```
function root = bisection( f, interval, es)
%implements bisection method
%
%root = bisection( f, interval, es)
%
%INPUT   f: function handle for the root finding function f(x)
%             interval: an array of two numbers that bracket the
 solution of f(x) = 0
%             es: stopping condition
%OUTPUT   root: the solution of equation f(x)=0

a=interval(1); b=interval(2);
%error checking
if sign(f(a))==sign(f(b))
    error('Use a bracketing interval')
end

m=(a+b)/2;  %first guess using bisection
ea=100;       %set ea to enter loop
while ea>es
    %are we replacing a or b?
    if sign(f(a))==sign(f(m))
        a=m;
    else
        b=m;
    end
    old=m;                                  %save the old m
    m=(a+b)/2;                             %compute the new m
    ea=abs((m-old)/m)*100;    %compute relative error
end
root=m;  %set output variable

end
```

```
ans =

    1.2603


Error using bisection (line 14)
Use a bracketing interval
```

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