```
N  = 100;
% sequence 1:N
J  = 1:N;
J  = J';

% sequence b = c = 1/J
b  = 1./J;
c  = 1./J;

% sequence d = sin(sqrt(2)*J)
d  = sin(sqrt(2)*J);

% A = A0 + A1
J1 = ones(1,N-1);
A0 = -2*eye(N)+diag(J1,1)+diag(J1,-1);
A1 = c*d';
A  = A0 + A1;

% solve Ax = b
x = A\b;

% display first 5 elements of x
x(1:5)

% check Ax - b
norm(A*x - b)
```

```
ans =

   42.7809
   75.3692
  102.8613
  126.9559
  148.5024


ans =

   1.2314e-12
```

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