**Terms to review:**

identifier

variable

constant

data type

value data type

reference data type

class

object/instance

constructor

field (aka. member variable or instance variable)

method

encapsulation

composition

aggregation

polymorphism

inheritance

base class

subclass

overloaded method

overridden method

virtual method

abstract method

abstract class

interface

**robustness**

**bug**

**exception**

**try block**

**catch block**

**finally block**

**call stack**

**propagating an exception**

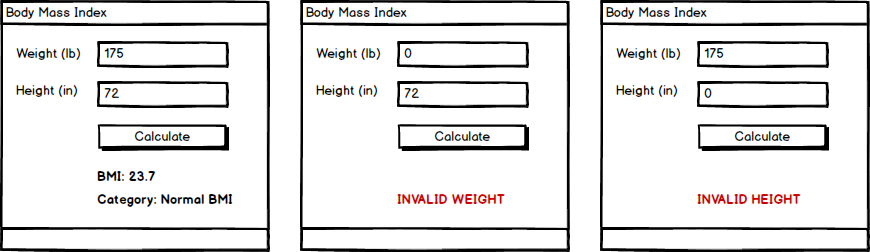
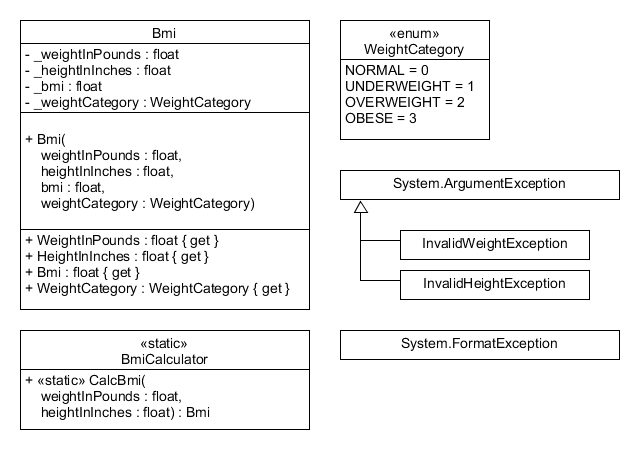
**Homework & Labs**

*// Please name your projects LB1, LB2, LB3, etc*

**LB1 BMI**

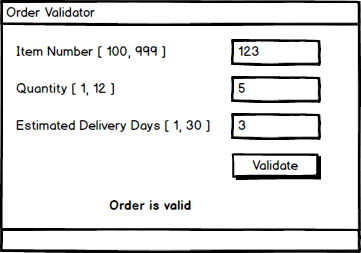
Create a GUI application to calculate a person's Body Mass Index (BMI).

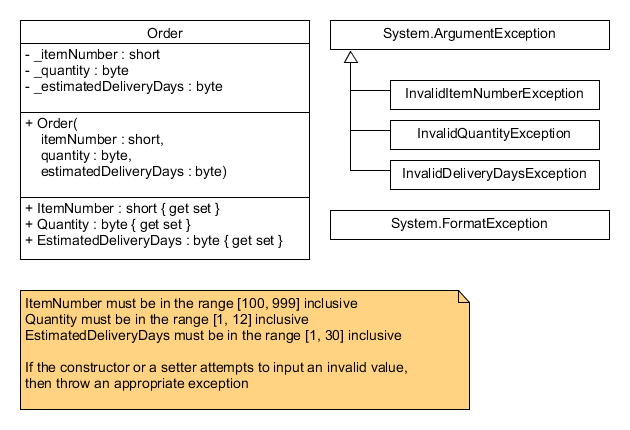
1. If the user does not enter a number for their weight then display **"INVALID WEIGHT"** in red. *(Make sure to handle FormatExceptions.)*
2. If the user enters a weight less than **70 lbs** or more than **300 lbs** then display **"INVALID WEIGHT"** in red.
3. If the user does not enter a number for their height then display **"INVALID HEIGHT"** in red. *(Make sure to handle FormatExceptions.)*
4. If the user enters a height less than **60 inches** or more than **84 inches** then display **"INVALID HEIGHT"** in red.
5. If the weight and height are valid then display the calculated BMI and category.

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**LB2 OrderExceptions**

Create a GUI application to check that orders are valid.

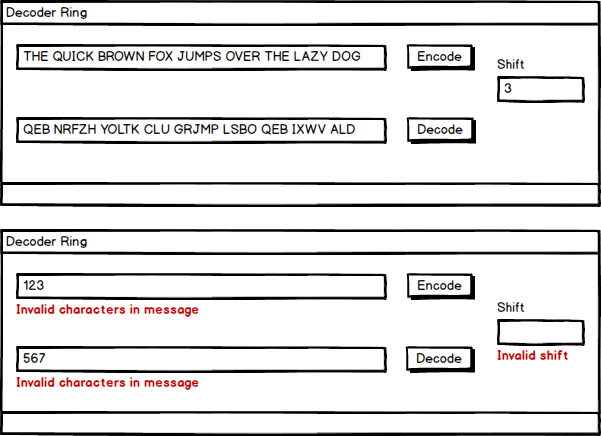
****

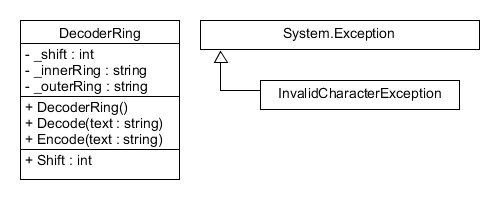
****

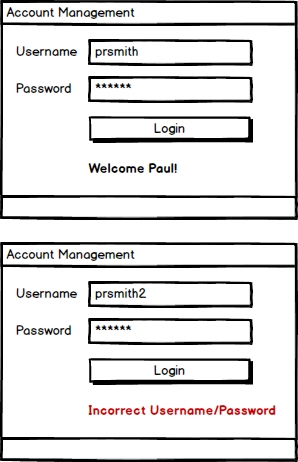
**LB3 DecoderRing**

Create a virtual decoder ring that can encode and decode messages.

1. The outer ring has the 26 letters of the alphabet.
2. The inner ring has the 26 letters of the alphabet.
3. The shift is the letters from the A in the inner ring to the A in the outer ring.
4. To encode a message find the letter on the inner ring and replace it with the character on the outer ring.
5. To decode a message find the letter on the outer ring and replace it with the character on the inner ring.
6. Messages cannot have numbers or special characters in them.
7. The shift must be a in the range [0, 25] inclusive.

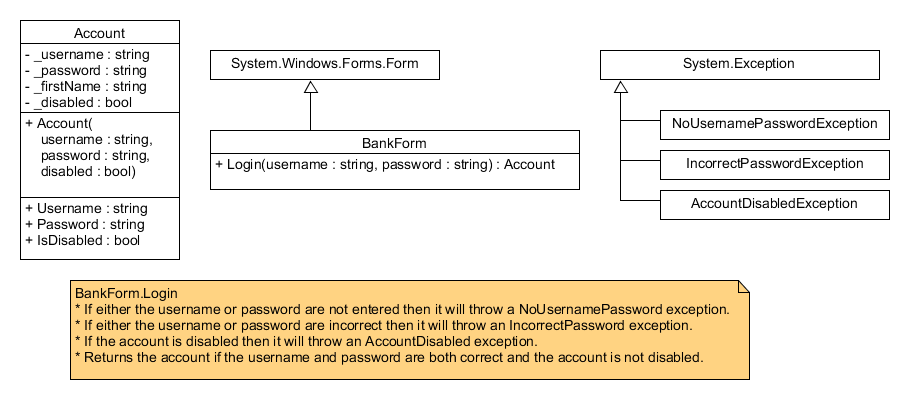




**LB4 LoginExceptions**

Create a login dialog that tells the user whether or not they entered the correct login credentials.

1. The application must have at least 5 accounts
2. Display **"You must enter a username and password"** if they do not enter both a username and password
3. Display **"Incorrect Username/Password"** if either the username or password is incorrect
4. Display **"Account Disabled"** if their credentials are correct but the account is disabled
5. Display a **welcome message** if their credentials are correct and their account is not disabled

****

**LB9 Build-A-Lab**

Create your own lab.

* Submit your design to the bin in class.
* Submit your implementation to bitbucket.
* Program must have tab order configured.
* Program must follow naming conventions for all controls, variables, constants, methods, classes, enumerations, interfaces, and exceptions.
* **Program must have at least two classes (not including Form or Exception subclasses).**
* **Program must declare at least one custom Exception subclass.**
* **Program must throw an exception from at least two different methods.**
* **Program must catch & handle these exceptions in the Form class.**