**IMAGE PROCESSING PRACTICAL**

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**1a - Program to calculate number of samples required for an image:**

**Code:**

clc;

clear all;

fm=input('Input signal frequency');

k=input('no. of cycles');

A=input('Enter amplitude signal');

tm=0:1/(fm\*fm):k/fm;

x=A\*cos(2\*%pi\*fm\*tm);

figure(1);

a=gca();

a.x\_location="origin";

a.y\_location="origin";

plot(tm,x);

title('Original Signal');

xlabel('Time');

ylabel('Amplitude');

xgrid(1)

fnsq=2\*fm;

fs=(3/4)\*fnsq;

n=0:1/fs:k/fm;

x=A\*cos(2\*%pi\*fm\*n);

figure(2);

a=gca();

a.x\_location="origin";

a.y\_location="origin";

plot(n,x);

title('Under Sampling Signal');

xlabel('Time');

ylabel('Amplitude');

xgrid(1)

fnyq=2\*fm;

fo=fnyq;

o=0:1/fo:k/fm;

x=A\*cos(2\*%pi\*fm\*o);

figure(3);

a=gca();

a.x\_location="origin";

a.y\_location="origin";

plot(o,x);

title('nyquist Sampling');

xlabel('Time');

ylabel('Amplitude');

xgrid(1)

fo=10\*fnyq;

o=0:1/fo:k/fm;

x=A\*cos(2\*%pi\*fm\*o);

figure(4);

a=gca();

a.x\_location="origin";

a.y\_location="origin";

plot2d3('gnn',o,x);

plot(o,x,'r');

title('Over Sampling signal');

xlabel('Time');

ylabel('Amplitude');

xgrid(1)

**output:**

A picture containing chart

Description automatically generated

**1b - Program to study the effects of reducing the spatial resolution of a digital image:**

**Output:**

Graphical user interface, application

Description automatically generated

**1c - Program to study the effects of varying the number of intensity levels in a digital image:**

**Output:**

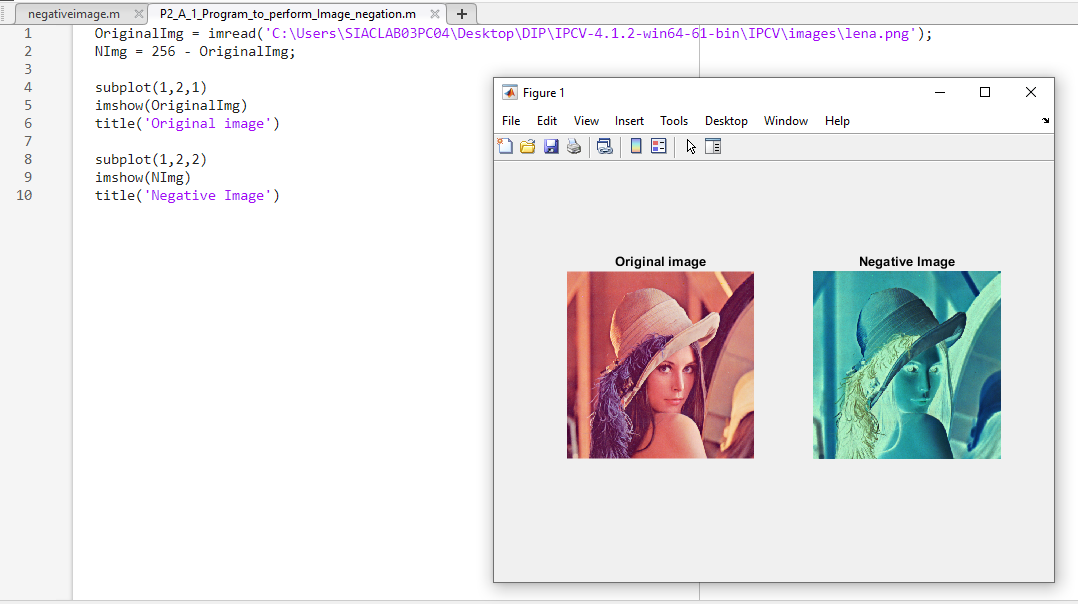
Graphical user interface, text, application

Description automatically generated

**PRACTICAL 2:**

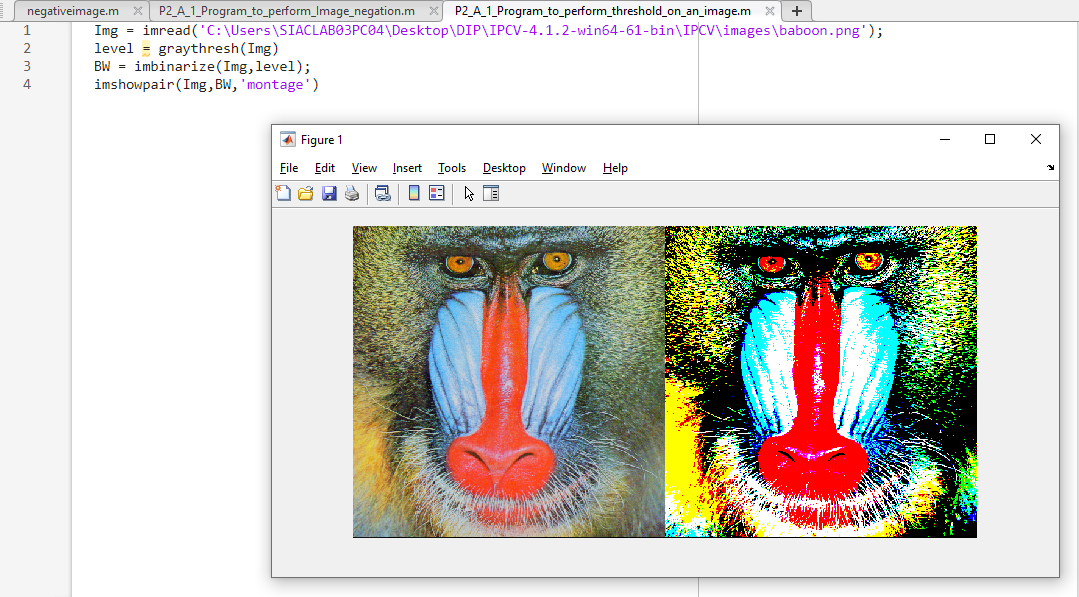
**P2: A1 Program to perform Image negation:**

**Output:**



**P2: A2 Program to perform threshold on an image:**

**Output:**



**P2: A3 Program to perform Log transformation in matlab:**

**Output:**

Graphical user interface, application

Description automatically generated

**P2: A4 Power law transformations:**

**Output:**

Graphical user interface, application

Description automatically generated

**P2: A5 (A) Contrast Stretching:**

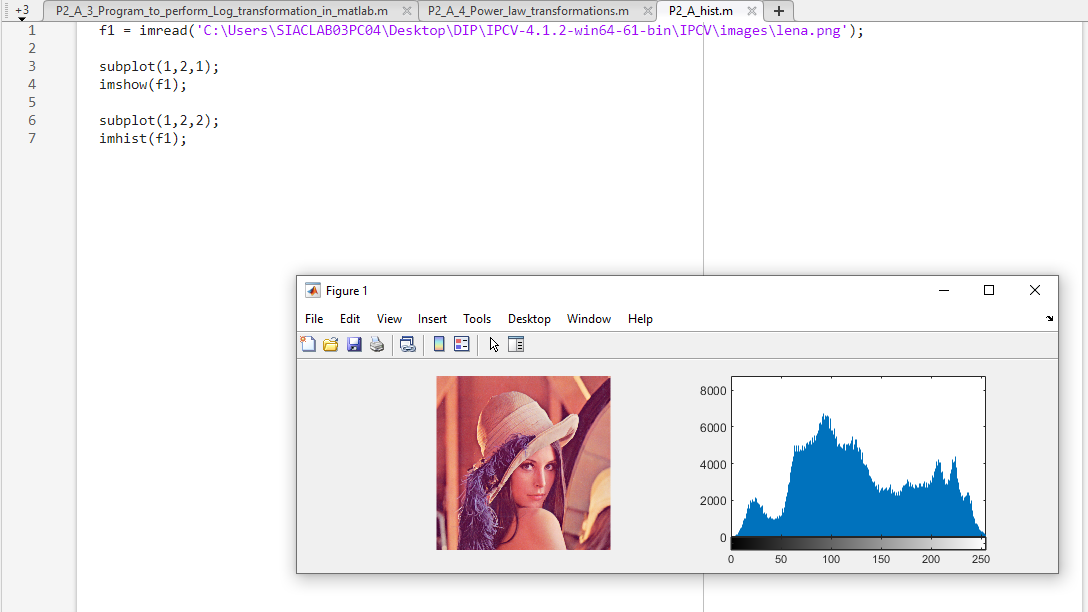
**Output:**

Graphical user interface, application

Description automatically generated

**P2: B1 Histogram:**

**Output:**



**P2: B2 Histogram Equalization:**

**Output:**

Graphical user interface, application

Description automatically generated

**P2: C convolution Correlation.m:**

**Output:**

Graphical user interface, application, Word

Description automatically generated