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Branch - CBA Batch - 41
PNS Practical 3

1. Write user defined function to calculate pdf2cdf

File - PDF_YSL.m

```
function[pdf]=PDF_YSL(x,dx,s,u)
  for i=1:length(x)
    p(i) = (1/(s*sqrt(2*pi)))* e^(-0.5*((x(i)-u)/s)^2);
    pdf(i) = p(i)*dx;
  endfor
endfunction
```

File - CDF_YSL.m

```
function[cdf] = CDF_YSL(x,pdf)
  cdf = ones(1,length(x));
  cdf(1) = pdf(1);
  for i=2:length(x)
    cdf(i) = cdf(i-1) + pdf(i);
  endfor
endfunction
```

2. Write user defined function to calculate pdf2mean

File - MEAN_YSL.m

```
function[mean] = MEAN_YSL(x,pdf)
  mean = sum(x.*pdf);
endfunction
```

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3. Write user defined function to calculate pdf2var

File - VRNCE_YSL.m

```
function[vrnce] = VRNCE_YSL(x,pdf,mean)
  vrnce = sum(x.^2 .* pdf) - mean^2;
endfunction
```

File - prac_3.m

```
clc;
clear all;
close all;

dx = 0.5;
x = -10:dx:10;
s = 2;
u = 0.5;

pdf = PDF_YSL(x,dx,s,u);
cdf = CDF_YSL(x,pdf);

figure
subplot(2,1,1);
plot(x,pdf,"r.","Markersize",16);
title("x versus pdf(x) graph","fontsize",22);
xlabel("value of 'x'","fontsize",22);
ylabel("pdf(x)","fontsize",22);
```

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```
subplot(2,1,2);
plot(x,cdf,"r.","Markersize",16);
title("x versus cdf(x) graph","fontsize",22);
xlabel("value of 'x'","fontsize",22);
ylabel("cdf(x)","fontsize",22);

mean = MEAN_YSL(x,pdf);
vrnce = VRNCE_YSL(x,pdf,mean);

printf("Mean : %d\n",mean);
printf("Variance : %d\n\n",vrnce);
```

Output Screenshot : (For dx = 0.5,x = -10:dx:10 , u = 0.5, s = 2)