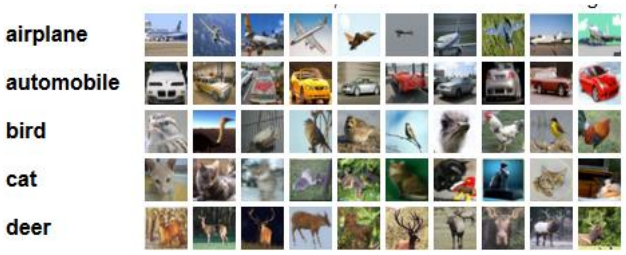
✋In this assignment, you are going to build a multiclass classification network for the classes selected from **cifar100** dataset.

- Assignments should be uploaded to homework section in Sabis. Use single pdf file number_name.pdf
- Show the following steps in your report. Add the clear code at the end of the assignment.

1- Add sample images as below for the classes to your report. Find your classes on the second page of this assignment.



2- The network you will train will have 3 or 4 convolution layers. The following fully connected layer (Dense layer) will be a *relu* and a *softmax* layer. If necessary, you can add layers such as MaxPooling, AvgPooling, Dropout. Draw the block diagram of the model you determined.

3- Train the model with the appropriate number of epochs and plot the Accuracy and Loss graphs, including training and validation data. Add explanations to the axes to your report and interpret these graphics. Also, use the test data set for validation.

4- Get the confusion matrix for the test dataset using the model you have trained

Source: https://scikit-learn.org/stable/modules/generated/sklearn.metrics.confusion_matrix.html

5- Test the model you have trained by using the predict function in the command window for a sample image from each class and add the console outputs together with the sample image to your report.

Use your classes assigned below for your homework:

Number	Classes
D195012004	8=bicycle 32=flatfish 42=leopard 52=oak_tree 73=shark
D195012053	15=camel 27=crocodile 35=girl 63=porcupine 71=sea
D205008252	1=aquarium_fish 24=cockroach 33=forest 39=keyboard 74=shrew
D205012002	19=cattle 24=cockroach 40=lamp 41=lawn_mower 78=snake
D205012005	22=clock 29=dinosaur 44=lizard 66=raccoon 73=shark
D205012007	10=bowl 27=crocodile 66=raccoon 67=ray 77=snail
D205012009	13=bus 14=butterfly 49=mountain 61=plate 91=trout
D205012010	16=can 31=elephant 33=forest 39=keyboard 73=shark
D205012014	21=chimpanzee 22=clock 35=girl 64=possum 93=turtle
D205012016	27=crocodile 32=flatfish 36=hamster 53=orange 71=sea
D205012053	0=apple 13=bus 36=hamster 57=pear 73=shark
Y185008254	26=crab 31=elephant 56=palm_tree 64=possum 70=rose
Y185012001	6=bee 11=boy 34=fox 67=ray 75=skunk
Y185052055	3=bear 21=chimpanzee 50=mouse 53=orange 75=skunk

Y195012011	21=chimpanzee 28=cup 35=girl 52=oak_tree 73=shark
Y195012015	19=cattle 27=crocodile 38=kangaroo 41=lawn_mower 71=sea
Y195012017	2=baby 31=elephant 37=house 52=oak_tree 83=sweet_pepper
Y195012059	14=butterfly 29=dinosaur 43=lion 66=raccoon 76=skyscraper
Y195052008	3=bear 21=chimpanzee 55=otter 60=plain 79=spider
Y195052012	22=clock 29=dinosaur 46=man 58=pickup_truck 88=tiger
Y205008204	9=bottle 13=bus 46=man 60=plain 74=shrew
Y205012002	2=baby 15=camel 41=lawn_mower 65=rabbit 88=tiger
Y205012006	0=apple 32=flatfish 36=hamster 64=possum 68=road
Y205012016	6=bee 20=chair 60=plain 65=rabbit 83=sweet_pepper
Y205012062	1=aquarium_fish 10=bowl 37=house 56=palm_tree 80=squirrel
Y205012081	5=bed 15=camel 54=orchid 55=otter 68=road
Y205012881	6=bee 32=flatfish 41=lawn_mower 44=lizard 68=road
Y205057001	15=camel 30=dolphin 38=kangaroo 53=orange 76=skyscraper
Y205057002	8=bicycle 25=couch 50=mouse 61=plate 69=rocket
Y205057003	12=bridge 17=castle 34=fox 36=hamster 79=spider
Y205057005	4=beaver 27=crocodile 45=lobster 56=palm_tree 71=sea
Y205057006	6=bee 14=butterfly 47=maple_tree 48=motorcycle 89=tractor
Y205057007	25=couch 32=flatfish 49=mountain 52=oak_tree 91=trout
Y205057008	23=cloud 26=crab 36=hamster 60=plain 79=spider
Y205057053	23=cloud 29=dinosaur 33=forest 49=mountain 75=skunk