Code:

```
clc
clear all
disp('Y Bus Construction');
x=input('Enter the number of nodes: ');
a=complex(0);

g=0;
for i=1:1:x
    for j=1:1:x
        if(i==j)
            g =  input(strcat('Enter the value of Impedance (x+yi)
for',int2str(i),int2str(j),':'));
                if g==0
                 a(i,j)=complex(0);
                else
                  a(i,j)= 1/g;
                end
        else
            g =  input(strcat('Enter the value of Impedance (x+yi)
for',int2str(i),int2str(j),':'));
                 if g==0
                     a(i,j)=complex(0);
                 else
                  a(i,j)= 1/g;
                 end
        end
    end
end
b=a;y=0;
for i=1:1:x
    for j=1:1:x
        if i==j
            for k=1:1:x
                y=y+b(i,k);
            end
            a(i,j)=y;
            y=0;
        else
            a(i,j)= -b(i,j);
        end
    end
end

b
Y_BUS=a
a= Y_BUS;

disp('Y Bus Reduction');
n=4;
for i=1:1:n
    for j=1:1:n-1
        c(i,j)= (a(i,j)-(a(i,n)*a(n,j))/a(n,n));
    end
end
c
```

Editor - I:\Install Data\MatLab\bin\Y_bus_formation.m

EDITOR | PUBLISH | VIEW

Y_bus_formation.m | ybus_reduction_test.m

```
for i=1:1:x
    for j=1:1:x
        if(i==j)
            g =  input(strcat('Enter the value of Impedance (x+yi) for',int2str(i),int2str(j),':'));
               if g==0
                a(i,j)=complex(0);
               else
                 a(i,j)= 1/g;
               end
        else
            g =  input(strcat('Enter the value of Impedance (x+yi) for',int2str(i),int2str(j),':'));
                if g==0
                    a(i,j)=complex(0);
                else
                 a(i,j)= 1/g;
                end
        end
    end
end
b=a;y=0;
for i=1:1:x
    for j=1:1:x
        if i==j
            for k=1:1:x
                y=y+b(i,k);
            end
            a(i,j)=y;
            y=0;
        else
            a(i,j)= -b(i,j);
        end
    end
end

b
Y_BUS=a
a= Y_BUS;

disp('Y Bus Reduction');
n=4;
for i=1:1:n
    for j=1:1:n-1
        c(i,j)= (a(i,j)-(a(i,n)*a(n,j))/a(n,n));
    end
```

Click and drag to move Y_bus_formation.m or its tab...

OUTPUT:

Command Window

```
Y Bus Construction
Enter the number of nodes: 4
Enter the value of Impedance (x+yi) for11:1i
Enter the value of Impedance (x+yi) for12:0.04i
Enter the value of Impedance (x+yi) for13:0.02i
Enter the value of Impedance (x+yi) for14:0
Enter the value of Impedance (x+yi) for21:0.04i
Enter the value of Impedance (x+yi) for22:0.8i
Enter the value of Impedance (x+yi) for23:0.02i
Enter the value of Impedance (x+yi) for24:0
Enter the value of Impedance (x+yi) for31:0.02i
Enter the value of Impedance (x+yi) for32:0.02i
Enter the value of Impedance (x+yi) for33:0
Enter the value of Impedance (x+yi) for34:0.08i
Enter the value of Impedance (x+yi) for41:0
Enter the value of Impedance (x+yi) for42:0
Enter the value of Impedance (x+yi) for43:0.08i
Enter the value of Impedance (x+yi) for44:0

b =

   0.0000 - 1.0000i   0.0000 -25.0000i   0.0000 -50.0000i   0.0000 + 0.0000i
   0.0000 -25.0000i   0.0000 - 1.2500i   0.0000 -50.0000i   0.0000 + 0.0000i
   0.0000 -50.0000i   0.0000 -50.0000i   0.0000 + 0.0000i   0.0000 -12.5000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 -12.5000i   0.0000 + 0.0000i


Y_BUS =

   1.0e+02 *

   0.0000 - 0.7600i   0.0000 + 0.2500i   0.0000 + 0.5000i   0.0000 + 0.0000i
   0.0000 + 0.2500i   0.0000 - 0.7625i   0.0000 + 0.5000i   0.0000 + 0.0000i
   0.0000 + 0.5000i   0.0000 + 0.5000i   0.0000 - 1.1250i   0.0000 + 0.1250i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.1250i   0.0000 - 0.1250i

Y Bus Reduction

c =

   1.0e+02 *

   0.0000 - 0.7600i   0.0000 + 0.2500i   0.0000 + 0.5000i
   0.0000 + 0.2500i   0.0000 - 0.7625i   0.0000 + 0.5000i
   0.0000 + 0.5000i   0.0000 + 0.5000i   0.0000 - 1.0000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i
```