

CPP Problem Design

Subject: Class Point in plane

Contributor: 陳俊儒, 林承達, 廖宣瑋

Main testing concept: Class member function

Basics

- ☒ C++ BASICS
- ☐ FLOW OF CONTROL
- ☒ FUNCTION BASICS
- ☐ PARAMETERS AND OVERLOADING
- ☐ ARRAYS
- ☒ STRUCTURES AND CLASSES
- ☐ CONSTRUCTORS AND OTHER TOOLS
- ☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES
- ☐ STRINGS
- ☐ POINTERS AND DYNAMIC ARRAYS

Functions

- ☐ SEPARATE COMPILATION AND NAMESPACES
- ☐ STREAMS AND FILE I/O
- ☐ RECURSION
- ☐ INHERITANCE
- ☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
- ☐ TEMPLATES
- ☐ LINKED DATA STRUCTURES
- ☐ EXCEPTION HANDLING
- ☐ STANDARD TEMPLATE LIBRARY
- ☐ PATTERNS AND UML

Description:

The type `Point` is a fairly simple data type, but under another name (the template class `pair`) this data type is defined and used in the C++ Standard Template Library, although you need not know anything about the Standard Template Library to do this exercise. Write a definition of a class named **Point** that might be used to store and manipulate the location of a point in the plane. You will need to declare and implement the following member functions:

- a. A member function `set` that sets the private data after an object of this class is created.
- b. A member function to move the point by an amount along the vertical and horizontal directions specified by the first and second arguments.
- c. A member function to rotate the point by 90 degrees clockwise around the origin.
- d. Two const inspector functions to retrieve the current coordinates of the point.

Document these functions with appropriate comments. Embed your class in a test program that requests data for several points from the user, creates the points, then exercises the member functions.

Input:

Replace the main from `main.cpp`.

Output:

Please see sample out.

Sample Input / Output :

Sample Input	Sample Output
main.in	0 5 1 7 7 -1 -1 -7 -7 1 1 7

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|--|
| <input type="checkbox"/> Easy, Only basic programming syntax and structure are required.
<input checked="" type="checkbox"/> Medium, Multiple programming grammars and structures are required.
<input type="checkbox"/> Hard, Need to use multiple program structures or more complex data types. |
| Expected solving time:
20minutes |
| Other notes: |