Program 505U

(cows and horses, multiple farms)

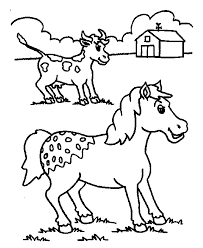
**Program Description:**

* Read from the data file, the first number of the data file will represent the number of **hay bales** the farm currently has. It is followed by the cost of each hay bale.
* The next number is the number of **corncobs** the farm has, followed by the cost of each corncob.
* The data file will then provide the number of **cows** that are stored in the data file. Each cow has a weight, followed by pounds of milk produced per day, followed by the number of hay bales eaten each day per cow, followed by a number of corncobs eaten each day per cow.
* The next set of data will have an int for the number of **horses**. Their weight comes next. This will be followed by the number of hay bales eaten each day, followed by the number of corncobs eaten each day, followed by the number of rides that horse gave and the cost per ride for that horse.
* Complete the farm, horse and cow classes - be sure to create constructors for each of the classes.
* A pound of milk sells for $0.20.

The farmer will want many reports about the farms:

* The program should report which animal is the largest and the smallest by which farm it is on and the weight of that animal and whether it was a cow or a horse.
* Report the total value of the feed currently on all of the farms.
* Report the total income expected from all of the farms
* Report the farm making the most and the least amount of money
* Sell off the 5 least profitable cows (income –feed cost)
* Which horse is the superstar of the day(the one with the most income)
* Which farm makes the most income with its cows(milk value – feedcost)
* Which farm makes the most income with it horses(ride values – feedcost)
* Buy a new horse for farm 2 which weighs 2000, eats 3 bales of hay and 2 corncobs with 1 ride at $5.00
* Cow 2 in farm 2 got sick and lost 150 pounds, overwrite the data with the new cows data in that spot (Reporting the total weight for all cows in farm 2 before and after you have changed the weight for that cow. You should not create a method that changes a cows weight, create a new cow with the correct weight and overwrite the data.
* Horse 3 on farm 3 is very friendly and is now getting 10 rides per day. Make a method in the horse class that changes the number of rides a day for horses. Report the number of rides before and after the change for farm 3.

**Statements Required**: input, output, loop control, arrays, classes



**Data Location prog505u.dat**

**public interface IFarm** {

/\*\* Feeds all cows where farm has enough food \*/

private boolean feedCows() { return false; }

/\*\* Feeds all horses where farm has enough food \*/

private boolean feedHorses() { return false; }

/\*\* Feeds all cows and horses where farm has enough food \*/

public boolean feedAllAnimals();

/\*\* Calculates the value of the milk produced by the

\* cows price for each cow's milk is the same per pound \*/

private double cowIncome(double perPound) { return 0; }

/\*\* Calculates the value of the rides given by the horses

\* ride value of each horse changes based on the horse \*/

private double horseIncome() { return 0; }

/\*\* Calculates the daily income of the farm \*/

public double farmIncome();

/\*\* Calculates the total weight of all the farm animals \*/

public int getWeight();

/\*\* Calculates the amount of money it will

\* take to feed the animals for the day \*/

public double getCost();

/\*\* Returns the cows in an ArrayList \*/

public ArrayList<Cow> getCows();

/\*\* Returns the horses in an ArrayList \*/

public ArrayList<Horse> getHorses();

}

**public class Farm implements IFarm** {

private ArrayList<Horse> myHorses;

private ArrayList<Cow> myCows;

private int myNumHayBales;

private int myNumCorn;

private double myHayCost;

private double myCornCost;

// …

}

**OLD:**

public class farm

{

Private ArrayList<horses>myhorses;

Private ArrayList<cows> mycows;

Private int myHayBales;

Private int mycorn;

Private double myhaybalecost;

Private double mycorncost;

….

// feeds all cows where farm has enough food

private boolean feedcows()

//feeds all horses where farm has enough food

private boolean feedhorses()

//feeds all cows and horses where farm has enough food

public boolean feedAllAnimals()

// calculates the value of the milk produced by the cows

//price for each cows milk is the same per pound

private double cowIncome(double perpound)

// calculates the value of the rides given by the horses

//ride value of each horse changes based on the horse

Private double horseIncome()

//calculates the daily income of the farm

Public double farmIncome()

//calculates the total weight of all of the farm animals

Public int getWeight()

//calculates the amount of money it will take to feed the animals for the day

Public double getCost()

//returns the cows in an ArrayList

Public ArrayList<cows> getcows()

//returns the horses in an ArrayList

Public ArrayList<horses> gethorses()

}

Public class cows

{

Private int myweight;

Private int mymilk;

Private int mycorn;

Private int mynumbales;

//Returns the weight of the cow

Public int getweight()

//returns the value of the milk produced

Public double value(double perpound)

//returns the amount of corn eaten by this cow

Public int getcorn()

//returns the amount of hay eaten by this cow

Public int gethay()

//calculates the amount of money it will take to feed the cows for the day

Public double getCost(double corncost,double haycost)

}

Public class horses

{

Private int myweight;

Private int mynumrides;

Private double mycostperride;

Private int mycorn;

Private int mynumbales;

//Returns the weight of the horse

Public int getweight()

//returns the value of the rides this horse gave

Public double value()

//returns the amount of corn eaten by this horse

Public int getcorn()

//returns the amount of hay eaten by this horse

Public int gethay()

//calculates the amount of money it will take to feed the horses for the day

Public double getCost(double corncost,double haycost)

}