Program 1999U

(All Data Structures 2)

This is Mega-Mega Farms. You are to randomly create 5 Getka Farms. The farms should be saved in a linked list. Each farm starts with a number of corn cobs, hay bales, pounds of feed beans and pounds of oats to feed the animals. Each farm starts with randomly 10000-15000 corn cobs, 2000-3000 bales of hay, 750-1000 pounds of beans and 1750 to 2500 pounds of oats. Each farm is to have a Map of between 12 and 15 cows. Each farm is to have a Set of between 10 and 20 Turkeys. Each farm is to have a circle linked list of between 8 and 10 horses. Each farm will have 20 pens (an array) to hold between 12 and 20 pigs.

The hay that a farm uses should be used in opposite order that it is purchased(Stack). As it is loaded into a barn, the last ones in will be on top and therefore they will be the first ones used. Each load of hay brought onto the farm will be between 75 and 100 bales.

Corn is used in the order that it is put into the bin. It is loaded into the top of the bin and pulled out of the bottom of the bin, first in, first out(Queue). Each wagon of corn coming onto the farm will have between 1000 and 1250 corn cobs in it.

The cow should have a unique 4-digit ID number, which is used to store the cow in the map. The cow should than have a weight which should be between 1000 and 1500 pounds, followed by the number of corn cobs they eat, 5-8 a day, followed by the number of hay bales, 1 to 3 a day, followed by the pounds of beans, 2 to 5 pounds a day and the pounds of oats, 1 to 4 pounds a day. The final number saved for each cow is the amount of milk produced per day, 20 to 100 pounds.

The Turkeys are in a big pen(Set) and should have a 3-digit ID, their weight which should be between 25 and 35 pounds, the number of corns they eat, between 1 and 3 and then pounds of oats they eat between 2 and 4.

The horses should always be ridden in order, as we get to the last one we come back around to the front horse (Circle linked list). Each horse should have a random 4 letter name with the 3rd letter always being a vowel and the other 3 letters being consonants. The horse should have a rider cost, a double between 7 and 10.50, followed by the number of corn cobs they eat, 2-4 a day, followed by the number of hay bales, 1 to 3 a day, followed by the pounds of beans, 2 to 5 pounds a day and the pounds of oats, 1 to 4 pounds a day.

Data Structure needed Array, ArrayList, Sets, Maps, Linked List, Circle Linked List, Binary Tree, Queue, Stack, String

Data Location **prog1999.txt**

For the Eels:

1. Which eel ate the most fish?
2. How much did it cost to feed all of the eels on the 2nd Tuesday?
3. If fish cost 1 on Monday, 2 on Tuesday … all the way to 5 on Friday, which eel costs the most to feed?
4. If fish cost 1 on Monday, 2 on Tuesday … all the way to 5 on Friday, which eel costs the most to feed on week1? Week2? Week3?
5. What is the name of the longest fish that each eel has eaten, and which eel ate the longest fish?
6. Did any of the eels eat a fish of the same name?
7. What day was the most expensive day to feed the eels? Monday, Tuesday, …

For the bunnies

1. Calculate the total number of unique individuals that the bunnies sold feet to.
2. Check the numbers in all of the bunny’s trees, total the largest and smallest number of each tree.
3. Calculate the total number of Magic Hats for all of the bunnies.
4. Calculate the bunny that has the most letters in all of its magic hats.
5. Which bunny has the single longest name for its magic hat.
6. Get rid of the bunny with the fewest number of magic hats.
7. The bunnies had a big sale but Jill and Pill were the only to show up and buy. Add Jill to each of the Sets of purchasers and Pill to all of the odd bunnies as a purchaser.
8. The first bunny just purchased a magic hat with a number of 100 which polymorphs and the last bunny bought a magic hat with a number of 101 which shrinks.
9. The second bunny lost his second magic hat.
10. Fred is not allowed to be a customer of any bunny any more. Delete Fred from the set of purchasers from all of the bunnies.
11. How many of the bunnies has Pill been a customer?