Project One

The program for the final project is supposed to be a small zoo managing game that allows the user to purchase animals with a starting budget and try to earn a profit by the end of the week. Each animal has a cost and an earning rate, so each animal earns the user money each day that passes. The animals and the zoo are both class objects. Each animal has attributes to differentiate themselves as different instances of the same template and they have methods to execute calculations. The zoo class has different names for each instance and methods to allow the user to manipulate the data inside of each instance of the zoo. The animals' attributes are their names, cost, and the amount of that animal the user owns. The animal class has one method that calculates how many funds the animal has earned for the day. The zoo class has a dictionary class variable of all the available animals that the user is able to purchase. The zoos' attributes are its name and a dictionary of the animals it owns. The zoo class has three methods. The first method is to allow the player to purchase animals and store them in their owned-animals dictionary. The second method is to display the available animals to the user and the animals that the user owns. The third method is to calculate the amount of funds the user's zoo has earned by plotting a graph.

The program imports numpy to store which day the user is currently on and how many funds the user has earned so far in the game. The program also imports matplotlib to plot the data from the numpy arrays.

The program uses two independent functions. The first is to prompt the user to choose what they want to do. It stores the user's choice as a string and returns it to the main function that called it. The main function is the driver code for the program that initializes instances of the classes and calls functions and methods.

Some of the if-statements used in the program include the input validation sections of the program to determine what the user wants to do. After calling the independent function to retrieve the choice from the user, the if-statements determine what the next step is based upon the user's choice. Another section of the program that uses if-statements is the end of the program that determines what the final message is to the user based upon how much profit the user has made over the week.

Some of the for loops in the program include looping over the animals that the user owns, looping over the available animals that the user could purchase, and the loop that iterates seven times for each day of the week. The loops that iterate over the available animals and the owned animals are either used to display the animals to the user or as a part of the input validation code. The loop that iterates seven times is primarily for making sure that the game ends after seven days.