%2-2 differencequotient table

function ddf=ddiffquotient(xi,fi)

% xi=[0.4,0.55,0.65,0.80,0.90,1.05];

% fi=[0.41075,0.57815,0.69675,0.88811,1.02652,1.25382];

n=length(fi);

ddf=zeros(n, n+1);

str=[];

for k=n-1:-1:1

    p=n-k;

    s=sprintf('k=%3d\t\t\t\t', p);

    str=[str,s];

end

str=['\t x\_j\t\t\t\t f\_j\t\t\t\t ', str,'\n'];

fprintf(str);

str=repmat('=', 1, length(str));

fprintf([str,'\n']);

ddf(:, 1)=xi';

ddf(:, 2)=fi';

for k=n-2:-1:0

    p=n+1-k;

    for j=p-1:n

        ddf(j, p)=(ddf(j, p-1)-ddf(j-1, p-1))/(xi(j)-xi(j-(p-2)));

   end

end

for j=1:n

    for k=1:j+1

        fprintf('%12.8f\t\t',ddf(j,k));

    end

    fprintf('\n');

end

ddf=diag(ddf(1:n, 2:n+1));