Entity

- handle: unsigned

+ Entity(in handle: unsigned=0)

+ setHandle(in handle: unsigned): void

+ getHandle(): void const

Eigen::Vector3d

parent

Vertex

<<constructor>> Vertex(in x: double, in y: double, in z: double, in handle: unsigned)

<<constructor>> Vertex()

1

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parent

child

child

child

Element

+ getCentroid(): Eigen::Vector3d const

+ getVolume(): double const

+ getShapeFunctionValues(in localCoordinates: Eigen::Vector3d): Eigen::VectorXd const

+ getShapeFunctionDerivatives(in localCoordinates: Eigen::Vector3d): Eigen::MatrixXd const

parent

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child

VertexCollection

+ vertices: std::vector<Vertex *>

+ VertexCollection(in numberOfVertices: unsigned=0

+ addVertex(in vertex: Vertex&): void const

+ getNumberOfVertices(): unsigned const

+ getVertex(in vertexLocalHandle: unsigned): Vertex

+ getVertices(): std::vector<Vertex *>: void const

parent

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child

child

Element2D

+ dimension: const unsigned=2

+ getAreaVector(): Eigen::Vector3d const

Element3D

+ dimension: const unsigned=3

Line

Triangle

Quadrangle

Hexaedron

Tetraedron

Pyramid

Prism

Boundary

- name: std::string

- elements: std::vector<Elements *>

+ Boundary(in name: string, in numberOfBoundaryElements: unsigned)

+ addElement(in element: Element&): void

+ getNumberOfElement(): unsigned const

+ getElement(in elementLocalHandle: unsigned): Element const

+ getElements(): const std::vector<Element *> const

GridReader

+ CGNS(in fileName: std::string): const GridDat

GridData

+ dimension: const unsigned

+ coordinates: Eigen::MatrixXd

+ triagleConnectivity: Eigen::MatrixXi

+ quadrangleConnectivity: Eigen::MatrixXi

+ tetraedronConnectivity: Eigen::MatrixXi

+ hexaedronConnectivity: Eigen::MatrixXi

+ pyramidConnectivity: Eigen::MatrixXi

+ prismConnectivity: Eigen::MatrixXi

GridBuilder

+ build(in gridData: GridData&): const Grid

Grid

+ dimension: const unsigned

+ elements: std::vector<Element>

+ vertices: std::vector<Vertex>