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Java Programming

P-5 Buying Chickens at the Chicken Store

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Version Control

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| .01 | 03/18/2025 | Joseph Simonin | 1st draft |
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Technical Specifications

AI Statement

AI was used to troubleshoot issues related to scanner handling, this was needed due to the no parameters requirement for the 2 int return type methods. AI assistance was utilized to debug and correct logical errors involving input recognition and looping until valid input was received.

Description of Requirement

program will print to the screen a welcome to the chicken store message. A series of questions will be presented to the user to guide their choice on buying a chicken, and a final chicken report will be printed based on the answers. Then the user will be given the option to buy another chicken or exit. program must use these methods:

1. A static method that has a void return type and no parameters. This method simply prints to the screen the welcome message.
2. A static method that has an int return type and no parameters. This method prints a question to the screen asking the user what type of chicken they want to buy, accepts the user’s choice, and returns that choice as an int value.
3. A static method that has an int return type and no parameters. This method prints a question to the screen asking the user what the health status is of the chicken they chose in the previous question, accepts the user’s choice, and returns that choice as an int value.
4. A static method that returns a float value and has two parameters of type int. This method accepts an int value to be used as the chicken type and a value for the health. Using the provided chart and formula, the method returns the expected number of eggs in a year.
5. A static method that returns a String value and has one float parameter. This method returns a String that notes "great value" if the argument is greater than 300, "good value" if the argument is greater than 200 but less than 300, and "consider fried chicken" if the value is less than 200.

P5 will need to make use of all five methods, and use the return values when printing messages to the user.

Installation and Run Instructions

Compile the program in a Java-supported IDE or command-line interface. Run the program. Follow on-screen prompts: Select a chicken breed from the provided options. Select a health status for the chicken. Review the expected egg count and investment recommendation. Choose whether to buy another chicken or exit. The program repeats until the user decides to exit.

Notes

When designing this program, I focused on ensuring a smooth user experience by validating input and handling incorrect responses gracefully. A do-while loop ensures that invalid inputs trigger re-prompting, preventing program crashes due to unexpected user entries. Some key considerations included Scanner Management ensuring that Scanner objects are properly handled without closing prematurely. Loop Structure using a while loop to keep the program running until the user chooses to exit. Implementing error handling checks to prevent crashes from invalid inputs. Breaking down the program into modular functions to improve readability and maintainability.

Program Validation

To validate this program, I ran each option multiple times to ensure correct functionality and expected behavior. The menu was tested to confirm that it properly repeats after each transaction until the user selects the option to exit. Error handling was also checked for invalid inputs to confirm that incorrect values prompt appropriate responses while still allowing the user to continue using the program.

Chicken Breed Selection was tested by entering valid numbers (1, 2, 3), and the program correctly proceeded to the next step. Invalid inputs such as letters, negative numbers, and numbers outside the range (e.g., 0, 4) displayed an error message and re-prompted the user.

-Confirmed

Health Status Selection was tested using all valid options (0, 1, 2, 3), and the program correctly proceeded. Invalid inputs (e.g., -1, 4, non-numeric characters) triggered an error message and a prompt for correct input.

-Confirmed

Egg Production Calculation was tested by selecting different breed and health combinations. The expected egg production formula was applied correctly, and the output matched manual calculations.

-Confirmed

Buy Another Chicken Prompt was tested with 'Y' and 'N' in uppercase and lowercase. The program correctly restarted when 'Y' was entered and exited when 'N' was chosen. Invalid inputs were tested, and the program displayed an error message and re-prompted the user.

-Confirmed

Exit Functionality was tested by selecting 'N' at the final prompt. The program successfully displayed a closing message and terminated without errors.

-Confirmed

Link to source code through GitHub

<https://github.com/CouchSniper7/P5---Buying-Chickens.git>

Screenshots of Tests

Test #1

A screenshot of a computer program

AI-generated content may be incorrect.

Test #2

A screenshot of a computer

AI-generated content may be incorrect.

Test #3

A screenshot of a computer program

AI-generated content may be incorrect.

Test #4

A screenshot of a computer program

AI-generated content may be incorrect.

Test #5

A screenshot of a computer program

AI-generated content may be incorrect.