```
%Program To calculate Reactive Power Flow Through transmission
E1=input('Source# 1 Voltage Mag = ');
al=input('Source# 1 Phase Angle = ');
E2=input ('Source# 2 Voltage Mag = ');
a2=input('Source# 2 Phase Angle = ');
R=input('Line Resistance = ');
X=input('Line Reactance = ');
Z= R+ j*X;
E1=(0.75*E1:1:1*E1)';
alr=al*pi/180;
k=length (E1);
E2=ones(k,1)*E2;
a2r=a2*pi/180;
V1=E1.*cos(alr)+j*E1.*sin(alr);
V2=E2.*cos(a2r)+j*E2.*sin(a2r);
I12=(V1-V2)/2;
I21=-I12;
S1=V1.*conj (I12);
Pl=real (S1);
Q1=imag (S1);
S2=V2.*conj (I21);
P2= real (S2);
Q2=imag (S2);
SL=S1+S2;
PL=real (SL);
QL=imag (SL);
Result1=[E1, Q1, Q2, PL];
disp('E1 Q-1 Q-2 P-L')
```

```
E1 Q-1 Q-2 P-L
```

```
disp (Result1);
```

```
   90.0000  392.2008 -392.2008   84.2477
   91.0000  396.5586 -396.5586   75.1282
   92.0000  400.9164 -400.9164   67.0088
   93.0000  405.2742 -405.2742   59.8893
   94.0000  409.6320 -409.6320   53.7698
   95.0000  413.9898 -413.9898   48.6504
   96.0000  418.3476 -418.3476   44.5309
   97.0000  422.7054 -422.7054   41.4114
   98.0000  427.0631 -427.0631   39.2920
   99.0000  431.4209 -431.4209   38.1725
  100.0000  435.7787 -435.7787   38.0530
  101.0000  440.1365 -440.1365   38.9335
  102.0000  444.4943 -444.4943   40.8141
  103.0000  448.8521 -448.8521   43.6946
  104.0000  453.2099 -453.2099   47.5751
  105.0000  457.5676 -457.5676   52.4557
  106.0000  461.9254 -461.9254   58.3362
  107.0000  466.2832 -466.2832   65.2167
  108.0000  470.6410 -470.6410   73.0973
  109.0000  474.9988 -474.9988   81.9778
  110.0000  479.3566 -479.3566   91.8583
```

```
  111.0000  483.7144 -483.7144  102.7389
  112.0000  488.0722 -488.0722  114.6194
  113.0000  492.4299 -492.4299  127.4999
  114.0000  496.7877 -496.7877  141.3804
  115.0000  501.1455 -501.1455  156.2610
  116.0000  505.5033 -505.5033  172.1415
```

```
plot (E1, Q1, E1, Q2, E1, PL);
xlabel('Source# 1 Voltage Magnitude =');
ylabel('Q, Var')
text (-26, -550, 'Q1'),
text(-26,600,'Q2'),
text(-26, 100, 'PL')
```