function extrema = Optim(f,varargin)

ident = length(varargin);

if (ident == 2)

B1 = varargin{1};

B2 = varargin{2};

else

% fill in your bracket values here

B1 = [-5, -3, -1.5, 0.5, 2];

B2 = [-4, -2, -0.5, 1.5, 3];

end

% Put Optimization Code here

opt = '';

phi = (1 + sqrt(5))/2

num = length(B1);

extrema = [];

for i = 1:num

tol = 10^-6;

l = B1(i);

u = B2(i);

mid = (l+u)/2;

if (f(mid)>f(u))&&(f(mid)>f(l))

opt = 'p';

elseif (f(mid) < f(u))&&(f(mid)<f(l))

opt = 'v';

end

diff = u-l;

x\_opt = ((l+u)/2);

while (diff > tol)

d = (u-l)\*(phi - 1);

x\_1 = l+d;

x\_2 = u-d;

if opt(1) == 'v'

if f(x\_1) < f(x\_2)

x\_opt = x\_1;

l = x\_2;

else

x\_opt = x\_2;

u = x\_1;

end

elseif opt(1) == 'p'

if f(x\_1) < f(x\_2)

x\_opt = x\_2;

u = x\_1;

else

x\_opt = x\_1;

l = x\_2;

end

end

diff = u-l;

disp(diff);

end

extrema(i) = x\_opt;

if length(extrema) == num

break;

end

end