REPORT

The function predatorPrey is the one being used in other for us to find the currentTime, Population Prey and Population Predator since it is required for us to obtain their values using the calculations that were given by Euler’s equation. The values were the type double and the function type-specifier is void therefore no value is being returned. The function predatorPrey’s type specifier is void this means its doesn’t return any value.

There are four values that are given to us in task 2 for the first variables which are a=1.1, b=0.4, c= 0.4, d=0.1 but for the values of t Final and d t the values were not given therefore their values were given by the user randomly which were dt=0.1 and tFinal = 10 . The values are generated with that of two decimal places by using”%.2f”. The data is written to a file therefore when the program is debugged it will be blank because the values are in the textfile “myfile.txt”. The values of the user are =.5, b=0.8, c=0.9, d=0.2.

The functions dx and dy are used to calculate our final data values needed for the output. These two functions are of great help since they coded separately from the function predatorPrey so that they can be used later by the function.

We included #include <stdlib.h> because it defines four variable types, several macros and various functions for performing general functions.

A textfile “myfile.txt” is created to store the output data and since we are writing to a file “w” is used as the mode thus we had three columns and six rows. The first column is for the Current Time, the second is for the Prey Population and the last column is for the Predator Population.

The data values obtained from the values conducted from task 2 it is prompted for us for us draw a graph using them in Matlab by which the label on the axis is for the Prey and the label for the y axis is the predator and the graph title is “The Graph of Prey versus Predator “ also the graph containing the users value is also labelled the same and the colour is red “-rs” by Matlab and it is a dashed line. The graph of the values given and that from the user are pretty much the same. The structure of the code starts by the declaration of the functions and predatorPrey is first coded being followed by dy and dx and at the end is the main () function. The main function contains the values given to be inserted in the functions created

No bugs are presented for the two graphs the data from each of the graphs values displayed the data inserted perfectly.

These were the two graphs that were obtained using matlab one generated by using the values given and the other one is generated by using the values from the user.

The graph on the left is the one from the values given and the graph on the right is from the user .

