Part a)

i)

```matlab
categories=dir('101_ObjectCategories');
%first two lines should be removed
categories(1:2)=[];
figure
[x,y]=meshgrid(.9:-.09:0,0.01:.1:.91);
for i=1:numel(categories)
    %using this syntax to have more distinguishable(bigger) images
    subplot('Position',[[y(i) x(i)] 0.06 0.06])
    imshow([cd '\101_ObjectCategories\' categories(i).name '\image_0001.jpg'])
    title(categories(i).name,'Interpreter','none','FontSize',7)
end
```


ii)

```matlab
ann=load([cd '\Annotations\emu\annotation_0001.mat']);
disp('Box coordinates:')
```

```
  Box coordinates:
```

```matlab
disp(ann.box_coord)
```

```
     7    247    72    293
```

```matlab
disp('Object contour:')
```

Object contour:

```
disp(ann.obj_contour)
```

```
    Columns 1 through 13

    1.6580e+01    1.4466e+01    1.1506e+01    9.3921e+00    1.8271e+01    2.9264e+01    3.6875e+01    3.9834e+01
    7.8931e+01    5.3985e+01    2.8194e+01    1.0436e+01    2.8254e+00    5.3623e+00    1.3818e+01    2.5234e+01

    Columns 14 through 26

    1.0452e+02    1.2778e+02    1.5907e+02    1.8993e+02    2.0431e+02    2.1530e+02    2.1361e+02    1.6329e+02
    1.1783e+02    1.2333e+02    1.4108e+02    1.6899e+02    1.9647e+02    2.2987e+02    2.4002e+02    2.4044e+02

    Columns 27 through 31

    1.9117e+01    6.8553e+00    6.0096e+00    1.7425e+01    1.7425e+01
    1.9351e+02    1.6349e+02    1.1360e+02    7.8508e+01    7.8508e+01
```
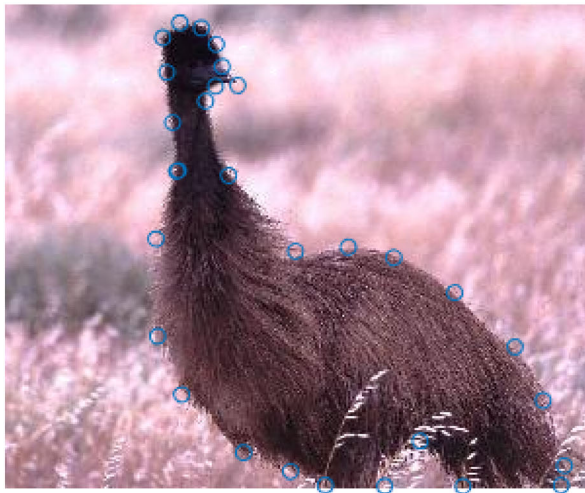
```
figure
imshow([cd '\101_ObjectCategories\emu\image_0001.jpg'])
hold on
scatter(ann.obj_contour(1,:)+ann.box_coord(3),ann.obj_contour(2,:)+ann.box_coord(1))
```


iii)

```
categories=dir('Annotations');
categories(1:2)=[];
figure
[x,y]=meshgrid(.9:-.09:0,0.01:.1:.91);
for i=1:numel(categories)
    [M,N,~]=size(imread([cd '\101_ObjectCategories\' categories(i).name '\image_0001.jpg']));
    ann=load([cd '\Annotations\' categories(i).name '\annotation_0001.mat']);
    A=poly2mask(ann.obj_contour(1,:)+ann.box_coord(3),ann.obj_contour(2,:)+ann.box_coord(1),M,N);
    subplot('Position',[[y(i) x(i)] 0.06 0.06])
    imshow(A)
```

```
    title(categories(i).name,'Interpreter','none','FontSize',7)
end
```