Name :- Aniket.P.Waghmare Roll No :- 304D065 Batch :- D4

**PROGRAM :**

clear all;

p=[0.125,0.25,0.625];

x=length(p);

hx=0;

for i=1:x;

hx=hx+p(i)\*log2(1/p(i));

end

disp('entropy of x');

disp(hx);

p=[0.25,0.3,0.45];

y=length(p);hy=0;

for i=1:y;

hy=hy+p(i)\*log2(1/p(i));

end

disp('entropy of hy');

disp(hy);

z=[3/40,1/40,1/40

1/20,3/20,1/20

1/8,1/8,3/8];

[n,m]=size(z);

hx\_y=0;

for i=1:n

for j=1:m

hx\_y=hx\_y+z(i,j)\*log2(1/z(i,j));

end

end

disp('entropy ofx\_y');

disp(hx\_y);

yx=[3/5,1/5,1/5

1/5,3/5,1/5

1/5,1/5,3/5];

[a,b]=size(yx);

hyx=0;

for i=1:a

for j=1:b;

hyx=hyx+z(i,j)\*log2(1/yx(i,j));

end

end

disp('entropy of y/x');

disp(hyx);

xy=[3/10,1/12,1/18

1/5,1/2,1/9

1/2,5/12,5/6];

[c,d]=size(xy);

hxy=0;

for i=1:c

for j=1:d;

hxy=hxy+z(i,j)\*log2(1/xy(i,j));

end

end

disp('entropy of x/y');

disp(hxy);

s=[0.6,0.2,0.2

0.25,0.6,0.2

0.2,0.2,0.6];

[m,n]=size(s);

hs=0;

I=hy-hyx;

disp(I);

I=hx-hxy;

disp(I);

I=hx+hy-hx\_y;

disp(I);

Output :

"entropy of x"

1.2987949

"entropy of hy"

1.5394911

"entropy ofx\_y"

2.6697455

"entropy of y/x"

1.3709506

--> exec('C:\Users\LENOVO\probability.sce', -1)

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1.1302545

0.1685405

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