

```

function A = cubicspline(x,y)
if size(x,2)~=size(y,2)
    error('Vectors must be of the same size');
end
n=size(x,2)-1;
B=zeros(4*n);
for i=1:n
    B(i,i)=1;
end
for i=1:n
    delta=x(i+1)-x(i);
    B(n+i,i)=1;
    B(n+i,i+n)=delta;
    B(n+i,i+2*n)=delta^2;
    B(n+i,i+3*n)=delta^3;
end
for i=1:n-1
    delta=x(i+1)-x(i);
    B(2*n+i,n+i)=1;
    B(2*n+i,2*n+i)=2*delta;
    B(2*n+i,3*n+i)=3*delta^2;
    B(2*n+i,n+i+1)=-1;
end
for i=1:n-1
    delta=x(i+1)-x(i);
    B(3*n-1+i,2*n+i)=2;
    B(3*n-1+i,3*n+i)=6*delta;
    B(3*n-1+i,2*n+i+1)=-2;
end
B(4*n-1,2*n+1)=1;
B(4*n,3*n)=2;
B(4*n,4*n)=6*(x(n+1)-x(n));

v=zeros(4*n,1);
for i=1:n
    v(i)=y(i);
    v(n+i)=y(i+1);
end

sol=inv(B)*v;
size(sol);
A=zeros(n,4);
for i=1:n
    for j=1:4
        A(i,j)=sol(n*(j-1)+i);
    end
end
end

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