flap.model

## flap.model :: Bird - app : Controller # topY : int # bottomY : int - thresholds : double[] # hiddenTopBias : double # hiddenBottomBias : double # hiddenOperation : int # outputThreshold : double # mutationRate : double # birdPosition : int - fitness : int + Bird(Controller) : constructor + checkJump(): boolean # coinFlip(): boolean + setThresholds(double, double, double): void # firstNode(int. int) : double - outputNode(double) : boolean + addFitness(): void + resetFitness(): void + get/set(...) flap.model :: AdvancedBird - hiddenOperation2: int hiddenBottomBias2: double - hiddenTopBias2: double outputOperation : int - outputTopBias : double - outputBottomBias : double + AdvancedBird(Controller): constructor + checkJump() : boolean + setThresholds(double, double, double, double, double, double) - bottomHiddenNode(int, int) : double - outputNode(double, double) : boolean + get(...)

flap.controller flap.controller :: Runner flap.controller :: Controller - frame : Frame psvm panel : FlapPanel · birdsAlive : int - mainPanel : MainPanel - mutationRate : double - maxFitness : int - maxBird : Bird - maxAdvancedBird : AdvancedBird - birdMap : HashMap<Integer, Bird> - birdAmount : int - deadKevs : int[] - isAdvancedBirds : boolean - isLoading : boolean + Controller(): constructor + start() : void + birdDies(int) : void - birdMove(int) : void + fitness(int) : void - setUpBirdMap(int) : void - saveText(ArrayList<String> : void - loadText(): ArrayList<String> + saveBird(): void + loadBird(): void + aet(...)

## flap.view

```
flap.view :: Frame
- app : Controller
- panel : MainPanel
+ Frame(Controller) : constructor
- setupFrame() : void
+ aet(...)
           flap.view :: MainPanel
- app : Controller:
- flapCanvas : FlapPanel
- layout : SpringLayout
 - scoreLabel : JLabel
 - aliveLabel : JLabel
 - fitnessPane : JScrollPane
 fitnessText: JTextArea
- saveButton : JButton
 - loadButton : JButton
 generationNum: int
 fitnessHistory: ArrayList<String>
 score : double
+ MainPanel(app) : constructor
- setupFitnessPane(): void
 - setupPanel() : void
 - setupListeners(): void
- setupLayout(): void
+ addScore(): void
+ resetScore(): void
+ updateBirdCount(int) : void
+ changeHistory(String): void
+ loadedText(double, double, double): void
+ get(...)
```

```
flap.view :: FlapPanel
app : Controller:
panel: MainPanel:
canvasImage: BufferedImage
topPipe : Polygon
bottomPipe : Polygon
pipeLavout : int
birdMap: HashMap<Integer, Polygon>
colorMap: HashMap<Integer, Color>
+ FlapPanel(Controller, MainPanel): constructor
setupPanel(): void
setupListeners(): void
- setupLayout(): void
# paintComponent(Graphics): void
+ moveBird(int) : void
- drawTopPipe() : Polygon
drawBottomPipe(): Polygon
drawBird(): Polygon
+ pause(): void
+ move(): void
+ getUpperPipe(): int
+ getLowerPipe(): int
+ getBirdPosition(int): int
+ reset(): void
- setupBirdMap() : void
```

randomColor(): Color

setupColorMap(): void