The Newton Raphson is one of the most widely used methods for finding the roots of any equation. It is an iterative method which gives the approximate roots for any given equation. The Newton Raphson formula is given by this :-

X(n+1) – Xn =-f(Xn)/f’(Xn) where

Xn gives the value of X in the nth iteration

X(n+1) gives the value of X in the (n+1)th iteration

f(Xn) gives the value of the function based on the value of X

f’(Xn) gives the value of the differential of the function based on the value of X

In this question we are assigned a equation cos(x) – xex=0 and we are told to find the (approximate)roots for the equation using the Newton Raphson formula. So, we have taken the maximum precision of the roots to be 10^(-6).Accordingly the body of the code mainly consists of two loops, the first one is to approximately determine the initial value to start the Newton Raphson method and the next loop is used to run the required iterations for the Newton Raphson method using the initial value.The second loop continues until the it achieves the tolerance value given by us or it completes 1000 iterations whichever comes first