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| sru | **SR UNIVERSITY**<br>**Campus Warangal** |
| | **Program:** II - B.Tech (CS& AI) |
| | **Professor(a):** Dr. Ramana, Dr. Ali, Dr. Amit, Dr. Mamta, Dr. Sridhar |
| | **Department:** Computer Science and AI **Semester:** II |
| | **Generative AI - Assignment - 9.1** |

Instructions:

1- Students needs to assume if any data is missing and that is necessary to solve

1. (1 ponto) Design a multilayer ANN architecture to identify the hand-written digits using the **Keras** deep learning library. Consider the MNIST data set
2. (1 ponto) Calculate the accuracy with training and testing data
3. (1 ponto) Also, change the architecture by tuning no. of hidden layers, no. of hidden neurons and activation functions in hidden layer. Identify best architecture in terms of testing accuracy

Tabela 1: ANN Architecture

| Layer | Neurons | Activation Function |
|---|---|---|
| Hidden Layer - 1 | 32 | relu |
| Hidden Layer - 2 | 32 | relu |
| Hidden Layer - 3 | 32 | relu |

Tabela 2: Training Parameters

| epochs | batch size | error metric | Optimizer |
|---|---|---|---|
| 10 | 128 | accuracy | adadelta |

**Dataset:** MNIST

- **Expected learning Outcomes from this assignment related to python**
  - Students are able to build ANN model with python deep learning libraries to classify hand written digits
  - Students are able to measure training and testing performance of trained model
- Last date to submit: 26.03.2025
- Date of activity: 26.03.2025
- Naming convention
  - Report File Name: RollNo_Week No._Assignment No.

**Date:** 2025-03-21