VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009
Department of Information Technology

Innovative Teaching Practice

Faculty Name : Mrs.Sasikala, Mrs.Dhrakshayani
Course Name : Statistics with R Programming
Class : II B.Tech II Semester
Academic Year : 2021-2022
Title of the Topic : Sort and range Functions
Activity Name : Collaborative Learning

Objective of the Activity:

The primary goal of this Collaborative Learning activity is to help students understand and apply the concepts of the `sort()` and `range()` functions in R programming. Through individual analysis, collaborative discussions, and sharing insights, students will gain hands-on experience with these functions, which are essential for manipulating data in R. The activity also aims to develop teamwork and communication skills while reinforcing the understanding of core programming concepts.

Activity Procedure:

1. Preparation:

- **Provide Context:** Introduce the purpose of sorting data and finding ranges within datasets in R. Discuss common scenarios where these operations are applied, such as sorting sales data, finding the range of temperatures, or analyzing performance scores.
- **Provide Materials:** Distribute worksheets with exercises that include sample datasets (e.g., exam scores, daily temperatures, or sales figures) and tasks that require the use of sort() and range() functions.
- **Prepare Guiding Questions:** Create questions that encourage students to reflect on the practical applications of these functions, such as:
    - What does sorting a dataset do to the order of its elements?
    - How can finding the range of a dataset be useful in real-world situations

2. Phase 1 – Think (5-7 minutes):

- **Individual Work:**
    - Students will work individually to analyze a dataset and perform the following tasks:

- Use the sort() function to arrange the dataset in ascending and descending order.
- Apply the range() function to find the minimum and maximum values of the dataset.
- Document their results and reasoning on the worksheet.
    - Students are also encouraged to reflect on situations where sorting and finding ranges would be necessary in their professional or academic fields.

3. Phase 2 – Pair (10-15 minutes):

- **Partner Discussion:**
    - Students will partner up to:
        - Compare their individual approaches and results from Phase 1.
        - Discuss the differences between using sort() and range() in various contexts.
        - Refine their understanding of when and why to use these functions, with each pair working to improve or clarify their answers.
    - Each pair will answer the following guiding questions:
        - How does sorting help in organizing data, and what are some applications where this is critical?
        - What insights can be gained from knowing the range of a dataset?
        - Can you think of a scenario where both sorting and finding the range would be necessary?

4. Phase 3 – Share (10-12 minutes):

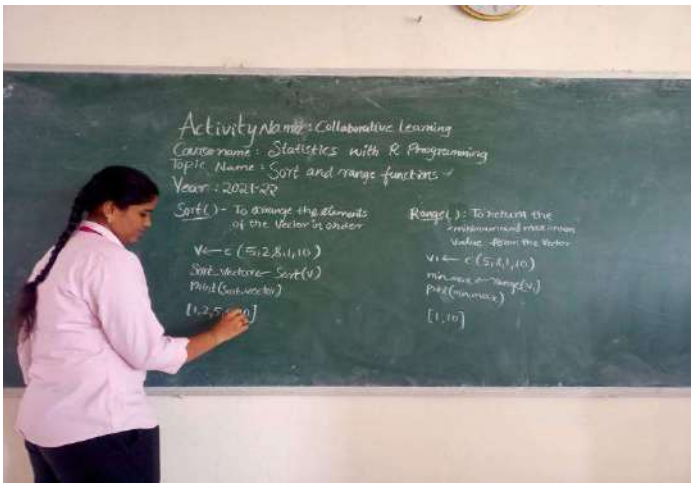
- **Class Presentation:**
    - Each pair will present their findings and solutions to the class, discussing:
        - How they used the sort() and range() functions and their specific syntax.
        - Practical scenarios where these functions might be applied (e.g., ranking students based on grades, determining the range of daily temperatures in a city).
        - Any challenges they encountered and how they overcame them.
    - The instructor will facilitate a class-wide discussion to compare different approaches and emphasize the significance of sorting and finding ranges in data analysis.

Wrap-Up (5 minutes):

- **Reflection:**
    - Students will reflect on their worksheets and the class discussions by answering the following questions:
        - What were the most challenging aspects of using the sort() and range() functions?

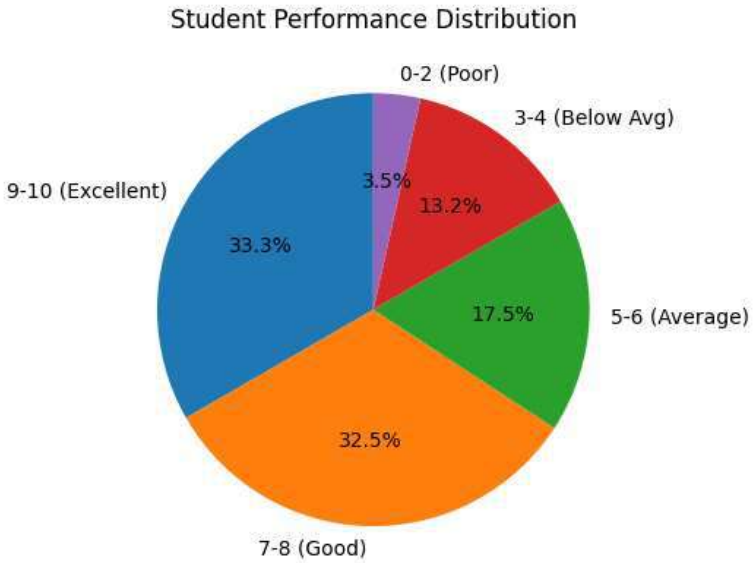
- How do these functions enhance data analysis and decision-making in programming?
  - The instructor will summarize the activity, highlighting the practical applications of the sort() and range() functions in fields like data science, finance, and research.

Screenshot of the Practice



Assessment Analysis:

Marks Range	Number of Students	Percentage
9-10 (Excellent)	38	33.3%
7-8 (Good)	37	32.5%
5-6 (Average)	20	17.5%
3-4 (Below Avg)	15	13.2%
0-2 (Poor)	4	3.5%
Total	114	100%



Conclusion of the Collaborative Learning Activity:

The collaborative learning activity was successful in helping students understand and apply the `sort()` and `range()` functions in R programming. By analyzing datasets, discussing their findings with peers, and sharing their insights, students developed a deeper understanding of data manipulation techniques. The activity fostered active engagement and teamwork, allowing students to enhance their problem-solving and communication skills. Moreover, it emphasized the practical applications of sorting and finding the range in real-world scenarios, equipping students with valuable tools for data analysis.

Signature of the Faculty **Head of the Department**