LAMPIRAN C

Kode Pemrograman pada MATLAB

```
clear all
clc

% 1D - Conventional Full Sommerfeld

R   = 0.21025;              % Radius bearing (m)
c   = 0.55e-3;              % Clearence (m)
Rs  = R-c;                  % Radius poros (m)
Lx   = R*2*pi;              % Panjang circumferential bearing (m)
Ly  = 0.5356;               % Panjang aksial bearing (m)
RPM = 5100;                 % Putaran poros
U = (RPM*R*2*pi)/60;        % Kecepatan (m/s)
Pa  = 0;                    % Tekanan udara sekitar (atmosfer)
eks = 0.5;                  % Asumsi rasio eksentrisitas 0.5
m   = 0.02785;              % Viskositas (Pa.s)

Niter=100000;
tol=0.000001;   %tolerance

%.....
%generate the grid
%.....

Nx = 40;
Dx = Lx/Nx;

sudut = 360;
d_sudut = sudut/Nx;

for i=1:Nx+1

        x(i)=(i-1.0)*Dx;

        P(i)= 0.0;              %initialize pressure

        teta(i)=((x(i)/R)/(2*pi))*360;
        h(i)=c*(1+eks*cos(teta(i)/180*pi));

        K(i)=h(i)^3;
        C(i)=h(i)

end
```

```
for i=2:Nx
    aE(i)=((2*K(i+1)*K(i))/(K(i+1)+K(i)))/Dx;
    aW(i)=((2*K(i-1)*K(i))/(K(i-1)+K(i)))/Dx;
    aP(i)=aE(i)+aW(i);
    Sc(i)=(3*m*U)*((C(i-1)-C(i+1)));
end

%.....
%Boundary Condition
%.....

P(1)=Pa;
P(Nx+1)=Pa;


%.....
%ADI Method - Line by line TDMA
%.....


for i=1:Nx+1
    %untuk sweep x-direction
    Aj(i)=0;
    Cja(i)=Pa;
end


for iter=1:Niter
    save=P;

    for i=2:Nx
        beta(i)=aW(i);
        Dj(i)=aP(i);
        alpa(i)=aE(i);
        Cj(i)=Sc(i);

        Aj(i)=alpa(i)/(Dj(i)-(beta(i)*Aj(i-1)));

        %mengandung Cj' atau Cja
        Cja(i)=(beta(i)*Cja(i-1)+Cj(i))/(Dj(i)-beta(i)*Aj(i-1));

        %back substitution
        P(i)=Aj(i)*P(i+1)+Cja(i);

    end

   cormax=0.0;
```

```
    for i=1:Nx+1
        res=abs(save(i)-P(i));
        if(res>cormax)
            cormax=res;
        end
    end

    cormax;

    %.....
    %monitor the eror
    %.....

    if(cormax<tol)
        break
    end
end


for (i=1:Nx+1)
    P1(i)=P(i);
    x1(i)=x(i)/Lx;
end

Pjum = sum(P);
Pbalik = Pjum';

Ptot = sum(Pbalik);
W = Ptot*Dx

figure(1)
plot(teta,P,'r')
```