```
close all;
clear all;
clc

 %read image
 im_IN = imread('fruits.jpg');

 %Conversion from RGB to HSV
 im_HSV = rgb2hsv(im_IN);

 %divide the image in 3 channels for
 im_H = im_HSV(:,:,1);
 im_S = im_HSV(:,:,2);
 im_V = im_HSV(:,:,3);

 %divide the image in 3 channels for
 im_R=im_IN(:,:,1);
 im_G=im_IN(:,:,2);
 im_B=im_IN(:,:,3);

 %-----------------------------------
 %Segmentation for apple and banana
 h_inf=0.100;
 h_sup=0.193;
 im_H_BIN=roicolor(im_H,h_inf,h_sup);
 s_inf=0.155;
 s_sup=1.000;
 im_S_BIN=roicolor(im_S,s_inf,s_sup);
 v_inf=0.412;
 v_sup=1.000;
 im_V_BIN=roicolor(im_V,v_inf,v_sup);
```

```
30  v_sup=1.000;
31  im_V_BIN=roicolor(im_V,v_inf,v_sup);
32  %AND operation to multiply all chann
33  im_BIN1=im_H_BIN.*im_S_BIN.*im_V_BIN
34  banana_BIN = imcrop(im_BIN1,[1 7 710
35  apple_BIN = imcrop(im_BIN1,[1 495 71
36  %Segmentation for orange
37  h_inf=0.042;
38  h_sup=0.094;
39  im_H_BIN=roicolor(im_H,h_inf,h_sup);
40  s_inf=0.395;
41  s_sup=1.000;
42  im_S_BIN=roicolor(im_S,s_inf,s_sup);
43  v_inf=0.695;
44  v_sup=1.000;
45  im_V_BIN=roicolor(im_V,v_inf,v_sup);
46  %AND operation to multiply all chann
47  orange_BIN=im_H_BIN.*im_S_BIN.*im_V_
48  orange_BIN = imcrop(orange_BIN,[1 49
49  %Segmentation for kiwi
50  h_inf=0.061;
51  h_sup=0.082;
52  im_H_BIN=roicolor(im_H,h_inf,h_sup);
53  s_inf=0.227;
54  s_sup=0.758;
55  im_S_BIN=roicolor(im_S,s_inf,s_sup);
56  v_inf=0.043;
57  v_sup=0.730;
58  im_V_BIN=roicolor(im_V,v_inf,v_sup);
59  %AND operation to multiply all chann
60  kiwi_BIN=im_H_BIN.*im_S_BIN.*im_V_BI
61  kiwi_BIN = imcrop(kiwi_BIN,[1 307 71
```

```
40  s_inf=0.395;
41  s_sup=1.000;
42  im_S_BIN=roicolor(im_S,s_inf,s_sup);
43  v_inf=0.695;
44  v_sup=1.000;
45  im_V_BIN=roicolor(im_V,v_inf,v_sup);
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56  v_inf=0.043;
57  v_sup=0.730;
58  im_V_BIN=roicolor(im_V,v_inf,v_sup);
59  %AND operation to multiply all chann
60  kiwi_BIN=im_H_BIN.*im_S_BIN.*im_V_BI
61  kiwi_BIN = imcrop(kiwi_BIN,[1 307 71
62  %---------------------------------
63
64  im_R_mask = imcrop(im_R,[1 7 710 487
65  im_G_mask = imcrop(im_G,[1 7 710 487
66  im_B_mask = imcrop(im_B,[1 7 710 487
67  %concat operation to multiply all ch
68  im_RGB_MASK_banana=cat(3,im_R_mask,i
69
70  im_R_mask = imcrop(im_R,[1 495 710 9
```

```
71  im_G_mask = imcrop(im_G,[1 495 710 9
72  im_B_mask = imcrop(im_B,[1 495 710 9
73  %concat operation to multiply all ch
74  im_RGB_MASK_apple=cat(3,im_R_mask,im
75
76  im_R_mask = imcrop(im_R,[1 495 710 9
77  im_G_mask = imcrop(im_G,[1 495 710 9
78  im_B_mask = imcrop(im_B,[1 495 710 9
79  %concat operation to multiply all ch
80  im_RGB_MASK_orange = cat(3,im_R_mask
81
82  im_R_mask = imcrop(im_R,[1 307 710 7
83  im_G_mask = imcrop(im_G,[1 307 710 7
84  im_B_mask = imcrop(im_B,[1 307 710 7
85  %concat operation to multiply all ch
86  im_RGB_MASK_kiwi = cat(3,im_R_mask,i
87
88
89  subplot(4,4,1);
90  imshow(im_HSV)
91  title('HSV picture')
92  subplot(4,4,2);
93  imshow(im_H)
94  title('Channel H')
95  subplot(4,4,3);
96  imshow(im_S)
97  title('Channel S')
98  subplot(4,4,4);
99  imshow(im_V)
100 title('Channel v')
101 subplot(4,4,5);
102 imshow(banana_BIN)
```

```
103  title('Banana BIN')
104  subplot(4,4,6);
105  imshow(apple_BIN)
106  title('Apple BIN')
107  subplot(4,4,7);
108  imshow(orange_BIN)
109  title('Orange BIN')
110  subplot(4,4,8);
111  imshow(kiwi_BIN)
112  title('Kiwi BIN')
113  subplot(4,4,9);
114  imshow(im_IN)
115  title('Original Picture ')
116  subplot(4,4,10);
117  imshow(im_R)
118  title('Channel R BIN')
119  subplot(4,4,11);
120  imshow(im_G)
121  title('Channel G BIN')
122  subplot(4,4,12);
123  imshow(im_B)
124  title('Channel B BIN')
125  subplot(4,4,13);
126  imshow(im_RGB_MASK_banana)
127  title('Banana')
128  subplot(4,4,14);
129  imshow(im_RGB_MASK_apple)
130  title('Apple')
131  subplot(4,4,15);
132  imshow(im_RGB_MASK_orange)
133  title('Orange')
```

```
133  title('Orange')
134  subplot(4,4,16);
135  imshow(im_RGB_MASK_kiwi)
136 _title('Kiwi')
```

Figure 1

File Edit View Insert Tools Desktop Window Help

HSV picture

Channel H

Channel S

Channel v

Banana BIN

Apple BIN

Orange BIN

Kiwi BIN

Original Picture

Channel R BIN

Channel G BIN

Channel B BIN

Banana

Apple

Orange

Kiwi