# My Project

Generated by Doxygen 1.8.6

# Contents

# Chapter 1

# OOP-polygons

A repository for my OOP in C++ project for The University of Manchester.

Project brief: "Design a class hierarchy for creating and manipulating polygon shapes, storing the vector coordinates of each vertex"

# Chapter 2

# Hierarchical Index

## 2.1 Class Hierarchy

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

# Chapter 3

# Class Index

## 3.1 Class List

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

# Chapter 4

# Class Documentation

## 4.1 polygons::app$<$ T $>$ Class Template Reference

**Public Member Functions**

- **app** (manager$<$ T $>$ p_man)
- void **start** ()
- void **end** ()

**Protected Member Functions**

- void **loop** ()
- string **getNewName** ()
- string **getExistingName** ()
- T **getNumber** (bool p_positiveDefinite, string p_msg)
- string **getFilename** ()
- template$<$class U $>$
  char **getOption** (initializer_list$<$ U $>$ p_chars, string p_msg)

**Protected Attributes**
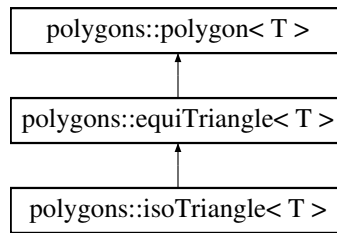
- manager$<$ T $>$ **m_man**
- string **m_fileName**
- bool **m_using**

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

- app.h

## 4.2 polygons::equiTriangle$<$ T $>$ Class Template Reference

Inheritance diagram for polygons::equiTriangle$<$ T $>$:

```
┌─────────────────────────────┐
│   polygons::polygon< T >    │
└─────────────────────────────┘
               ▲
               │
┌─────────────────────────────┐
│ polygons::equiTriangle< T > │
└─────────────────────────────┘
               ▲
               │
┌─────────────────────────────┐
│  polygons::isoTriangle< T > │
└─────────────────────────────┘
```

**Public Member Functions**

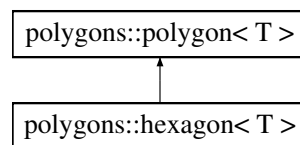- **equiTriangle** (T p_x, T p_y, T p_L)
- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.3  polygons::hexagon< T > Class Template Reference

Inheritance diagram for polygons::hexagon< T >:

```
┌─────────────────────────────┐
│   polygons::polygon< T >    │
└─────────────────────────────┘
               ▲
               │
┌─────────────────────────────┐
│  polygons::hexagon< T >     │
└─────────────────────────────┘
```

**Public Member Functions**

- **hexagon** (T p_x, T p_y, T p_L)
- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.4  polygons::isoTriangle< T > Class Template Reference

Inheritance diagram for polygons::isoTriangle< T >:

polygons::polygon< T >

polygons::equiTriangle< T >

polygons::isoTriangle< T >

**Public Member Functions**

- **isoTriangle** (T p_x, T p_y, T p_B, T p_L)
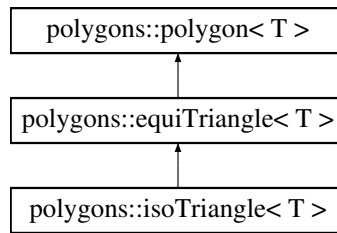- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.5  polygons::manager< T > Class Template Reference

**Public Member Functions**

- void **add** (polygon< T > ∗p_polygon, string p_name)
- bool **exists** (string p_name)
- polygon< T > ∗& **get** (string p_name)
- void **remove** (string p_name)
- void **listAll** ()
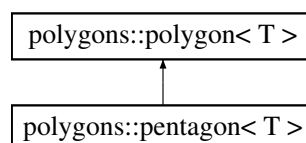- void **display** (string p_filename)
- int **N** ()

**Protected Attributes**

- map< string, polygon< T > ∗ > **m_library**

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

- manager.h

## 4.6  polygons::pentagon< T > Class Template Reference

Inheritance diagram for polygons::pentagon< T >:

polygons::polygon< T >

polygons::pentagon< T >

**Public Member Functions**

- **pentagon** (T p_x, T p_y, T p_L)
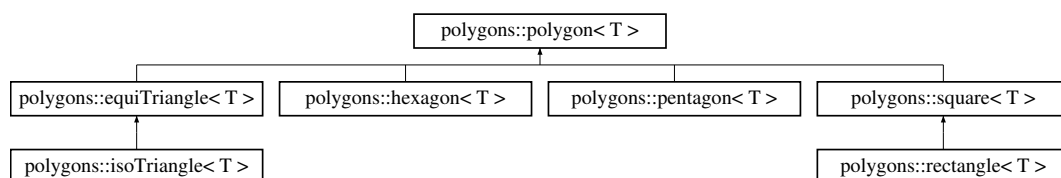- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.7 polygons::polygon< T > Class Template Reference

Inheritance diagram for polygons::polygon< T >:



**Public Member Functions**

- **polygon** (int p_N, T p_x, T p_y, T p_L)
- template<class U >
  **polygon** (initializer_list< U > li)
- int **N** ()
- vertex< T > **centre** ()
- vertex< T > **normal** ()
- bool **modified** ()
- virtual string **type** ()=0
- void **listVertices** ()
- const vertex< T > & **operator[]** (int p_i)
- void **translate** (T p_x, T p_y, T p_z)
- void **scale** (T p_x, T p_y, T p_z, T p_fx, T p_fy, T p_fz)
- void **scaleCentre** (T p_fx, T p_fy, T p_fz)
- void **rotate** (T p_x1, T p_y1, T p_z1, T p_x2, T p_y2, T p_z2, T p_theta)
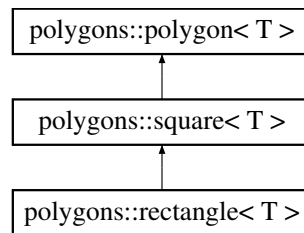- void **rotateCentre** (T p_theta)

**Protected Attributes**

- vector< vertex< T > > **m_vertices**
- bool **m_modified** {false}

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

- polygonBase.h

## 4.8 polygons::rectangle< T > Class Template Reference

Inheritance diagram for polygons::rectangle< T >:

```
┌─────────────────────────┐
│  polygons::polygon< T >  │
└─────────────────────────┘
            ▲
┌─────────────────────────┐
│  polygons::square< T >   │
└─────────────────────────┘
            ▲
┌─────────────────────────┐
│ polygons::rectangle< T > │
└─────────────────────────┘
```

**Public Member Functions**

- **rectangle** (T p_x, T p_y, T p_W, T p_H)
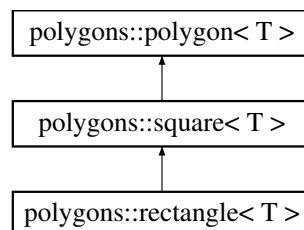- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.9 polygons::square< T > Class Template Reference

Inheritance diagram for polygons::square< T >:

```
┌─────────────────────────┐
│  polygons::polygon< T >  │
└─────────────────────────┘
            ▲
┌─────────────────────────┐
│  polygons::square< T >   │
└─────────────────────────┘
            ▲
┌─────────────────────────┐
│ polygons::rectangle< T > │
└─────────────────────────┘
```

**Public Member Functions**

- **square** (T p_x, T p_y, T p_L)
- string **type** ()

**Additional Inherited Members**

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

- polygon.h

## 4.10 **polygons::vertex**< T > **Class Template Reference**

**Public Member Functions**

- **vertex** (T p_x1, T p_x2, T p_x3)
- **vertex** (const vertex< T > &)
- vertex< T > & **operator=** (const vertex< T > &)
- T **x** ()
- T **y** ()
- T **z** ()
- T **x** (int p_i)
- void **x** (T p_x)
- void **y** (T p_y)
- void **z** (T p_z)
- void **pos** (T p_x, T p_y, T p_z)
- void **translate** (T p_x, T p_y, T p_z)
- void **rotateX** (T p_theta)
- void **rotateY** (T p_theta)
- void **rotateZ** (T p_theta)
- void **rotate** (T p_x1, T p_y1, T p_z1, T p_x2, T p_y2, T p_z2, T p_theta)
- void **scale** (T p_x, T p_y, T p_z, T p_fx, T p_fy, T p_fz)

**Protected Attributes**

- T **m_x** [3]

**Friends**

- ostream & **operator**<< (ostream &p_outStream, vertex< T > const &p_vtx)

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

- vertex.h

# Index