Analysis

Saturday, March 19, 2011
1:53 AM

I) PredPray Class

a. userFriend
   i. **Input:** Integers PreyCnt, PredatorCnt, and number of generations
   ii. **Output:** None
   iii. **Constraints:** Inputs must be integers
   iv. **Relationships:** Calls the lotkaVolterraModel method

b. lotkaVolterraModel
   i. Input: Integers for PreyCnt, PredatorCnt, base generation, and number of generations
   ii. **Output:** Population levels for each generation
   iii. **Contraints:** Inputs must be integers
   iv. **Relationships:** Uses the dPreyCnt and dPredatorMethods

c. dPreyCnt
   i. **Input:** Integers for a specific generations PreyCnt and PredCnt
   ii. **Output:** An integer representing a new generations prey population level
   iii. **Constraints:** Inputs must be integers
   iv. **Relationships:** Uses the lotkaVolterraModel's function for change in prey population over time

d. dPredatorCnt
   i. **Input:** Integers for a specific generations PreyCnt and PredCnt
   ii. **Output:** An integer representing a new generations predator population level
   iii. **Constraints:** Inputs must be integers
   iv. **Relationships:** Uses the lotkaVolterraModel's function for change in predator population over time

Design

Sunday, March 20, 2011
5:05 PM

I. userFriend
   A public method called that passes a static variable to a helper method that does all the work.
II. lotkaVolterraModel
   A private helper method that does all of the work recursively. It has 3 stoping cases: when the current generation exceeds the maximum generations, and when either of the populations mathematically drops below zero. All other cases, it calls its self again and passes variables for the next generation to print out.
III. dPredCnt
   A private helper function for lotkaVolterraModel that calculates the prey population for the next generation. It uses the formula given in the specifications.
IV. dPredatorCnt
   A private helper function for lotkaVolterraModel that calculates the predator population for the next generation. It uses the formula given in the specifications.