```c
/*
Finding the real roots of any given equation using cheybesev method

Chebysev method is like approimating the given Transcedental Equation into a quadratic equa
tion f(x) = 0, f(x) ~ a0 + a1x + a2x^2

Let xk be an approximate root
f'(x) = a1 + a2x
f''(x) = 2a2  by subsituting the value xk in all the equations we get the values of f(xk),
f'(xk), f''(xk)

we get,
      f(x) ~ fk + (x-xk)f'_k + (x-xk)^2*f''_k/2 ==> 0
      x_(k+1) = xk - fk/f'k - (fk^2 f''_k)/2((f'_k)^3)
*/

#include <stdio.h>
#include <stdlib.h>
#include <math.h>

//Function prototypes
float f(float x);
float df(float x);
float ddf(float x);
float chebyshev(float guess);

int main()
{
   float root, guess;

   //Making a guess
   printf("Enter guess: ");
   scanf("%f", &guess);

   //Invoking Function
   root = chebyshev(guess);
   printf("Root of the equation is: %f\n", root);

   exit(0);
}

float chebyshev(float guess)
{
   float root, a;
   a = guess;

   //Loop infinitely
   while (1)
   {
      root = a - (f(a)/df(a)) - (f(a)*f(a)*ddf(a))/(2*df(a)*df(a)*df(a));
      //root = a - (fa/fa_d) - (fa*fa*fa_d_d)/(2*fa_d*fa_d*fa_d);

      //Checking the convergence of the equation
      if (floor(a*10000) == floor(root*10000))
      {
         return root;
      }
      a = root;
   }
   return root;
}

float f(float x)
{
   float ans;  //Declaration of variables in float

   ans = x*log10f(x) - 1.2;  // f(x)
   if(ans != ans)
```

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    {
        printf("Cannot proceed further..Try changing the guess\n");
        exit (3);
    }
    return ans;  //Returning the value of f(x) at x1
}

float df(float x)
{
    float ans;  //Declaration of variables in float

    ans = (1 + log10f(x));  // f'(x)
    if(ans != ans)
    {
        printf("Cannot proceed further..Try changing the guess\n");
        exit (4);
    }
    return ans;  //Returning the value of f'(x) at x1
}

float ddf(float x)
{
    float ans;  //Declaration of variables in float

    ans = 1/x;  // f''(x)
    if(ans != ans)
    {
        printf("Cannot proceed further..Try changing the guess\n");
        exit (4);
    }
    return ans;  //Returning the value of f'(x) at x1
}
```