Department of Computer Science and Engineering
Academic Year 2024 – 2025 (Odd Semester)

Degree, Semester & Branch : III Semester B.E CSE – 'B'
Course Code & Title : CS3352 & Foundations of Data Science
Name of the Faculty member : Mr. K.Vignesh Saravanan, AP(SG) / CSE

Innovative Practice Description

- **Unit / Topic: Unit IV / Python Libraries for Data Wrangling /** Computations on numpy arrays
- **Course Outcome:** CO4
- **Topic Learning Outcome:** TLO 8
- **Activity Chosen:** Collaborative Coding
- **Justification:**

  Developing program codes is an integral part across all various domains. Collaborative learning is the educational approach of using groups to enhance learning through working together. The prime objective of Collaborative learning is to make the students work as a team to solve problems, complete tasks, or learn new concepts and develop the algorithm for the practice of using Python libraries for Data wrangling process. So, the topic is chosen as the group learning.
- **Time Allotted for the Activity:** 40 Minutes
- **Details of the Implementation:**

  After completion of the topic - Computations on arrays, this activity is planned as a team activity, in order to make the students understand the Data wrangling and how to write codes very clearly and to improve their level of understanding and gain more knowledge in logical problem solving. The students are exposed to python code and the syntax for using libraries. The task of the students is creating and developing code for the given problem. The students are divided into team of 4 members and coding questions on array manipulations are given to the students as shown in figure-1. The students should learn along with the team and solve the given programs.
- **CO – PO / PSO mapping:**

CO	PO1	PO2	PO3	PO7	PO8	PO9	PO10	PO12	PSO1
CO1	3	3	3	1	1	1	1	2	3

(1 – Low 2 – Moderate 3 – High)

- **PO / PSO mapped:**

Innovative practice	PO1	PO2	PO3	PO4	PO9	PO10	PO12
	2	2	3	3	3	3	2
Justification for correlation	Apply basic Knowledge and fundame	Identify the need of Python Libraries for Data	Able to design and develop the codes	Use the Python Libraries for Data Wrangling	Functional individually in identifying the code for	Communicate / share the ideas with other students in	Ability to reproduce the contents

	ntals in Computations on arrays	Wrangling	for Data Wrangling using Python Libraries	and can research on data and provide interpretations and conclusions	Computations on arrays & data wrangling	written and oral presentation	gathered through self-learning

- **Images / Screenshot of the practice:**

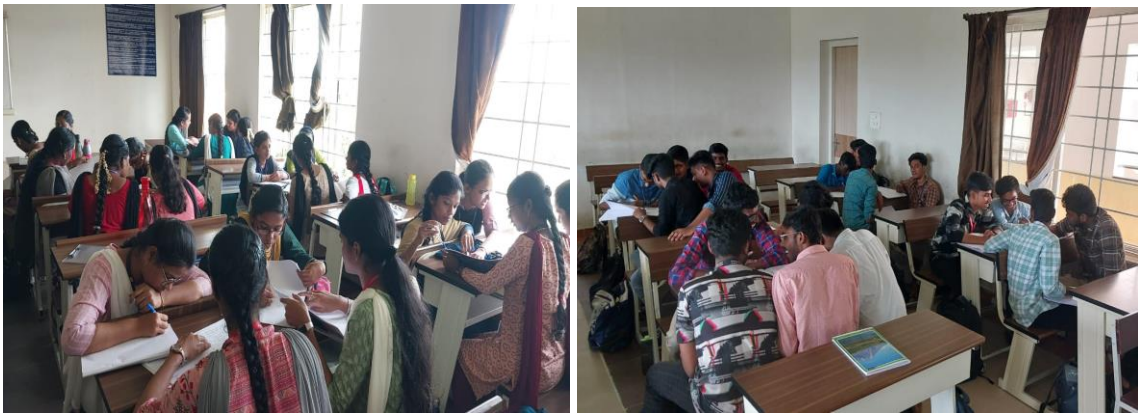

Figure-1 Screenshot of the activity done by Asmitha and Hari Krishnan Team

- **Reflective Critique:**
  - ❖ ***Feedback of practice from students and other stakeholders:***
    - Student felt good, since they learn the concepts as a group.
    - They felt that through such learning, students actively participate and this activity encouraged the students to share their knowledge with others.
  - ❖ ***Benefit of the practice:***
    - ➢ Students are actively participated in each group.
    - ➢ It helps the students are made to work in a team and share their ideas to others and also improve their communication skills.
    - ➢ It helps to focus attention and engage students in learning.
    - ➢ Through this activity the students can **deeply understand the code using python libraries for Data wrangling process** and how to interpret data.
    - ➢ The **students are made to write the program code with their own understanding** mainly using the libraries and in-built functions.
  - ❖ ***Challenges faced in implementation:***
    - Always the toppers only represent the concepts
    - Some of the students finding difficulties in expressing the ideas

References:

- https://www.valamis.com/hub/collaborative-learning
- https://teaching.cornell.edu/teaching-resources/engaging-students/collaborativelearning
- https://www.evergreen.edu/sites/default/files/facultydevelopment/docs/WhatisCollaborativeLearning.pdf