Name: Rashmi Rajeshirke
UID: 2021700051
Class: CSE-DS BE
Batch: A

Lab10

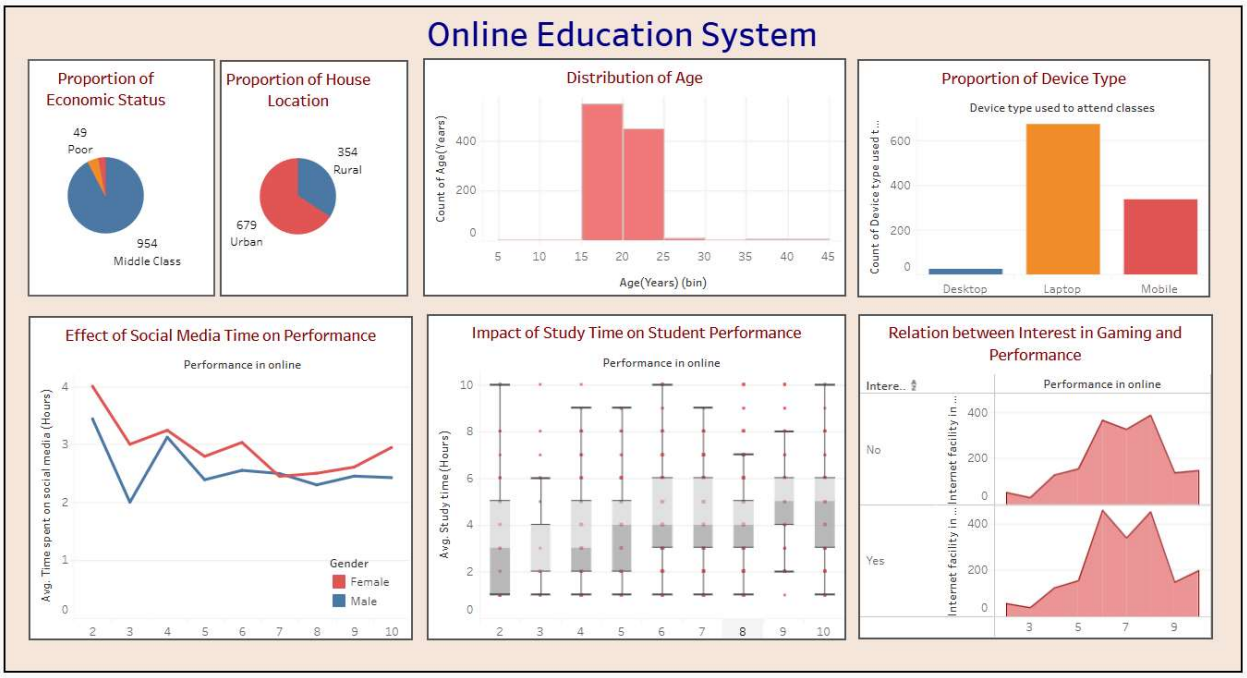
AIM:

To design interactive Big Data dashboards in Tableau using datasets from the Education sector, focusing on enrollment rates, academic performance, funding, and demographics, among other factors. This project aims to reveal insights on trends, disparities, and key metrics in education.

Objectives

1. Create basic and advanced charts in Tableau to visualize data relevant to the Education sector.
2. Develop dashboards that convey meaningful insights on various education metrics.
3. Derive observations and trends from each visualization to understand the educational landscape better.
4. Document findings for each visualization and provide a basis for future research or recommendations.

Dashboard:



Here are the observations from the Dashboard:

1. **Proportion of Economic Status**: The pie chart shows that a significant majority of students (954) belong to the middle class, with a smaller portion (49) being poor, and 30

students identified as rich. This indicates that most students in the system have moderate financial resources, which could impact their access to educational tools and facilities. While the poor and rich make up a smaller segment, additional support might be needed for economically disadvantaged students, and rich students may have better access to resources, potentially leading to varied educational outcomes.

2. **Proportion of House Location**: The second pie chart reveals that most students (679) are from urban areas, while a smaller fraction (354) live in rural areas. This suggests that online education is more accessible to urban students, possibly due to better internet infrastructure and resources, while rural students might face challenges such as limited internet connectivity and digital devices.
3. **Distribution of Age**: The bar chart shows that the majority of students fall within the 15-20 age range, with fewer participants in the 20-25 age bracket and very few in the older or younger ranges. This indicates that online education is predominantly adopted by high school and early college students, possibly because they are the most tech-savvy and adaptable to online learning formats.
4. **Proportion of Device Type**: This bar chart highlights that laptops are the most commonly used device for attending online classes, followed by mobile phones, with desktops being rarely used. This shows that most students prefer portable and flexible devices for online learning, while desktop usage may be limited due to its lack of mobility.
5. **Effect of Social Media Time on Performance**: The line chart reveals a trend where increased time spent on social media correlates with a decline in student performance. Both male and female students show a decrease in performance as social media usage rises, although the decline appears sharper for females. This suggests that excessive social media use can negatively impact academic focus and outcomes.
6. **Impact of Study Time on Student Performance**: The box plot shows that as study time increases, student performance also improves, with less variability in the higher ranges. This suggests that consistent and extended study periods are associated with better academic performance. There are, however, some outliers, indicating that a few students may not benefit as much despite spending more time studying.
7. **Relation between Interest in Gaming and Performance**: The histogram illustrates that students who are interested in gaming tend to perform worse in their online studies compared to those who are not interested in gaming. Students who do not engage in gaming show higher internet facility ratings and better performance, indicating that gaming may distract from academic responsibilities.

The dashboard gives a clear picture of the factors affecting students in online education. It shows that most students come from middle-class families, and the majority live in urban areas, which could mean they have better access to online learning resources. Most students are in their late teens, and when it comes to devices, laptops are the preferred choice for attending classes. It also highlights that spending too much time on social media, especially for female students, can hurt performance, while more time spent studying tends to improve results. Interestingly, students who are into gaming often see a drop in their academic performance. Overall, the data helps us understand how these different aspects influence student success in online education.