

# Fall 2021: CSEE5590/490 – Special Topics

## Python and Deep Learning Module-2 - ICP-7

### Lesson Overview:

In this lesson, we are going to have an introduction to Deep Learning programming on Keras. Before to that, we will introduce some of the applications of the Deep Learning in the area of vision and NLP.

### Use Case Description:

Predicting the diabetes disease

### Programming elements:

Keras Basics

### Source Code:

Provided in the assignment and GitHub repo.

### Assignment:

1. Use the use case in the class (DL\_Lesson\_1\_(diabetes).ipynb & diabetes.csv):
  - a. Add more Dense layers to the existing code and check how the accuracy changes.
  - b. Add the validation\_data=(X\_test, Y\_test) attribute to .fit() method.
  - c. Plot the accuracy for training and validation in the same plot.
2. Change the data source to Breast Cancer dataset \* available in the source code folder and make required changes. Report accuracy of the model.
  - a. Add more Dense layers to the existing code and check how the accuracy changes.
  - b. Add the validation\_data=(X\_test, Y\_test) attribute to .fit() method.
  - c. Plot the accuracy for training and validation in the same plot.
3. Normalize the data before feeding the data to the model and check how the normalization change your accuracy (code given below).

```
from sklearn.preprocessing import StandardScaler  
  
sc = StandardScaler()
```

Breast Cancer dataset is designated to predict if a patient has Malignant (M) or Benign = B cancer

\*\* Follow the IPC rubric guidelines.

### Submission Guidelines:

1. Once finished present your work to TA during class time.
2. Once evaluated submit your source code and documentation to GitHub and represent the work in a ReadMe file properly (short summary for the ICP).

### After class submission:

1. Complete your work and submit to your repo before the deadline.
2. Record a short video (1~3) minute, explaining the technical part and method used.
3. Add video link to ReadMe file.

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