100pts

Name 1: _____

Name 2: _____

Class Day / Time: _____

Due Date: _____

Lab #15: Inheritance, Overloading, & Redefining

Create a class to track Farmer Pete's livestock.
For each animal the class should be able to track the

- Name & age
- Valid ages are an integer between 0 to 10
- Create methods to retrieve all of the attributes listed above
- Write a method to display the attributes in a table format (DisplayTable)
- Using overloading, create methods that will modify just the age, just the name, or the age and name

Derive classes from the livestock class: Sheep & Pig.

- Sheep & Pig should inherit from Animal
- The sheep class should be extended to handle a wool type and wool color
- The pig class should be extended to account for a tail type
- Redefine the display in both classes to include the extended attributes (They should both call the DisplayTable method in Animal class)
- Use enumerated types for the main menu, WoolType, and TailType

Wool Types: LONG, MEDIUM, FINE, CARPET
Tail Types: STRAIGHT, CORKSCREW, CURL_UP, CURL_RIGHT, CURL_LEFT

Create a list of Sheep & a list of Pigs. Read in from two text files. Sheep.txt & Pigs.txt

Provide the following menu for the first run.

```
1 - Initialize Animals
0 - Exit
Enter selection:
```

After the first run provide the following menu and associated functionality.

```
1 - Re-Initialize Sheep
2 - Re-Initialize Pigs
3 - Change Age
4 - Display
0 - Exit
Enter selection:
```

The Change Age options should allow the user to select which animal type to modify (Sheep or Pig) and then provide another menu with each animal's name of that type.

All input values should be error checked (use generic functions).

The Display option for livestock should Output a table formatted like the one below:

```
THE SHEEP:

NAME       AGE   WOOLTYPE   COLOR
---------  ---   --------   -----
Fluffy      1    Fine       White
La La       3    Long       Black

THE PIG(S):

NAME       AGE   TAILTYPE
---------  ---   ---------
Babe        4    Corkscrew
Wilbur      7    Curl Up
```

Test your code thoroughly. It will be demonstrated in lab.

There should be a method to output the table headings – it too will have to be re-defined.

Turn in (IN THIS ORDER - stapled)

1. The **first page** of this lab
2. **Output** → cut and pasted to a txt file within eclipse and printed
3. **Header File for Main** (General header file)
4. Main cpp file
5. Functions cpp file
6. Animal header file followed by cpp file with animal methods
7. Sheep header file followed by cpp file with sheep methods
8. Pig header file followed by cpp file with pig methods