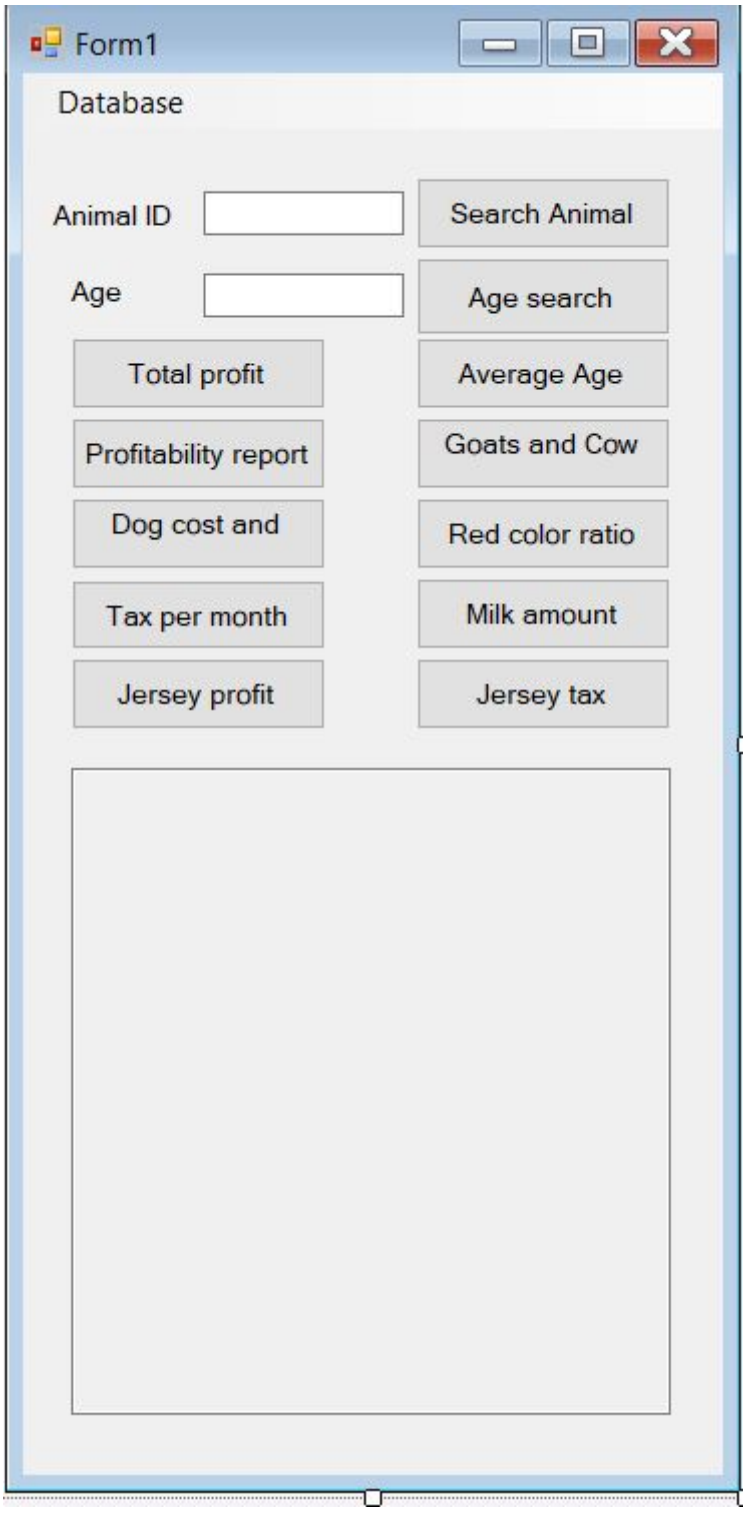
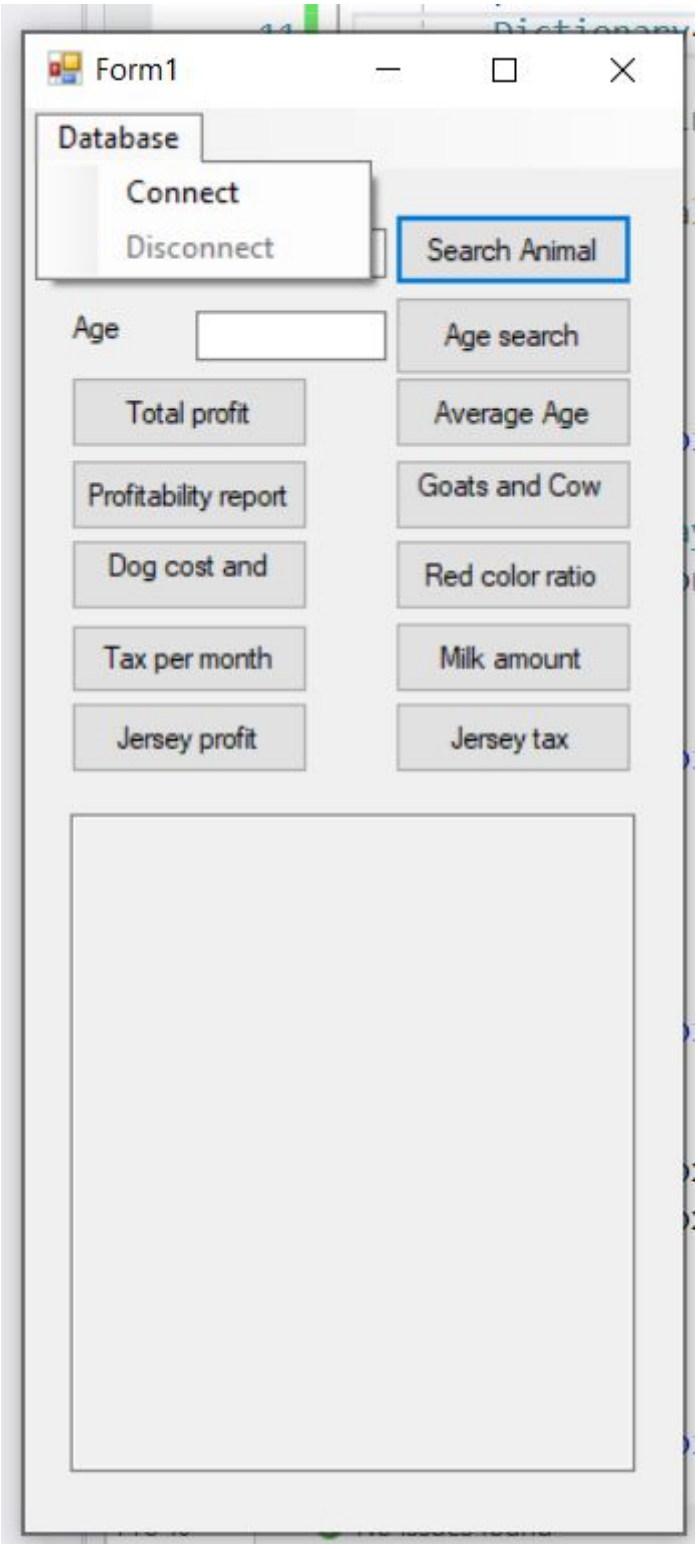
1. Function ***From 1*** testing screenshot:



Result: Start successfully

2. Function ***Connect to database*** screenshot:



Test case ***Disconnect*** is disenabled by default: Pass

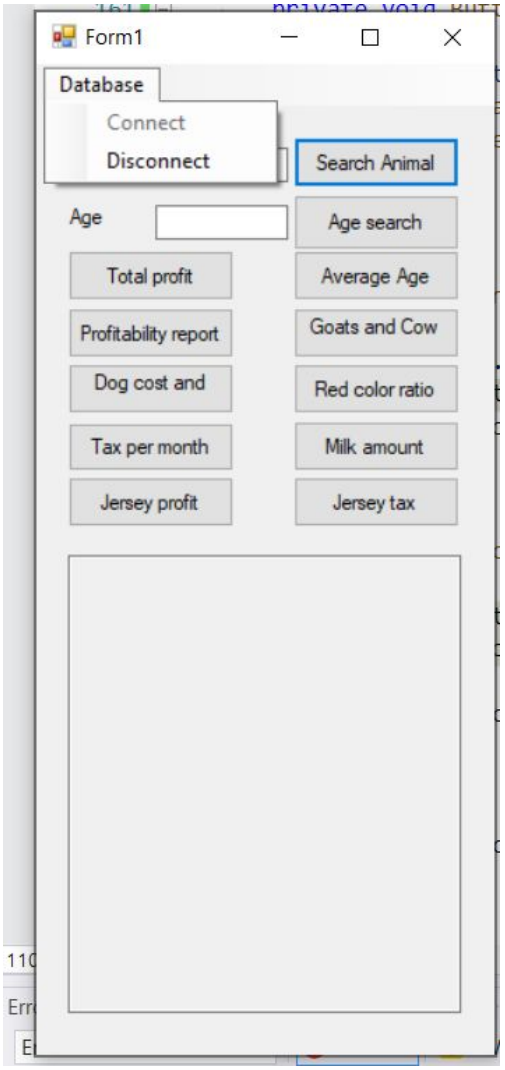
Test case *Connect to the database: Pass*

```
public partial class MainForm : Form
{
    private string _filepath = null;
    Dictionary<int, FarmAnimal> allAnimals = new Dictionary<int, FarmAnimal>();
    1 reference
```

allAnimals Count = 13

All animals correctly loaded to the dictionary

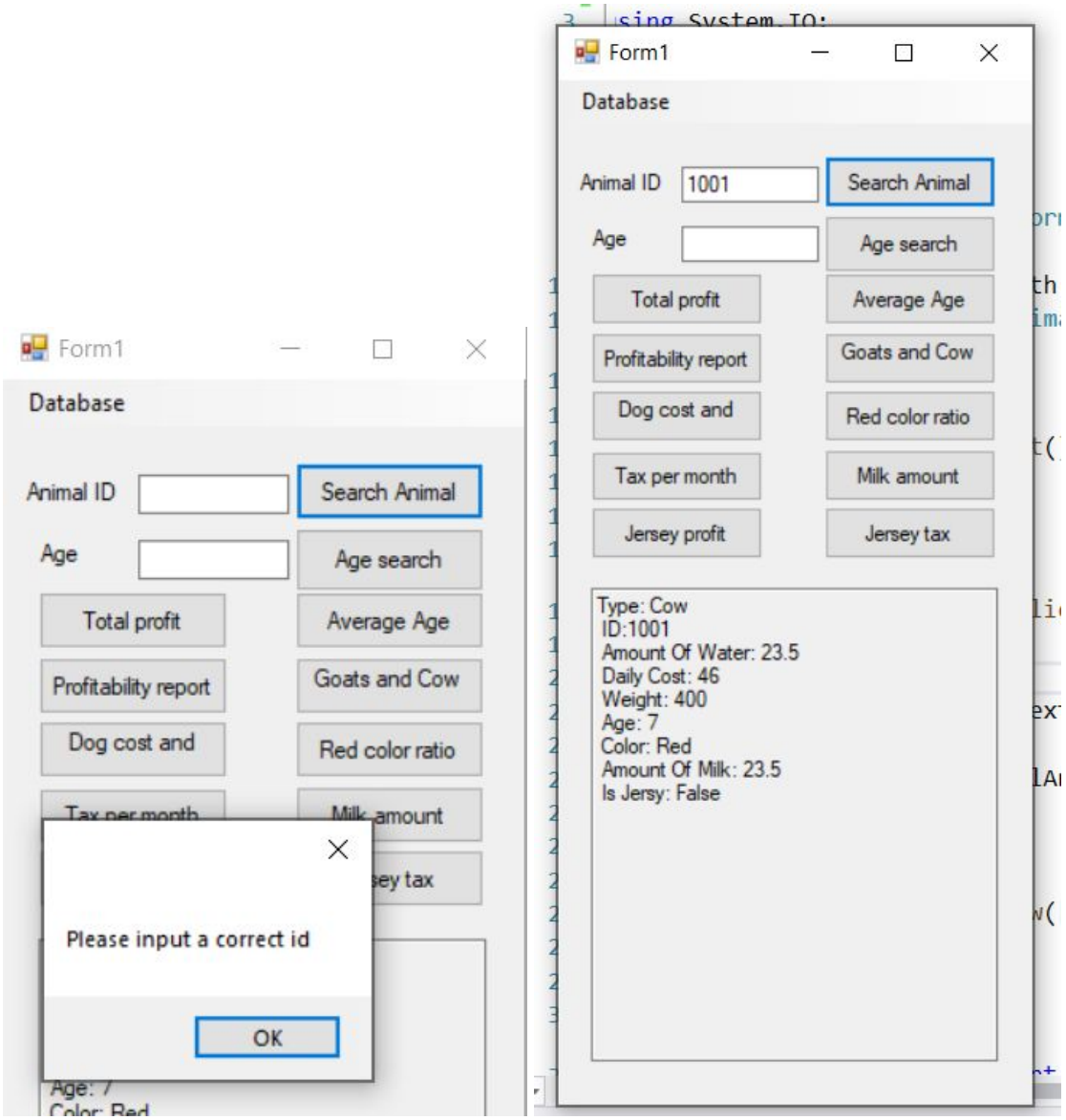
Test case after connected to the database disconnect button should be enabled: Pass

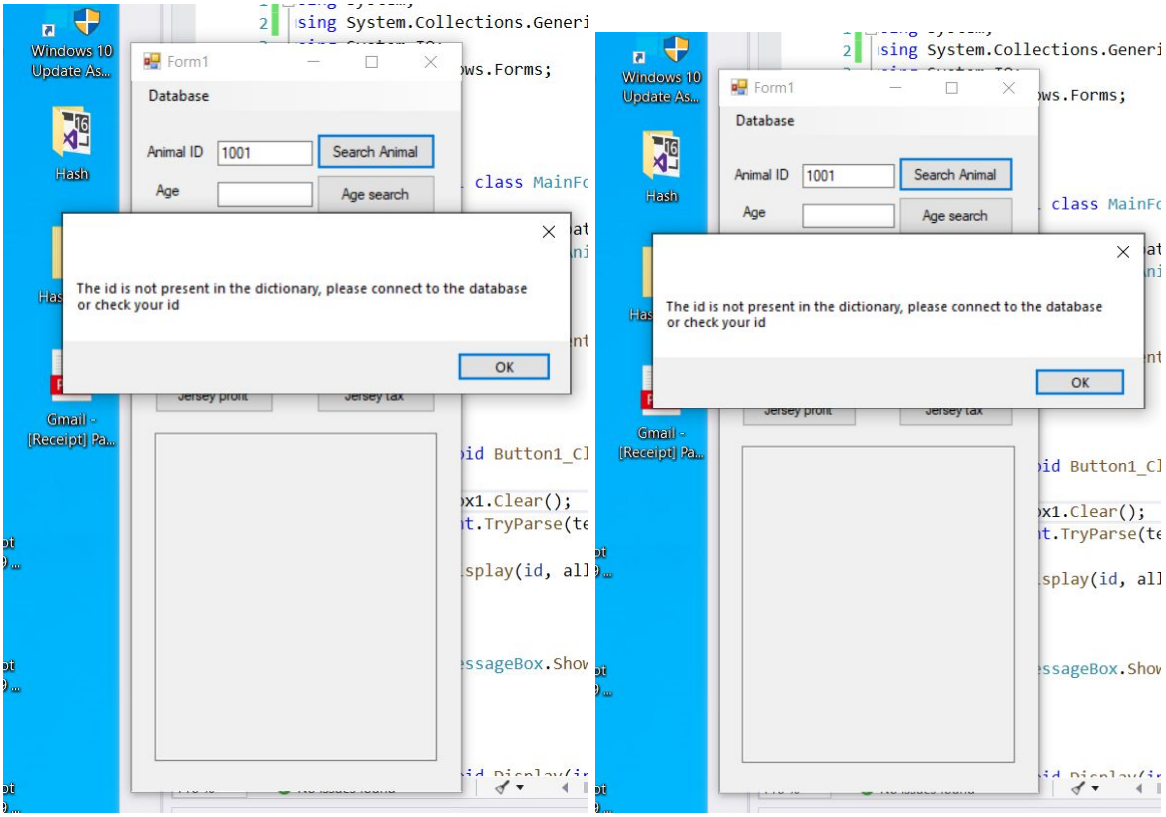


3. Function ***Search animal via ID*** testing process:

ID identification	*Database connection*	*Actual Result*	*Test Outcome*
`1001`	YES	Type: Cow ID:1001 Amount Of Water: 23.5 Daily Cost: 46 Weight: 400 Age: 7 Color: Red Amount Of Milk: 23.5 Is Jersy: False	PASS
`1001`	NO	The id is not present in the dictionary, please connect to the database or check your id	PASS
`9993`	YES	The id is not present in the dictionary, please connect to the database or check your id	PASS
`null`	YES	Please input a correct id	PASS

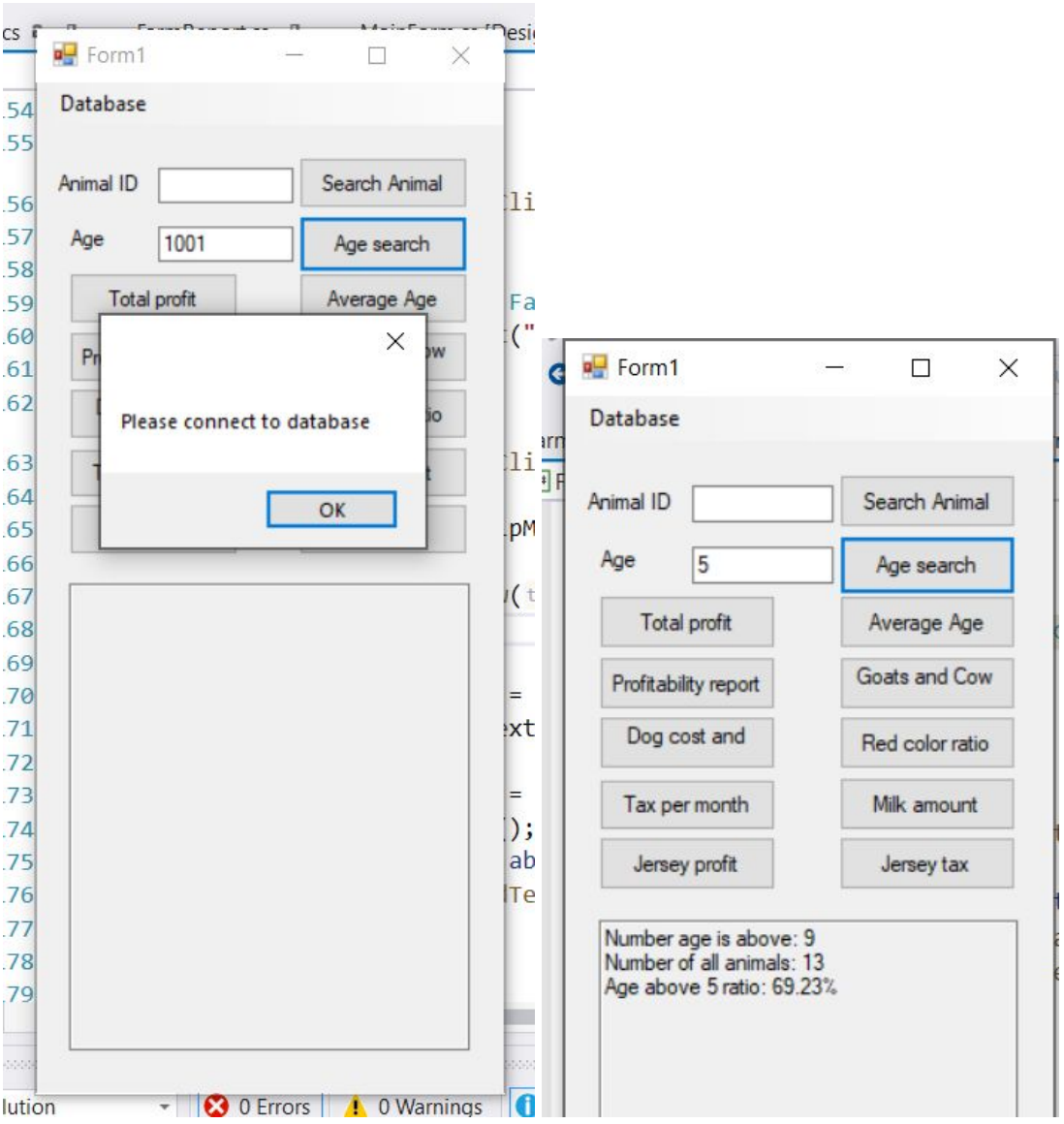
Screenshot:


Form1
Database
Animal ID
Search Animal
Age
Age search
Total profit
Average Age
Profitability report
Goats and Cow
Dog cost and
Red color ratio
Tax per month
Milk amount
Jersey profit
Jersey tax
Please input a correct id
OK
Form1
Database
Animal ID
1001
Search Animal
Age
Age search
Total profit
Average Age
Profitability report
Goats and Cow
Dog cost and
Red color ratio
Tax per month
Milk amount
Jersey profit
Jersey tax
Type: Cow
ID:1001
Amount Of Water: 23.5
Daily Cost: 46
Weight: 400
Age: 7
Color: Red
Amount Of Milk: 23.5
Is Jersy: False



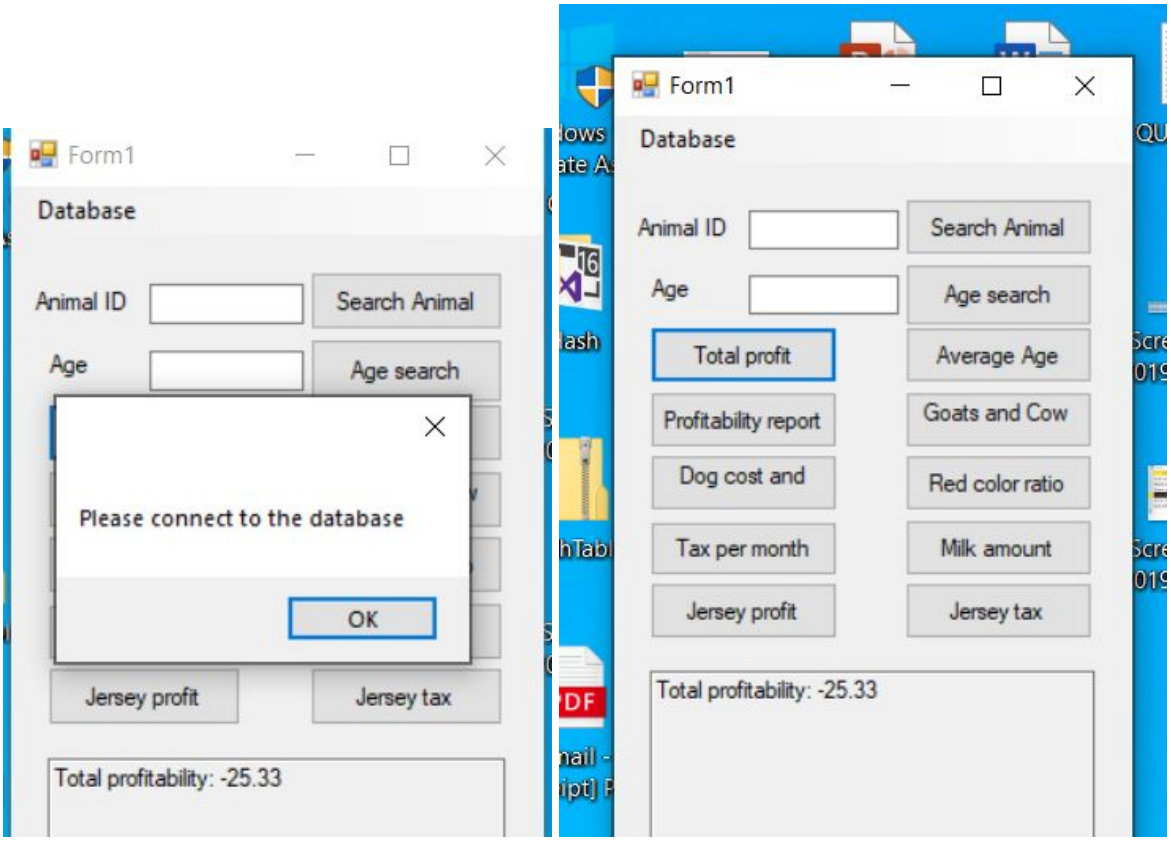
4. Function ***Age search*** testing process:

Age identification	*Database connection*	*Actual Result*	*Test Outcome*
`1001`	YES	Number age is above: 0 Number of all animals: 13 Age above 1001 ratio: 0.00%	PASS
`1001`	NO	Please connect to database	PASS
5	YES	Number age is above: 9 Number of all animals: 13 Age above 5ratio: 69.23%	PASS
`null`	YES	Please input a correct age	PASS



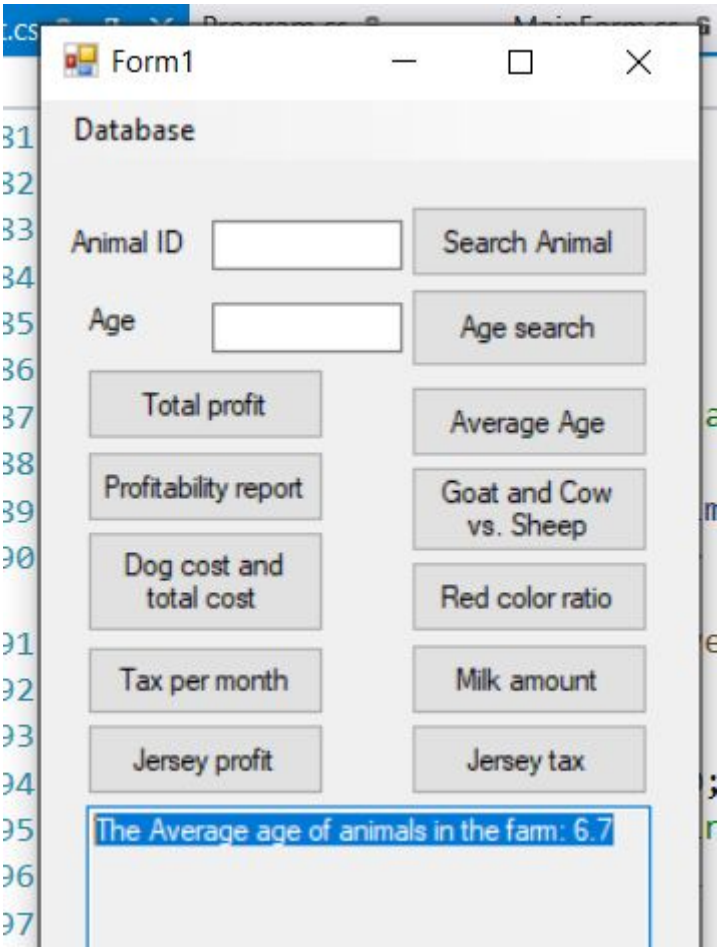
5. Function ***Total profit*** testing process:

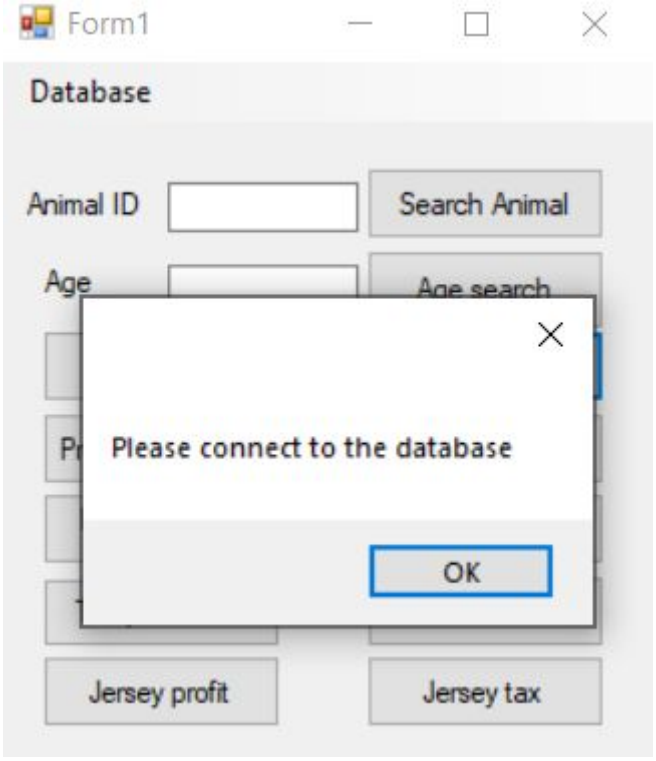
Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Total profit button`	YES	Total profitability: -25.33	PASS
`Click Total profit button`	NO	Please connect to the database	PASS



6. Function ***Average Age*** testing process:

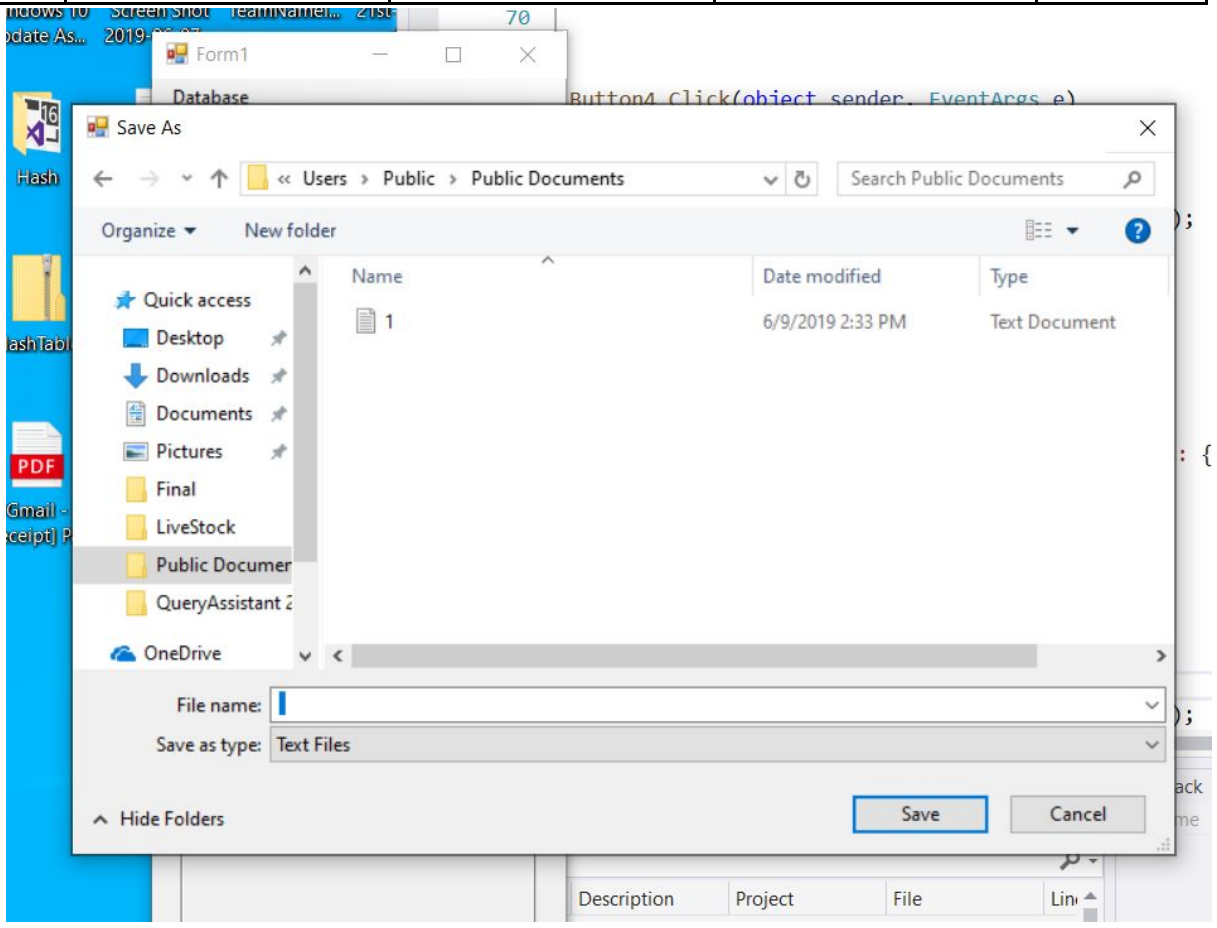
Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Total Average age button`	YES	The Average age of animals in the farm: 6.7	PASS
`Click Total Average age button`	NO	Please connect to the database	PASS

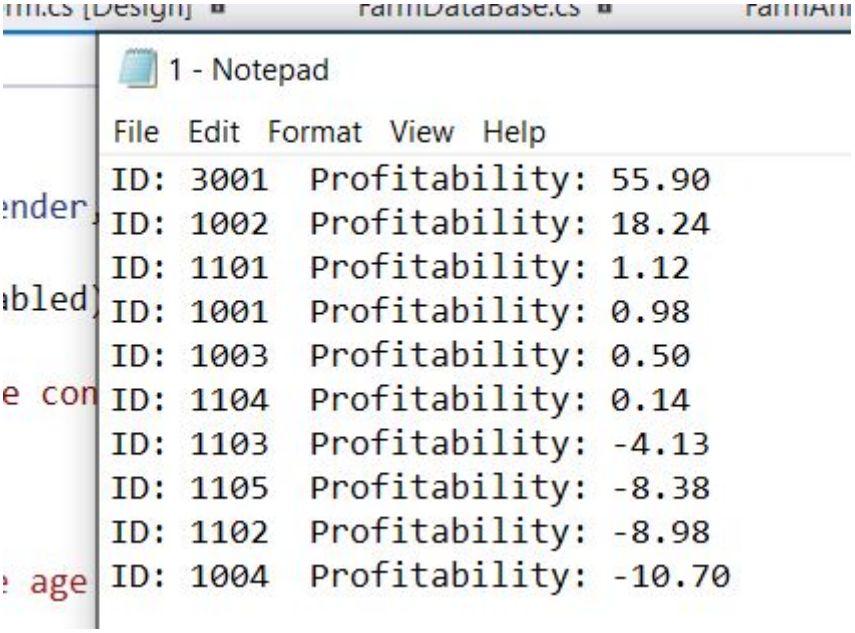

Form1
Database
Animal ID
Search Animal
Age
Age search
Total profit
Average Age
Profitability report
Goat and Cow vs. Sheep
Dog cost and total cost
Red color ratio
Tax per month
Milk amount
Jersey profit
Jersey tax
The Average age of animals in the farm: 6.7


Form1
Database
Animal ID
Search Animal
Age
Age search
Please connect to the database
OK
Jersey profit
Jersey tax

7. Function ***Profitability report*** testing process:

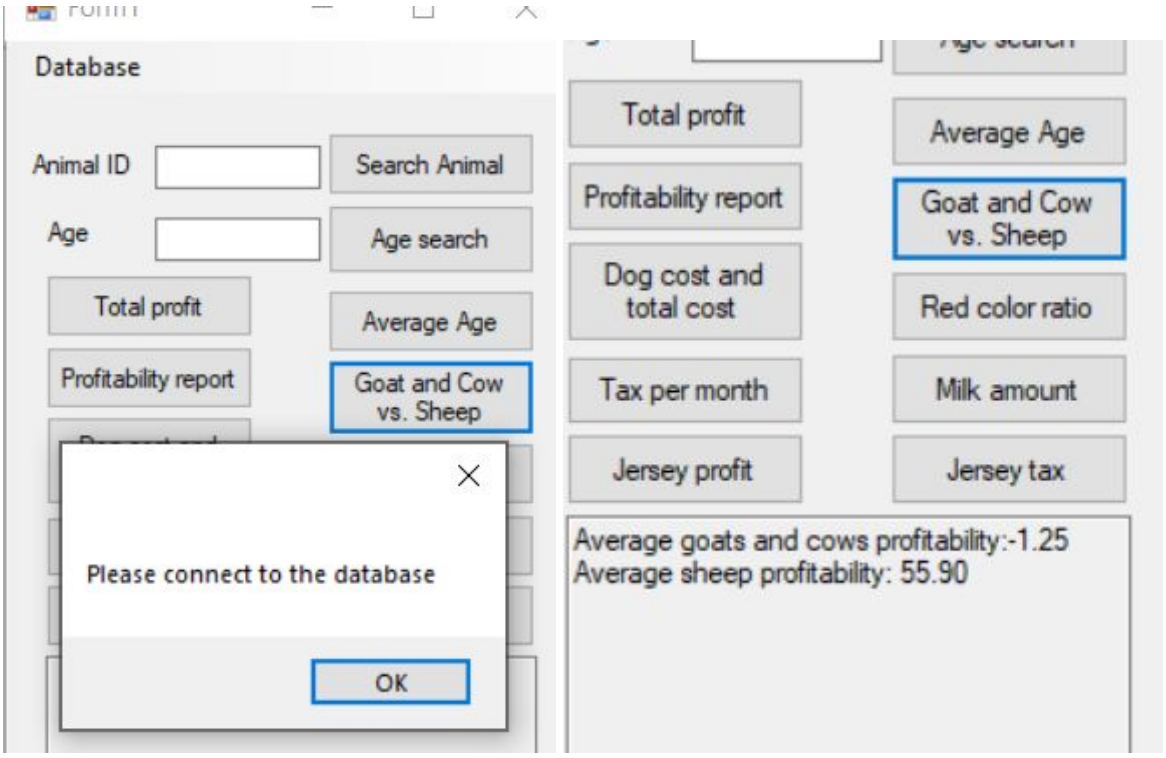
Action	*File name*	*Database connection*	*Actual Result*	*Test Outcome*
`Click the Profitability report button`	empty space	YES	Cannot create a file	PASS
`Click Total Average age button`	1	YES	File created, order correct	PASS





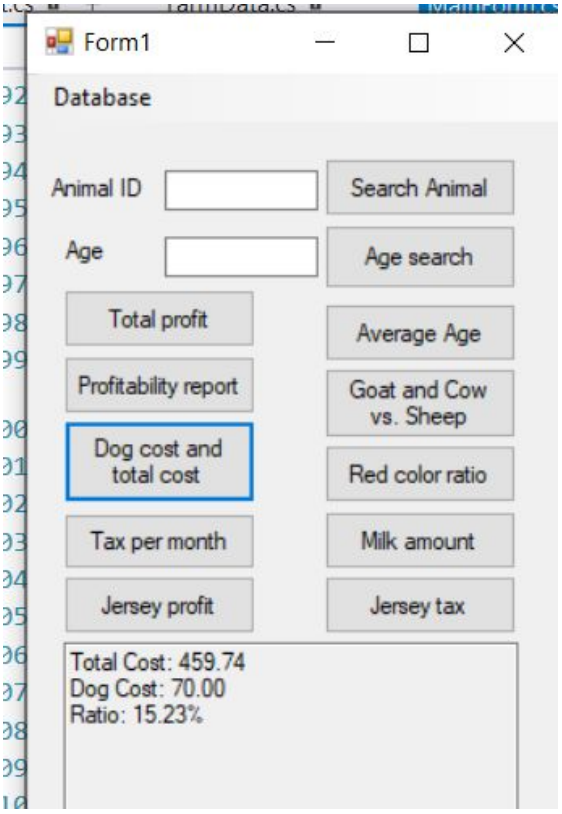
8. Function ***Goat and Cow vs. Sheep*** testing process:

Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Goat and Cow vs. Sheep button`	YES	Average goats and cows profitability:-1.25 Average sheep profitability: 55.90	PASS
`Click Goat and Cow vs. Sheep button`	NO	Please connect to the database	PASS



9. Function ***Dog cost and total cost*** testing process:

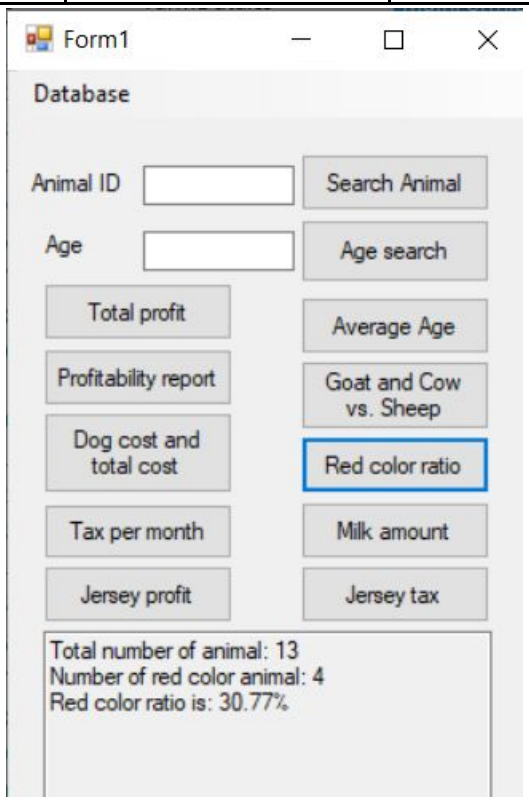
Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Dog cost and total cost button`	YES	Total Cost: 459.74 Dog Cost: 70.00 Ratio: 15.23%	PASS
`Click Dog cost and total cost button`	NO	Please connect to the database	PASS



10. Function ***Red color ratio*** testing process:

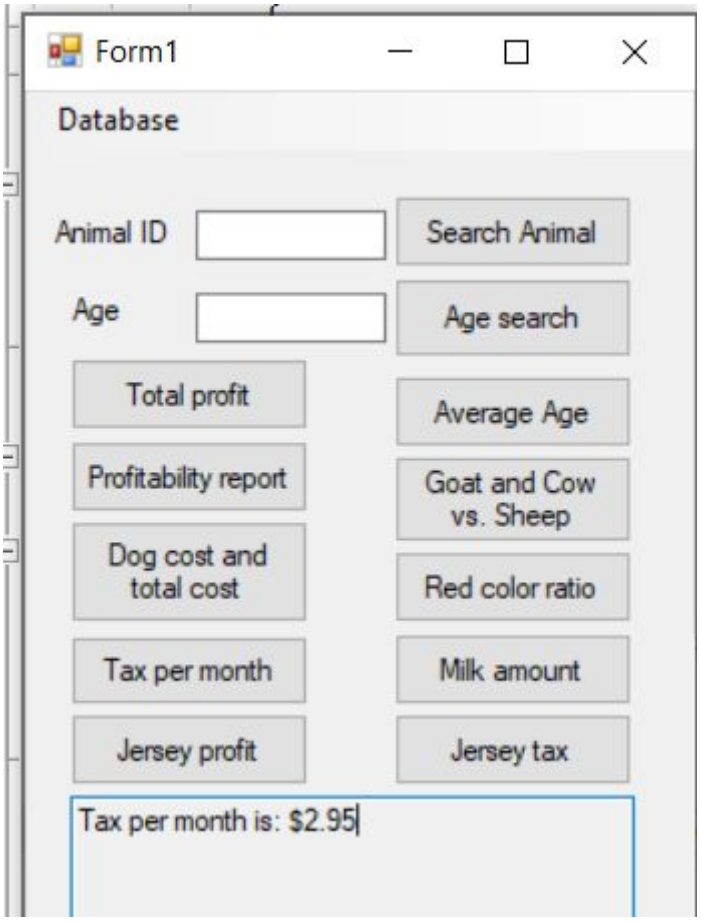
Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Red color ratio button`	YES	Total number of animal: 13 Number of red color animal: 4 Red color ratio is: 30.77%	PASS

`Click Red color ratio button`	NO	Please connect to the database	PASS



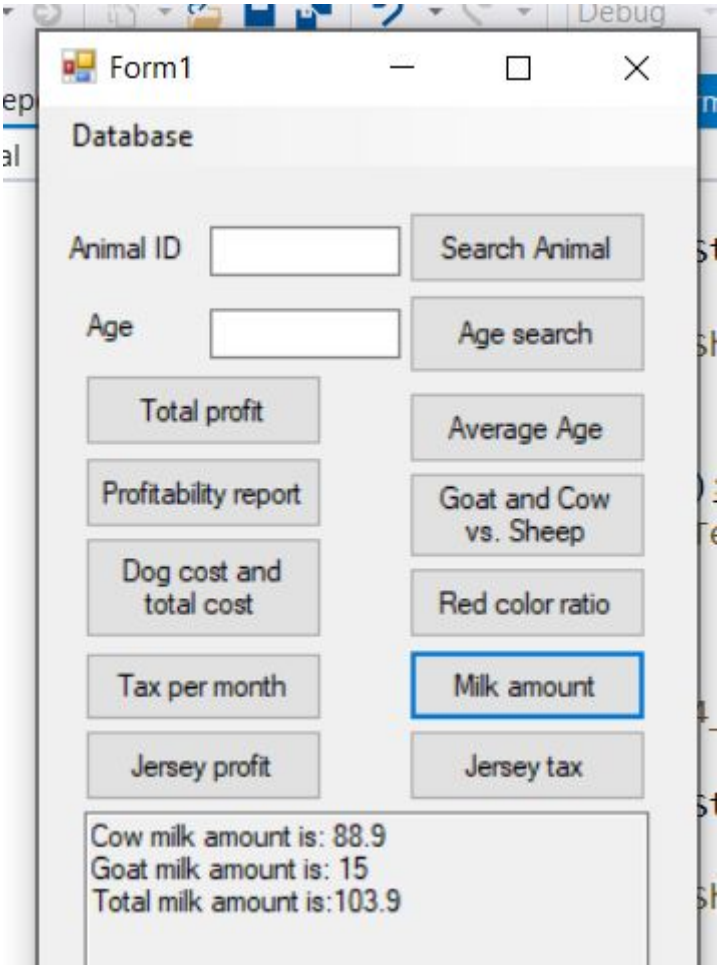
11. Function ***Tax per month*** testing process:

Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Tax per month button`	YES	Tax per month is: $2.95	PASS
`Click Red color ratio button`	NO	Please connect to the database	PASS



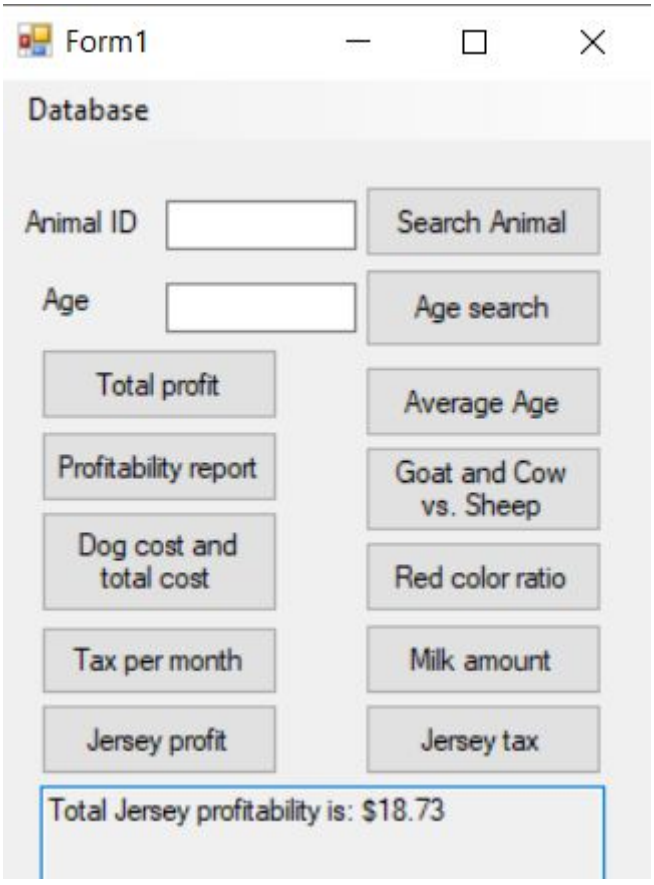
12. Function ***Milk amount*** testing process:

Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Milk amount button`	YES	Cow milk amount is: 88.9 Goat milk amount is: 15 Total milk amount is:103.9	PASS
`Click Milk amount button`	NO	Please connect to the database	PASS



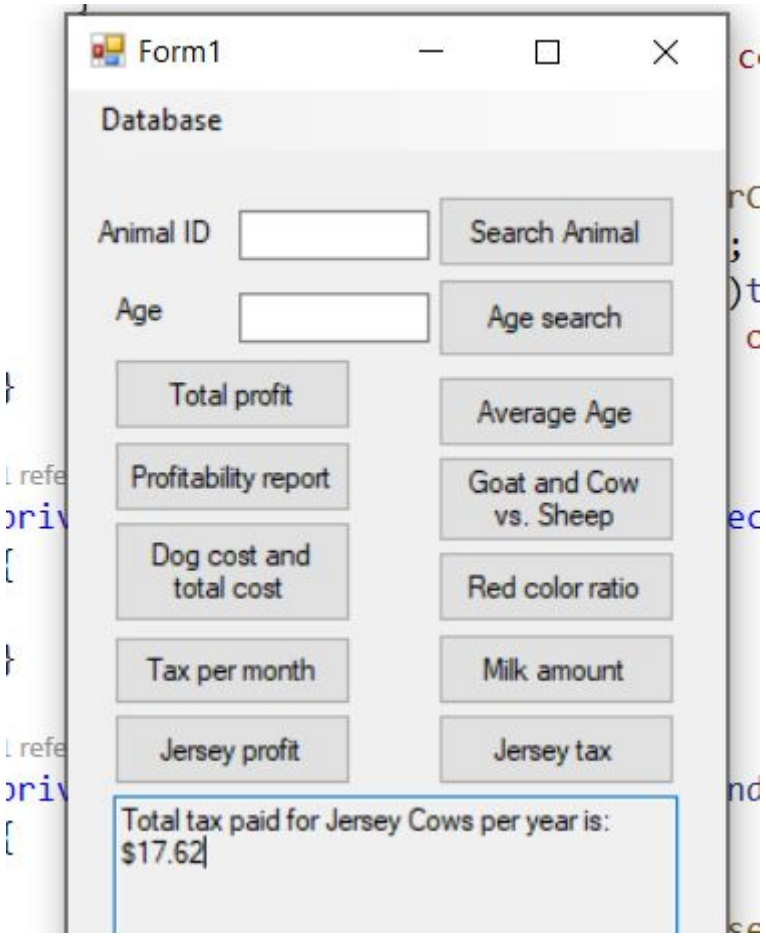
13. Function ***Jersey profit*** testing process:

Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Milk amount button`	YES	Total Jersey profitability is: $18.73	PASS
`Click Milk amount button`	NO	Please connect to the database	PASS



14. Function ***Jersey tax*** testing process:

Action	*Database connection*	*Actual Result*	*Test Outcome*
`Click Milk amount button`	YES	Total tax paid for Jersey Cows per year is: $17.62	PASS
`Click Milk amount button`	NO	Please connect to the database	PASS



The self mark is:99

REPORT #	DESCRIPTION	MARKS	Self Check
1	The user enter an ID and the program displays the information associated with this animal farm. In addition to the basic information, a string will be added to state the type of the animal (Dog, Cow, Jersey Cow, Sheep or Goat)	7	Done
2	Display the total profitability/loose of the farm per day	5	Done
3	Display the total tax paid to the government per month	5	Done
4	Display the total amount of milk per day for goats and cows	5	Done
5	Display the average age of all animal farms (dog excluded)	4	Done
6	Display the average profitability of “Goats and Cow” vs. Sheep	5	Done
7	Display the ratio of Dogs’ cost compared to the total cost	6	Done
8	Generate a file that contains the ID of all animals ordered by their profitability (you are not allowed to use built-in sorting algorithm – your code must do the sorting). Dogs are excluded	7	Done
9	Display the ratio of livestock with the color red	4	Done
10	Display the total tax paid for Jersey Cows	5	Done
11	The user enters a threshold (number of years), and the program displays the ratio of the number of animal farms where the age is above this threshold	4	Done
12	Display the total profitability of all Jersey Cows	4	Done

MARKING CRITERIA

	DESCRIPTION	MARKS	Self mark

1	Reports as listed in Table 4	60	Done
2	Demonstration of inheritance	2	Done
3	Demonstration of polymorphism	3	Done
4	Error handling	3	Done
5	Comments and indentation	2	Done
6	Short methods	2	Done
7	Good object oriented practice	4	
8	Efficient algorithms (use of hash table and sorting algorithm)	8	Done
9	Appropriate number of classes	3	Done
10	Evidence of testing all functions of the program – show screenshots	3	Done
11	Self-marking	2	Done
12	Demonstration of Multithreading	8	Done