

Branch: master

Object-Oriented-Programming / 05. OOP Principles - Part 2 / +

Space intervals ...

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Polymorphism	Some code fixes in "05. OOP Principles - Part 2" demo	7 months ago
Simple-Exception-Class	Some code fixes in "05. OOP Principles - Part 2" demo	7 months ago
User-Defined-Exception	Some code fixes in "05. OOP Principles - Part 2" demo	7 months ago
Virtual-Methods	Some code fixes in "05. OOP Principles - Part 2" demo	7 months ago
OOP-Principles-Demos.sln	Initial upload of demos	7 months ago
README.md	Space intervals	6 months ago
Settings.StyleCop	Some code fixes in "05. OOP Principles - Part 2" demo	7 months ago

README.md

Homework: OOP Principles - Part 2

Problem 1. Shapes

- Define abstract class `Shape` with only one abstract method `CalculateSurface()` and fields `width` and `height`.
- Define two new classes `Triangle` and `Rectangle` that implement the virtual method and return the surface of the figure (`height * width` for rectangle and `height * width/2` for triangle).
- Define class `Square` and suitable constructor so that at initialization `height` must be kept equal to `width` and implement the `CalculateSurface()` method.
- Write a program that tests the behaviour of the `CalculateSurface()` method for different shapes (`Square`, `Rectangle`, `Triangle`) stored in an array.

Problem 2. Bank accounts

- A bank holds different types of accounts for its customers: deposit accounts, loan accounts and mortgage accounts. Customers could be individuals or companies.
- All accounts have customer, balance and interest rate (monthly based).
 - Deposit accounts are allowed to deposit and with draw money.
 - Loan and mortgage accounts can only deposit money.
- All accounts can calculate their interest amount for a given period (in months). In the common case its is calculated as follows: `number_of_months * interest_rate`.
- Loan accounts have no interest for the first 3 months if are held by individuals and for the first 2 months if are held by a company.
- Deposit accounts have no interest if their balance is positive and less than 1000.
- Mortgage accounts have 1/2 interest for the first 12 months for companies and no interest for the first 6 months for individuals.
- Your task is to write a program to model the bank system by classes and interfaces.
- You should identify the classes, interfaces, base classes and abstract actions and implement the calculation of the interest functionality through overridden methods.

Problem 3. Range Exceptions

- Define a class `InvalidRangeException<T>` that holds information about an error condition related to invalid range. It

should hold error message and a range definition [start ... end].

- Write a sample application that demonstrates the `InvalidRangeException<int>` and `InvalidRangeException<DateTime>` by entering numbers in the range [1..100] and dates in the range [1.1.1980 ... 31.12.2013].

