplitSegment(Point2D$Double,  float)  canConnect()  handleMouseClick(Point2D$Double,  MouseEvent,DrawingView)  findCompatibleConnector(Connector,  boolean)  getBounds()  contains(Point2D$Double)  basicSetAttribute(AttributeKey,Object)  changed()  basicTransform(AffineTransform)  getEndPoint()  createHandles(int)  getAttribute(AttributeKey)  invalidate()  setAttribute(AttributeKey,Object)  getStartPoint()  getFigureDrawBounds()  basicSetBounds(Point2D$Double,Point2  D$Double)  clone()  willChange()  findConnector(Point2D$Double,Connec  tionFigure)  writePoints(DOMOutput)  writeAttributes(DOMOutput)  write(DOMOutput)  read(DOMInput)  readAttributes(DOMInput)  chop(Point2D$Double)  drawStroke(Graphics2D)  drawFill(Graphics2D)  BezierFigure\_new\_2\_Instance  BezierFigure\_new\_3\_Instance  BezierFigure\_new\_4\_Instance |
| BezierFigure\_new\_2  [AttributedFigure\_new\_2]  [-] | fireUndoableEditHappened(UndoableE  dit)  validate()  BezierFigure(boolean)  setClosed(boolean)  CLOSED  static {}  isClosed() |
| BezierFigure\_new\_3  [-]  [LineFigure\_new\_2] | setPoint(int, int,Point2D$Double)  removeAllNodes()  basicJoinSegments(Point2D$Double)  readPoints(DOMInput)  basicAddNode(int,BezierPath$Node)  findSegment(Point2D$Double)  removeNode(int)  basicRemoveAllNodes()  basicSetPoint(int,Point2D$Double)  basicRemoveNode(int)  basicSetBezierPath(BezierPath)  getBezierPath()  basicAddNode(BezierPath$Node)  basicSetPoint(int, int,Point2D$Double)  getNodeCount()  getNode(int)  basicSetNode(int,BezierPath$Node)  setNode(int,BezierPath$Node)  getPoint(int, int)  getPointCount()  restoreTo(Object)  getPointOnPath(float, double)  getPoint(int)  findNode(Point2D$Double)  basicJoinSegments(Point2D$Double,  float)  path  getOutermostPoint()  getCenter()  getRestoreData()  drawCaps(Graphics2D)  getCappedPath()  cappedPath  invalidateCappedPath() |
| BezierFigure\_new\_4  [-]  [-] | basicSetStartPoint(Point2D$Double)  basicSetEndPoint(Point2D$Double)  layout()  addNode(int,BezierPath$Node)  basicSplitSegment(Point2D$Double)  addNode(BezierPath$Node)  BezierFigure() |
| RoundRectangleFigure  [2] | RoundRectangleFigure\_new\_1  [AttributedFigure\_new\_1]  [-] | setArc(double, double)  willChange()  getEndPoint()  basicTransform(AffineTransform)  basicSetBounds(Point2D$Double,Point2  D$Double)  getBounds()  getDrawBounds()  findCompatibleConnector(Connector,  boolean)  getStartPoint()  clone()  createHandles(int)  changed()  fireFigureChanged(Rectangle2D$Doubl  e)  contains(Point2D$Double)  findConnector(Point2D$Double,Connec  tionFigure)  getFigureDrawBounds()  roundrect  read(DOMInput)  write(DOMOutput)  getRestoreData()  drawStroke(Graphics2D)  drawFill(Graphics2D)  RoundRectangleFigure()  DEFAULT\_ARC  RoundRectangleFigure\_new\_2\_  Instance |
| RoundRectangleFigure\_new\_2  [AttributedFigure\_new\_2]  [-] | chop(Point2D$Double)  fireUndoableEditHappened(UndoableE  dit)  RoundRectangleFigure(double,  double, double, double)  restoreTo(Object)  getArcWidth()  getArcHeight() |
| TaskFigure  [2] | TaskFigure\_new\_1  [GraphicalCompositeFigure\_new\_1]  [-] | getDependencies()  dependencies  write(DOMOutput)  add(Figure)  createHandles(int)  getBounds()  setLayouter(Layouter)  clone()  read(DOMInput)  getChild(int)  LAYOUT\_INSETS  getPresentationFigure()  TaskFigure()  setName(String)  writeAttributes(DOMOutput)  readAttributes(DOMInput)  setAttributeEnabled(AttributeKey,  boolean)  getNameFigure()  TaskFigure\_new\_2\_Instance |
| TaskFigure\_new\_2  [-]  [-] | getName()  toString()  setDuration(int)  getDurationFigure()  getDuration()  getStartTime()  startTime  getStartTimeFigure()  getPredecessors()  isDependentOf()  getSuccessors()  updateStartTime()  fireAreaInvalidated()  getLayer()  setBounds(Point2D$Double,Point2D$D  ouble)  applyAttributes(Figure) |
| LineFigure  [2] | LineFigure\_new\_1  [BezierFigure\_new\_1]  [SeparatorLineFigure] | path  willChange()  clone()  setBounds(Point2D$Double,Point2D$  Double)  handleMouseClick(Point2D$Double,  MouseEvent,DrawingView)  basicSplitSegment(Point2D$Double,  float)  basicTransform(AffineTransform)  canConnect()  createHandles(int)  writePoints(DOMOutput)  changed()  fireUndoableEditHappened(Undoable  Edit)  validate()  LineFigure()  removeNotify(Drawing)  draw(Graphics2D)  addNotify(Drawing)  remap(Map)  LineFigure\_new\_2\_Instance |
| LineFigure\_new\_2 [BezierFigure\_new\_3]  [-] | basicAddNode(BezierPath$Node)  basicAddNode(int,BezierPath$Node)  basicSetNode(int,BezierPath$Node)  readPoints(DOMInput)  basicRemoveNode(int)  getNode(int) |