waxwing	= [266.8	0.609	0.3488	0.3831	0.0198];
partridge	= [266.8	0.642	0.3452	0.3792	0.0217];
ostrich	= [300.0	0.680	0.3070	0.3372	0.0229];
merlin	= [336.4	0.684	0.2767	0.3037	0.0222];
linnet	= [336.4	0.721	0.2737	0.3006	0.0243];
oriole	= [336.4	0.741	0.2719	0.2987	0.0255];
chickadee	= [397.5	0.743	0.2342	0.2572	0.0241];
ibis	= [397.5	0.783	0.2323	0.2551	0.0264];
pelican	= [477.0	0.814	0.1957	0.2148	0.0264];
flicker	= [477.0	0.846	0.1943	0.2134	0.0284];
hawk	= [477.0	0.858	0.1931	0.2120	0.0289];
hen	= [477.0	0.883	0.1919	0.2107	0.0304];
osprey	= [556.5	0.879	0.1679	0.1843	0.0284];
parakeet	= [556.5	0.914	0.1669	0.1832	0.0306];
dove	= [556.5	0.927	0.1663	0.1826	0.0314];
rook	= [636.0	0.977	0.1461	0.1603	0.0327];
grosbeak	= [636.0	0.990	0.1454	0.1596	0.0335];
drake	= [795.0	1.108	0.1172	0.1284	0.0373];
tern	= [795.0	1.063	0.1188	0.1302	0.0352];
rail	= [954.0	1.165	0.0997	0.1092	0.0386];
cardinal	= [954.0	1.196	0.0988	0.1082	0.0402];
ortolan	= [1033.5	1.213	0.0924	0.1011	0.0402];
bluejay	= [1113.0	1.259	0.0861	0.0941	0.0415];
finch	= [1113.0	1.293	0.0856	0.0937	0.0436];
bittern	= [1272.0	1.345	0.0762	0.0832	0.0444];
pheasant	= [1272.0	1.382	0.0751	0.0821	0.0466];
bobolink	= [1431.0	1.427	0.0684	0.0746	0.0470];
plover	= [1431.0	1.465	0.0673	0.0735	0.0494];
lapwing	= [1590.0	1.502	0.0623	0.0678	0.0498];
falcon	= [1590.0	1.545	0.0612	0.0667	0.0523];
bluebird	= [2156.0	1.762	0.0476	0.0515	0.0586];

```
disp('Number of Phases          Enter');
disp('================          =====');
disp('Single Phase                1');
disp('Three Phase                 3');
phase = input('Select the number of you choice: ');
switch phase
    case 1
        acsr = input('Enter the ACSR code name: ','s');
        acsr1 = eval(acsr);
        dist = input('Enter the distance between conductors, in meters: ');
        inch = (100*dist)/2.54;
        ft = inch/12;
        bndl = input('Enter the number of conductors in the bundle (1,2,3,or 4): ');
            if(bndl==1)
            r20 = acsr1(1,3)/1.609;
            r50 = acsr1(1,4)/1.609;
            gmdft = ft;
            gmrlft = acsr1(1,5);
            gmrcft = acsr1(1,2)/(12*2);
            L = (1000*2*10^-7)*(log(gmdft/gmrlft));
            C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
          x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
        y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
        z=sprintf('\nThe inductance per phase is %d H/km',L);
        w=sprintf('\nThe capacitance per phase is %d F/km',C);
        disp(x)
        disp(y)
        disp(z)
        disp(w)
            end
            if(bndl==2)
```

```
    bundspc = input('Enter the bundle spacing, in inch: ');
    spc = bundspc/12;
    r20 = acsr1(1,3)/(2*1.609);
    r50 = acsr1(1,4)/(2*1.609);
    gmdft = ft;
    gmrlft = (acsr1(1,5)*spc)^(1/2);
    gmrcft = ((acsr1(1,2)*spc)/(12*2))^(1/2);
    L = (1000*2*10^-7)*(log(gmdft/gmrlft));
    C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
  x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
z=sprintf('\nThe inductance per phase is %d H/km',L);
w=sprintf('\nThe capacitance per phase is %d F/km',C);
disp(x)
disp(y)
disp(z)
disp(w)
    end
    if(bndl==3)
    bundspc = input('Enter the bundle spacing, in inch: ');
    spc = bundspc/12;
    r20 = acsr1(1,3)/(3*1.609);
    r50 = acsr1(1,4)/(3*1.609);
    gmdft = ft;
    gmrlft = (acsr1(1,5)*spc^2)^(1/3);
    gmrcft = ((acsr1(1,2)*spc^2)/(12*2))^(1/3);
    L = (1000*2*10^-7)*(log(gmdft/gmrlft));
    C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
    fprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
    fprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
    fprintf('\nThe inductance per phase is %d H/km',L);
```

```
                fprintf('\nThe capacitance per phase is %d F/km',C);
                end
                if(bndl==4)
                bundspc = input('Enter the bundle spacing, in inch: ');
                spc = bundspc/12;
                r20 = acsr1(1,3)/(4*1.609);
                r50 = acsr1(1,4)/(4*1.609);
                gmdft = ft;
                gmrlft = (2^(1/8))*(acsr1(1,5)*spc^3)^(1/4);
                gmrcft = (2^(1/8))*((acsr1(1,2)*spc^3)/(12*2))^(1/4);
                L = (1000*2*10^-7)*(log(gmdft/gmrlft));
                C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
              x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
            y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
            z=sprintf('\nThe inductance per phase is %d H/km',L);
            w=sprintf('\nThe capacitance per phase is %d F/km',C);
            disp(x)
            disp(y)
            disp(z)
            disp(w)
            end

case 3
    acsr = input('Enter the ACSR code name: ','s');
    acsr1 = eval(acsr);
    dist = input('Enter the distance between conductors[D12 D23 D31], in meters: ');
    GMD = (dist(1,1)*dist(1,2)*dist(1,3))^(1/3);
    inch = (100*dist)/2.54;
    ft = inch/12;
    bndl = input('Enter the number of conductors in the bundle (1,2,3,or 4): ');
```

```
if(bndl==1)
        r20 = acsr1(1,3)/1.609;
        r50 = acsr1(1,4)/1.609;
        gmdft = (GMD*100)/(2.54*12);
        gmrlft = acsr1(1,5);
        gmrcft = acsr1(1,2)/(12*2);
        L = (1000*2*10^-7)*(log(gmdft/gmrlft));
        C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
        x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
        y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
        z=sprintf('\nThe inductance per phase is %d H/km',L);
        w=sprintf('\nThe capacitance per phase is %d F/km',C);
        disp(x)
        disp(y)
        disp(z)
        disp(w)
        end
        if(bndl==2)
        bundspc = input('Enter the bundle spacing, in inch: ');
        spc = bundspc/12;
        r20 = acsr1(1,3)/(2*1.609);
        r50 = acsr1(1,4)/(2*1.609);
        gmdft = (GMD*100)/(2.54*12);
        gmrlft = (acsr1(1,5)*spc)^(1/2);
        gmrcft = ((acsr1(1,2)*spc)/(12*2))^(1/2);
        L = (1000*2*10^-7)*(log(gmdft/gmrlft));
        C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
        x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
        y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
        z=sprintf('\nThe inductance per phase is %d H/km',L);
        w=sprintf('\nThe capacitance per phase is %d F/km',C);
```

```
disp(x)
disp(y)
disp(z)
disp(w)
end
if(bndl==3)
bundspc = input('Enter the bundle spacing, in inch: ');
spc = bundspc/12;
r20 = acsr1(1,3)/(3*1.609);
r50 = acsr1(1,4)/(3*1.609);
gmdft = (GMD*100)/(2.54*12);
gmrlft = (acsr1(1,5)*spc^2)^(1/3);
gmrcft = ((acsr1(1,2)*spc^2)/(12*2))^(1/3);
L = (1000*2*10^-7)*(log(gmdft/gmrlft));
C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
z=sprintf('\nThe inductance per phase is %d H/km',L);
w=sprintf('\nThe capacitance per phase is %d F/km',C);
disp(x)
disp(y)
disp(z)
disp(w)
end
if(bndl==4)
bundspc = input('Enter the bundle spacing, in inch: ');
spc = bundspc/12;
r20 = acsr1(1,3)/(4*1.609);
r50 = acsr1(1,4)/(4*1.609);
gmdft = (GMD*100)/(2.54*12);
gmrlft = (2^(1/8))*(acsr1(1,5)*spc^3)^(1/4);
```

```
                gmrcft = (2^(1/8))*((acsr1(1,2)*spc^3)/(12*2))^(1/4);
                L = (1000*2*10^-7)*(log(gmdft/gmrlft));
                C = (1000*2*pi*8.854*10^-12)/(log(gmdft/gmrcft));
                x=sprintf('\nThe resistance per phase @ 20C is %f ohm/km',r20);
                y=sprintf('\nThe resistance per phase @ 50C is %f ohm/km',r50);
                z=sprintf('\nThe inductance per phase is %d H/km',L);
                w=sprintf('\nThe capacitance per phase is %d F/km',C);
                disp(x)
                disp(y)
                disp(z)
                disp(w)
                end
    otherwise
                  disp('Please enter 1 or 2 only!');
end
        fprintf('\n');
```