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

**Degree, Semester & Branch:** B.E. III , Computer Science and Engineering
**Course Code & Title: CS3352 & Foundations of Data Science**
**Name of the Faculty member (s): Dr.M.Swarna Sudha**

**Innovative Practice Description**
**Unit 2-Topic: Types of Variables**

**Course Outcome:** CO2

**Topic Learning Outcome:** 2.2

**Activity Chosen: Explore & Engage: Cooperative Learning Activity**

**Justification:**
Understanding types of variables (e.g., categorical, numerical, discrete, continuous) is a fundamental concept in data science and statistical analysis. This knowledge provides a solid foundation for students to analyze and interpret data effectively in later topics. Cooperative learning encourages students to identify, classify, and justify their reasoning behind variable classification. This process develops critical thinking skills as they differentiate between variable types based on characteristics like measurement scales or data collection methods.

**Time Allotted for the Activity:** 20 minutes
**Details of the Implementation:**

**Students Involved:**Athish M J. K. Kaviyalakshmi Lakshitha S Deepalakshmi M and Deepak Lingaraj M.

- The group was provided with a brief lecture on types of variables, case studies with datasets for identifying and classifying variables, and reference materials outlining the differences between numerical and categorical variables, along with relevant examples. Athish M focused on numerical variables, distinguishing between continuous and discrete types; J.K. Kaviyalakshmi researched categorical variables, including both nominal and ordinal categories; Lakshitha S analyzed datasets to identify examples for each type of variable; Deepalakshmi M investigated real-world applications where variable classification is crucial, such as in data modeling and machine learning; and Deepak Lingaraj M reviewed and validated the findings from all group members.

  Each member contributed examples and reasoning for their classifications, sharing insights on how they identified the types of variables based on the dataset's characteristics.

**CO – PO / PSO mapping:**

| CO | PO4 | PSO2 |
|---|---|---|
| CO2 | 2 | 2 |

**1 – Low 2 – Moderate 3 – High)**

**PO / PSO mapped:**

| Innovative practice | PO4 | PSO2 |
|---|---|---|
| | 2 | 2 |
| **Justification for correlation** | Research based knowledge using the Data repository and the classification approach for the grouping of Data is gathered. Appropriate solution for the complex data handling can be obtained. | Able to develop analytical solution for a given data set |

**Screenshot of the practice:**

**Figure 1 Cooperative Discussion - collaborated to classify variables from a sample dataset provided**

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**Figure 2 Lakshitha S analyzed datasets and presenting examples for each type of variable;**

**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 thisactivity encouraged the students to share their knowledge with others.

❖ ***Benefit of the practice:***

- Students are actively participated in each group.
- Students said that the activity was helpful in determining how well they understood the concept.
- Students told the teacher that the activity encouraged them to ask more questions.
- It helps the students are made to work in a team and share their ideas and also improve their communication skills.
- It helps to focus attention and engage students in learning.
- Through this activity the students can deeply understand types of data

❖ ***Challenges faced in implementation:***

Most of the students actively participated except few students. They are not involved to share their understanding level and raising the doubts

- Some of the students finding difficulties in expressing the ideas

***Challenges faced in implementation:***

- Some students feel that the discussion is tough due to their lack of intertest.
- Students feel like a time-consuming activity.
- An equal contribution from all the students is not possible.

**References:**


- https://study.com/academy/lesson/cooperative-learning-activities
- https://www.valamis.com/hub/cooperative-learning
- https://www.educasciences.org/engaging-activities-and-games-cooperative-learning-games