close all; clear all;clc

disp('Convert the grayscale image to the pseudo-color image1');

X=imread('parrots.jpeg','jpeg'); % Read image, provided by the instructor

Y=rgb2gray(X); %color image to the grayscale conversion

% Apply pseudo-color functions using sinusoids

C\_r=10; % period for the red channel

P\_r=0; % Phase change for the red channel

C\_b=100; % period for the blue channel

P\_b=60; % Phase change for the blue channel

C\_g=900; % period for the green channel

P\_g=30; % Phase change for the green channel

r=abs(sin(2\*pi\*[-P\_r:255-P\_r]/C\_r));

b=abs(sin(2\*pi\*[-P\_b:255-P\_b]/C\_b));

g=abs(sin(2\*pi\*[-P\_g:255-P\_g]/C\_g));

figure, subplot(3,1,1);plot(r,'r');grid;ylabel('R value')

subplot(3,1,2);plot(g,'g');grid;ylabel('G value');

subplot(3,1,3);plot(b,'b');grid;ylabel('B value');

%%%%%%

map=[r;g;b;]'; % Construct the color map

%%%%%%%%%%

figure,

subplot(2,1,1);

imshow(X);

title('Original RGB image');

subplot(2,1,2);

imshow(Y);

title('The Grayscale version');

figure,

imshow(Y,map); % Display the pseudo-color image

title('The Pseudo-color version');