### Quadtree

data : DataSource root : QuadtreeNode

findFirstChild (record : HitRecord, parent : QuadtreeNode ) : QuadtreeNode

findNextChild (record : HitRecord, parent : QuadtreeNode, last : QuadtreeNode ) : QuadtreeNode

intersect (ray: Ray, origin: Point, size: Vector2D): HitRecord

sample (ray: Ray, shape: Shape): double

sample ( ray : Ray, shape : Shape, node : QuadtreeNode, record : HitRecord ) : double

sampleChildren ( ray : Ray, shape : Shape, node : QuadtreeNode, record : HitRecord ) : double

sampleData (ray: Ray, shape: Shape, record: HitRecord): double

update (record : HitRecord, node : QuadtreeNode)

#### QuadtreeNode

empty: boolean

isEmpty ( ) : boolean

## **TreeNode**

children: ArrayList<TreeNode>

addChild (child: TreeNode)

getChild ( index : int )
isLeaf ( ) : boolean

## Volume

data : VolumeData quadtree : Quadtree

sample (ray: Ray): double

# **Shape**

center : Point origin : Point size : double

#### **HitRecord**

tx0: double

tx1: double

txh : double

ty0 : double

ty1: double

tyh: double

isMiss (): boolean