

## 1- Data description :

The Iris dataset was used in R.A. Fisher's classic 1936 paper, [The Use of Multiple Measurements in Taxonomic Problems](#), and can also be found on the [UCI Machine Learning Repository](#).

It includes three iris species with 50 samples each as well as some properties about each flower. The columns in this dataset are:

Attribute Information:

1. sepal length in cm
2. sepal width in cm
3. petal length in cm
4. petal width in cm
5. class:
  - Iris Setosa
  - Iris Versicolour
  - Iris Virginica

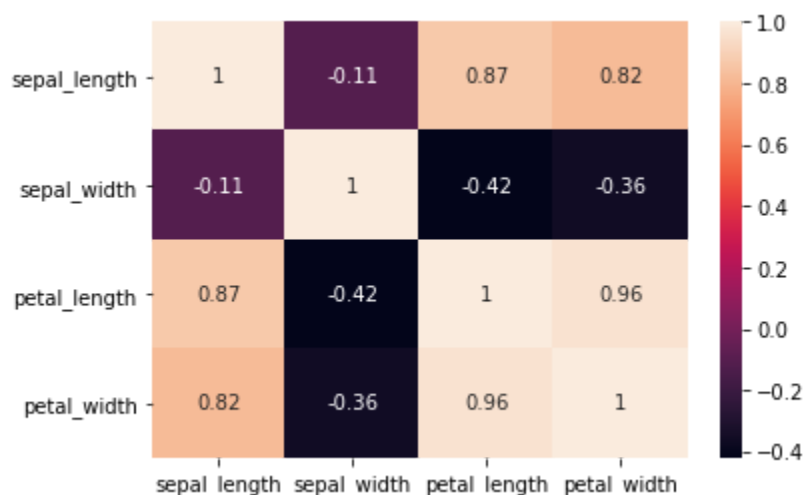
## 2- main objective(s) of this analysis:

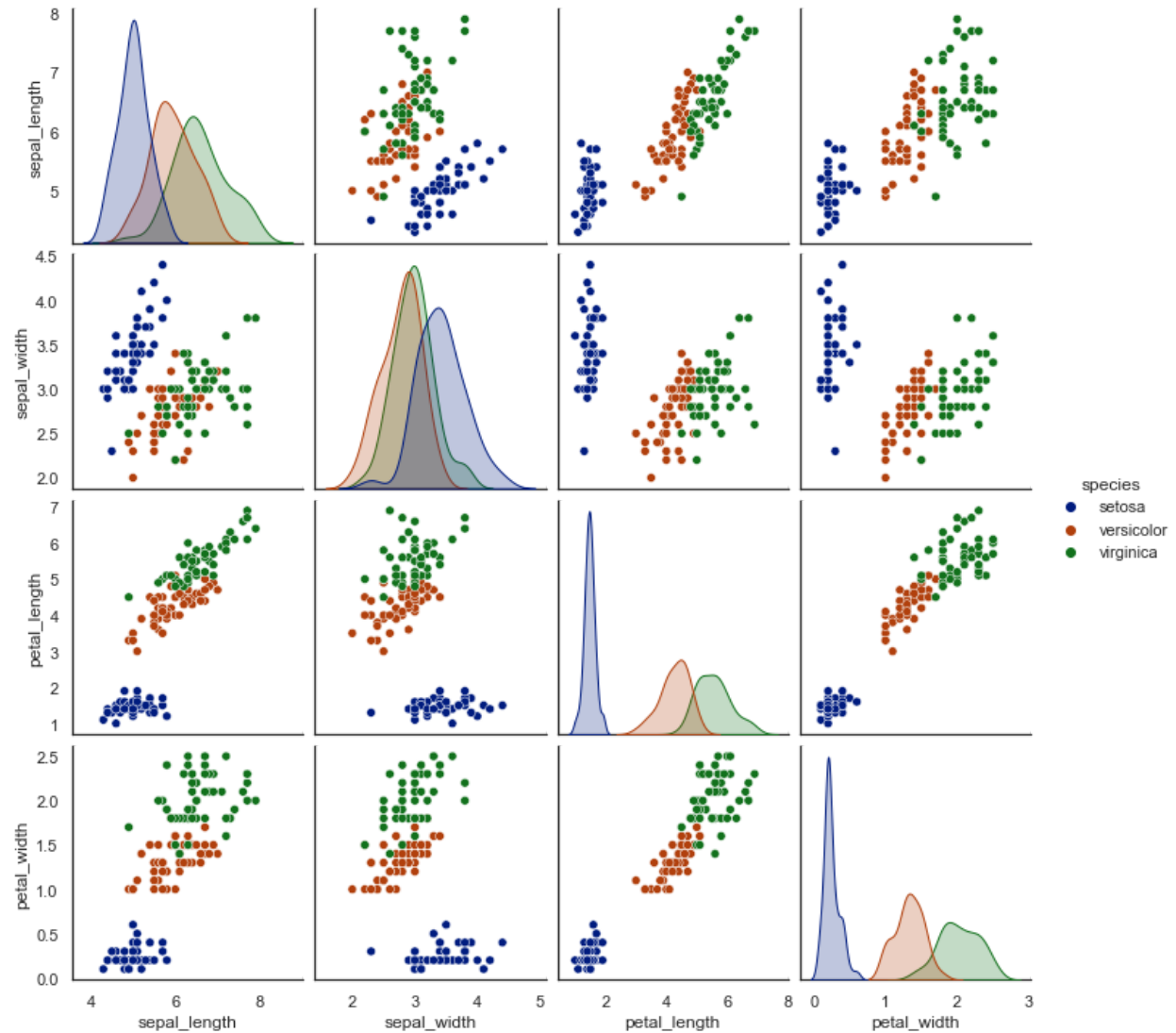
This analysis aims to specify better ways for classification of the iris Dataset using MLP .

## 3- EDA:

- This dataset contains 150 datapoints
- The species names all begin with 'Iris-'. Removing this portion of the name so the species name is shorter ('setosa', 'versicolor', 'virginica')

Correlation between Data:





## 4- models:

**Model\_1:** using an MLP with :

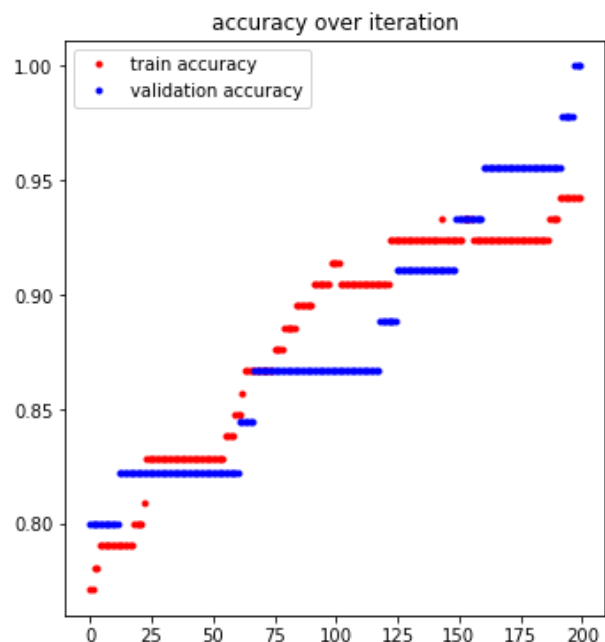
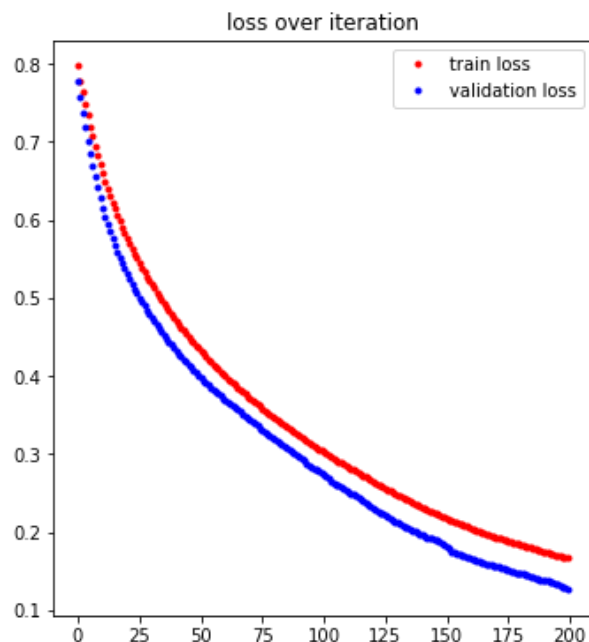
4-nodes input ,

a 10-nodes hidden layer with relu activation function

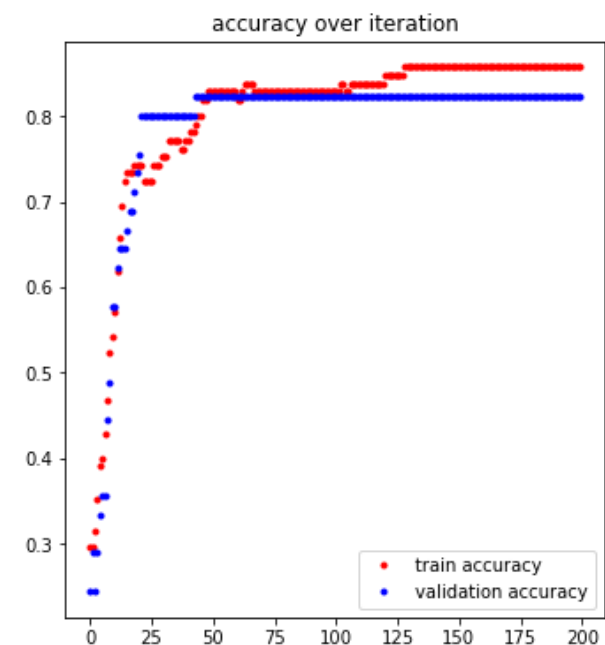
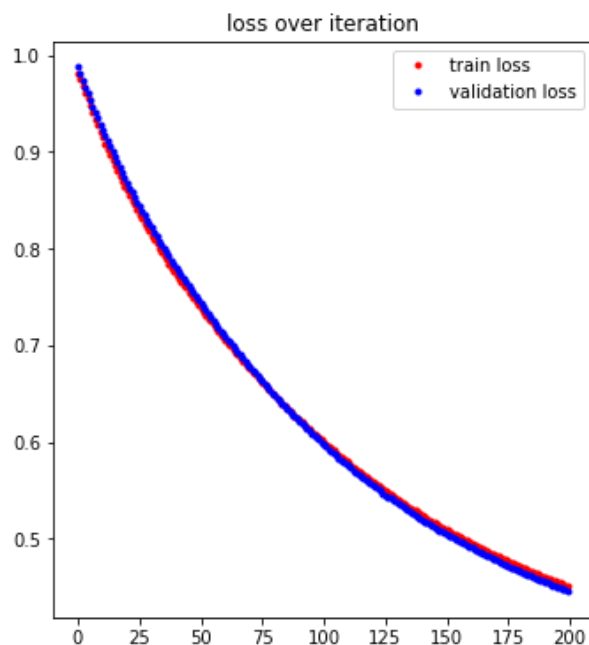
a 3-nodes output layer with softmax function

Using Adam optimizer,

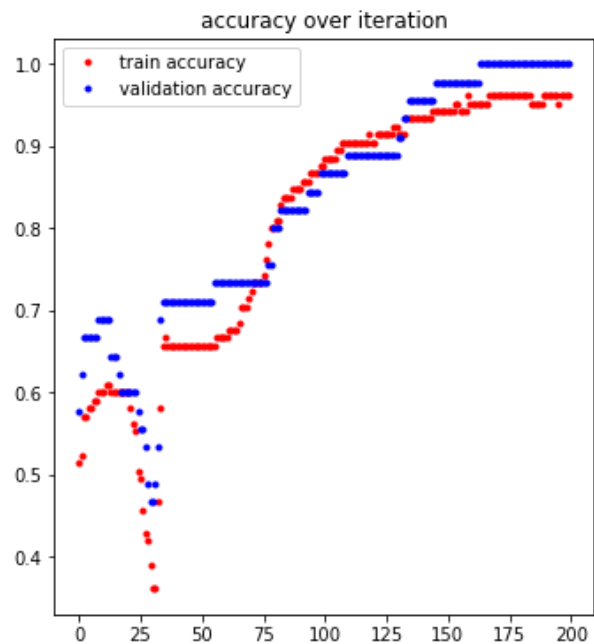
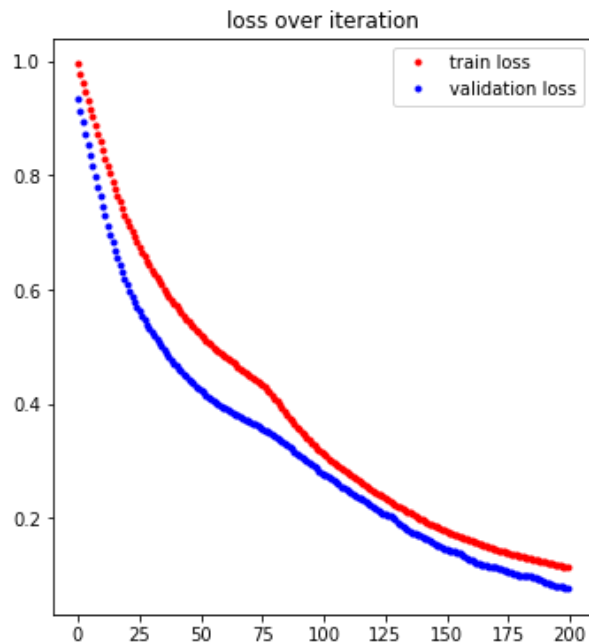
After 200 epochs: loss: 0.1706 - accuracy: 0.9490



Model\_2: using an MLP with:  
 4-nodes input ,  
 a 10-nodes hidden layer with relu activation function,  
 a 3-nodes output layer with softmax function  
 using SGD optimizer with learning rate 0.003  
 After 200 epochs: loss: 0.4413 - accuracy: 0.8616



**Model\_3:** using an MLP with  
4-nodes input ,  
a 10-nodes hidden layer with relu activation function  
a 6-nodes hidden layer with relu activation function  
a 3-nodes output layer with softmax function  
and Adam optimiser:  
After 200 epochs : loss: 0.1132 - accuracy: 0.9671



## 5- key findings:

- Using model 3 gives better results for accuracy and loss values.
- Using SGD optimizer needs more epochs to train

## 6- Suggestions for next steps:

More samples can be collected about the iris flowers for more details and accuracy.  
We could also explore using iris flower images with convolutional networks for more detailed classification .