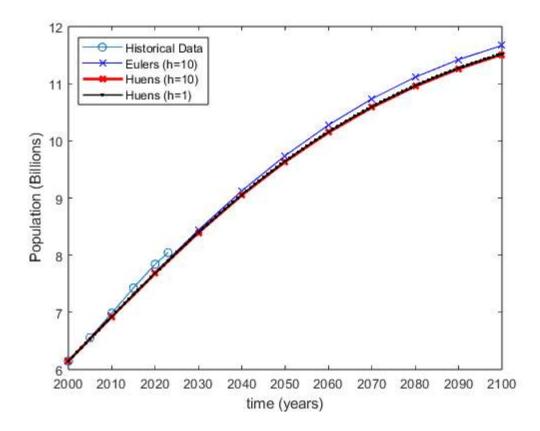
```
t = [2000 \ 2005 \ 2010 \ 2015 \ 2020 \ 2023];
P = [6.148 \ 6.558 \ 6.986 \ 7.427 \ 7.841 \ 8.045];
e10 = eulers(P(1), 10);
h10 = huens(P(1), 10);
h1 = huens(P(1), 1);
plot(t,P,'o-');
hold on;
plot(2000:10:2100,e10,'bx-');
plot(2000:10:2100,h10,'rx-',linewidth=2);
plot(2000:1:2100,h1,'k.-',linewidth=1.1,markersize=8);
legend('Historical Data', 'Eulers (h=10)', 'Huens (h=10)', 'Huens (h=1)', 'Location', 'northwest');
xlabel('time (years)');
ylabel('Population (Billions)')
% Euler's Method loop function
function yo = eulers(yi, h)
yo(1) = yi;
for n = 2:1:100/h+1
    yo(n) = yi + dP(yi)*h;
    yi = yo(n);
end
end
% Huen's Method loop function
function yo = huens(y1, h)
yo(1) = y1;
for n = 2:1:100/h+1
    d1 = dP(y1);
    y2 = y1 + d1*h;
    yo(n) = y1 + (d1+dP(y2))*h/2;
    y1 = yo(n);
end
end
% derivative calulation function
function f = dP(P)
k = 0.002;
N = 12.5;
f = k.*P.*(N-P);
end
```



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