Name _____ Period _____ Logic and Computation

Data Definitions Practice

Directions: Each word problem below describes a problem domain that needs to be modelled by one or more classes. Read the description and create the classes that you think are necessary to represent the data in the word problem. Choose sensible names for classes and variables. Use enum classes where appropriate.

1. A coffee shop sells drinks and pastries. They need your help to configure their point of order stations with their menu items. They sell many types of beverages, but each one has a name, a size (small, medium, or large), a price, and can be served either hot or iced. The pastries on their menu each have a name, a price, and can be heated up at the customer's request.

2. A running club in your community has commissioned you to design a simple app for them. They want their members to be able to record their individual runs so they can be shared and compared with other users of the app. Each "runner log" should capture the username of the runner, their start time and end time (recorded in hours, minutes, and seconds), a date that the run took place (recorded with month, day, and year), a description of the run (such as "Ran through the park today. Knee was sore the whole time LOL!"), and it should track the number of "likes" that other members have given it.

3. A small town wants to encourage people to use their new public transportation system by making it easier for people to access information about the bus routes and schedules. The town only has five bus stops so far: park, plaza, central, courthouse, and library. Each bus route has a starting location and an ending location at one of the named stops. The routes each have a departure time and can either be express or regular.

4. A board game company wants to take their classic game "Whammy!" and make a digital version that can be played on a tablet. The rules of "Whammy!" are pretty complicated, so don't worry about those for now. Your job is to set up the data model for the players and game. Each player has a name, some number of victory points, and three pawns. Each pawn has a location on one of the numbered squares in the game board, is either alive or dead, and has either moved or not moved yet. Each whammy card has a color (red, green, or blue), a number, and a status of played or unplayed. The game itself should have a class that represents it. The game is for two players, it keeps track of whose turn it is, what time the game was started, and whether or not the game is over.