Ex3-project GPS coordinates (extension of Ex2)

At assignment 2 we have developed a system that enables the collection of geographic information and the presentation of information in graphical tools.
The project in assignment 2 include the following classes: "MyCoords", "Csv2Kml", "MultiCsv", "Data", "Element", "Layer" and "Project" which are explained in the readme file in Ex2.

At assignment 3 we expanded the project, we created a packman game.
In the game we have a packman and fruits which are represented by a number of data.
The goal of the game is to eat all the fruits in the shortest time possible, each packman has a speed at which he can advance to the next fruit and an eating radius that defines the minimum required proximity to the fruit he want to eat.
The game configuration will be determined by the information given in a predetermined CSV file or file that we have created.

We have created a menu for the user that will allow him to create his own game by placing the packman and fruits on the map and setting for the packman the radius and speed at his will and export the game to a csv file, in addition the menu allows him to upload an existing file of the game and run the game.

In order that all the fruits will be eaten in the shortest possible time, we have created an algorithm that will be the most effective way for each packman to eat the fruit to which he arrived in the shortest time, thus creating the path which he could eat the maximum amount of fruit given his speed and radius.

The package we added to the assignment is "packman" which include the following classes:

Fruit-
This class represents target (the target cannot move), each target (fruit) has an ID number, weight, map location (in meters or pixel) and string type.

Packman-
This class represents packman (the packman capable of movement), each packman has an ID number, speed, radius, map location (in meters or pixel) and string type.

Game-
In this class we have a list of packman and a list of fruits. This class has the ability to be built from the data it receives from the csv file, and also to create a csv file with the data it receives from a new game we created.

Map-
This class represent the map which we use in the game. It included the map image, the fruit image and the packman image.
The class calculates conversion of coordinates from global representation to pixel and vice versa, and also calculates the distance in meters between 2 pixel points.

MyFrame-
This class is a graphical class that displays the packman and fruits on the map, showing the algorithm operation we created in the ShortestPathAlgo class, and also performing a recovery of data from csv files or creating a game by selecting the fruit and packman and positioning them on the map.

Path-
This class include the paths that each packman does in the game.

Path2KML-
This class gets all the paths that the packman does in the game and saves them in a kml file, the path is saved so that we can run it on google earth and see the path that each packman does.

ShortestPathAlgo-
This class receives a list of fruit packman and a list of fruits and calculates the shortest path for each packman considering its speed and radius so that all of the fruits will eat as fast as possible.

TheredPack-
This class contains a list of paths and thread for each path, and displays all of the paths in parallel.

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