**CPSC1012 Advanced Portfolio 4 – Classes and Objects**

**Weight: 5% of your final mark**

**Pet class**

Design a class named **Pet** that contains:

* A string property named **Name** for the pet (default “Super Pet”).
* A int property named **Age** in years for the pet (default 1).
* A double property name **Weight** in pounds for the pet (default 5).
* A property that indicates if the type of pet is a dog or a cat (default Dog).
* A no-argument constructor that creates a default pet
* A constructor that creates a pet with the specified name, age, weight, and type.
* The mutators for **Name** will check if the new value contains at least one non-whitespace character otherwise it will throw an exception.
* The mutators for **Age** will check if the new value is one or greater before using the new value otherwise it will throw an exception.
* The mutators for **Weight** will check if the new value is five or greater before using the new value otherwise it will throw an exception.
* A method named **Acepromazine()** that returns as a double the dosage in ml for the sedative acepromazine.
* A method named **Carprofen()** that returns as a double the dosage in ml for the pain killer carprofen.

The dosage calculation is:

*Weight* is in kilograms.

* For acepromazine, use mg per ml = 10, and mg per kg = 0.03 for dogs and 0.002 for cats.
* For carprofen, use mg per ml = 12, and mg per kg = 0.5 for dogs and 0.25 for cats.

Write a program to test your Pet class as shown in the sample run:

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| CPSC1012 Pet Clinic |

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Enter the name of your pet: Pochacco

Enter the age in years of your pet: 10

Enter the weight in pounds of your pet: 60

Enter D for Dog, C for cat: D

Name: Pochacco, Age: 10 years, Weight: 60 lbs, Type: Dog

Is the information above about your pet correct? Enter y or n: Y

Service Options

1. Pain Killer
2. Sedative
3. Both Pain Killer and Sedative

Enter the service (1-3) required for your pet: 3

Your pet requires 1.134ml of carprofen.

Your pet requires 0.082ml of acepromazine.

Do you have another pet that requires service? Enter y or n: y

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| CPSC1012 Pet Clinic |

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Enter the name of your pet:

Invalid input value. A pet name is required and must contain at least one character.

Enter the name of your pet: Hello Kitty

Enter the age in years of your pet: 0

Invalid input value. Age must be at east 1 year old.

Enter the age in years of your pet: 5

Enter the weight in pounds of your pet: 1

Invalid input value. Weight must be at least 5 pounds.

Enter the weight in pounds of your pet: 10

Enter D for Dog, C for cat: Z

Invalid input value. Pet type must be D or C.

Enter D for Dog, C for cat: C

Name: Hello Kitty, Age: 3 years, Weight: 10 lbs, Type: Cat

Is the information above about your pet correct? Enter y or n: Y

Service Options

1. Pain Killer
2. Sedative
3. Both Pain Killer and Sedative

Enter the service (1-3) required for your pet: 1

Your pet requires 0.236ml of carprofen.

Do you have another pet that requires service? Enter y or n: n

Good-bye and thanks for coming the Pet Clinic.

**Marking Guide**

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| **Description** | **Marks Possible** | **Marks Earned** |
| Correctness   * Main method sets the Pet instance property values for Name, Age, Weight, and PetType * Main method calls the Pet instance method Acepromazine() to get and display the correct dosage * Main method calls the Pet instance method Carprofen() to get and display the correct dosage * Invalid input value does not crash program * Can process another pet | 5 |  |
| Structure   * Pet class contains fully-implemented properties for Name, Age, and Weight * Pet class mutators for Name, Age, and Weight throws an exception in new value is not valid, respectively * Pet class constructors initialize all data fields to default or given values | 3 |  |
| Style and Readability   * Horizontal and vertical white space * Meaningful identifiers | 1 |  |
| Documentation   * Opening documentation * Source code comments | 1 |  |
| **Total:** | **10** |  |

**Coding Requirements**

The following coding standards must be followed when developing your program:

* Your C# Console App project must be named as **AdvancedPortfolio04-*YourFullName*** (eg: AdvancedPortfolio04-CodeGuru)
* Opening documentation at the beginning of the source file describing the **purpose**, **input**, **process**, **output, author, last modified date** of the program.
* Write only one statement per line.
* Write only one declaration per line.
* Use camelCase for local variable names and method parameter name.
* Use PascalCase for method names and constant variable names.
* If continuation lines are not indented automatically, indent them one tab stop (four spaces).
* Do NOT use the goto statement.
* There can only be one exit point for a loop, do not use the break statement inside a loop
* Do NOT use static variables.

**Demonstration and Submission Requirements**

* Demonstrate to your instructor your working program before submitting to Moodle. Be prepared to answer questions about your code after the demonstration. **No marks will be given** if you are unable to explain your code or if you submit your project without a demonstration of your working program to your instructor.