INDIAN SCHOOL EDUCATION

INFORMATION VISUALIZATION
-18CSE301J

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1 ABSTRACT

"This project provides a comprehensive analysis of the Indian school education system, using a combination of schema diagrams and interactive charts to showcase key indicators and trends. The project explores the status of enrollment, literacy, and other relevant metrics, offering insights into disparities and disparities across regions and socio-economic groups. Through the use of visually engaging charts and graphs, the project aims to facilitate an understanding of the current state of Indian school education, and to provide a basis for informed discussions and decision-making about its future direction.Additionally, we look for any connections between the enrollment/dropout rates and the availability of basic school amenities like water and power.

2 INTRODUCTION

We will examine the Indian educational system in this project. This analysis' primary focus will be on school enrollment and dropout rates over time. Additionally, we look for any connections between the enrollment/dropout rates and the availability of essential school amenities like water and power.

Indian education consists of four key components.
1) Primary: Students in Classes I–IV make up India's Primary Education.
2) Upper Primary: In India, kids in Classes V through VIII attend upper primary school. For children between the ages of 6 and 14, the Indian government places a strong focus on primary education (Class I–VIII), often known as elementary education.
3)Secondary:Secondary education in India consists of two years of secondary

education (classes IX and X) and two years of higher secondary education. Secondary education starts after eight years of basic education (classes XI and XII) 4) Higher Secondary: Class XI and XII students make up Higher Secondary Education.

3 Visual Representation

Figure 1: Enrollment ratio of boys and girls

The graph in Figure 1 depicts the enrollment ratios of boys and girls in various levels of schooling. The data is presented separately for both boys and girls, and it shows the enrollment ratios for primary, upper primary, secondary, and higher secondary levels of education. The data reveals that the enrollment ratios of girls are slightly higher than those of boys at each level of schooling.

This information highlights the positive trend of increasing enrollment of girls in education, which is important for promoting gender equality and empowering women and girls. The data can also be used to identify areas where efforts are needed to improve the enrollment of boys, particularly in regions where the enrollment ratios of boys are lower than those of girls. The ability to analyze the data by level of schooling allows us to see the enrollment trends for different age groups and to evaluate the overall enrollment situation for both boys and girls.

Overall, the information presented in Figure 1 provides insights into the enrollment patterns of boys and girls in education.The data can be useful in guiding policies and programs aimed at improving access to education for all students, regardless of gender.

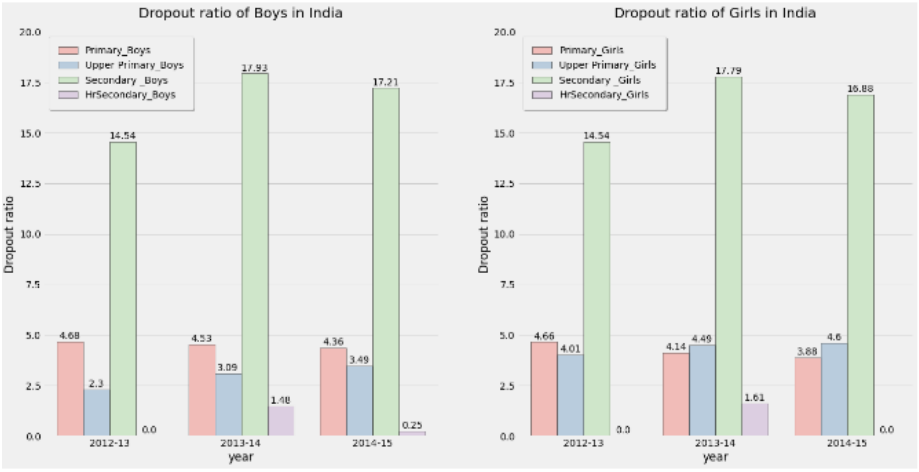


Figure 2: Dropout ratio of boys and girls

The graph in Figure 2 displays the dropout ratios of boys and girls in different levels of education. The data is presented separately for both boys and girls and shows the dropout ratios for primary, upper primary, secondary, and higher secondary levels of schooling. The data indicates that the dropout ratios of both boys and girls are highest at the secondary level of education.

This information highlights the issue of high dropout rates among students, particularly at the secondary level, which is an important stage in their educational journey. High dropout rates can have negative impacts on the future prospects of students, as well as on the overall economic and social development of a region. The data can be used to identify areas where efforts are needed to improve the retention of students in school and to reduce the dropout rates.

The ability to analyze the data by level of schooling and by gender allows us to see the dropout trends for different age groups and to evaluate the overall dropout situation for both boys and girls. This information can be useful in guiding policies and programs aimed at reducing dropout rates, particularly among students who are at higher risk of leaving school early.

Overall, the information presented in Figure 2 provides important insights into the dropout patterns of boys and girls in education and highlights the need for ongoing efforts to reduce dropout rates and to improve the retention of students in school. The data can be useful in guiding policies and programs aimed at ensuring that all students have access to a quality education and the opportunity to complete their studies.

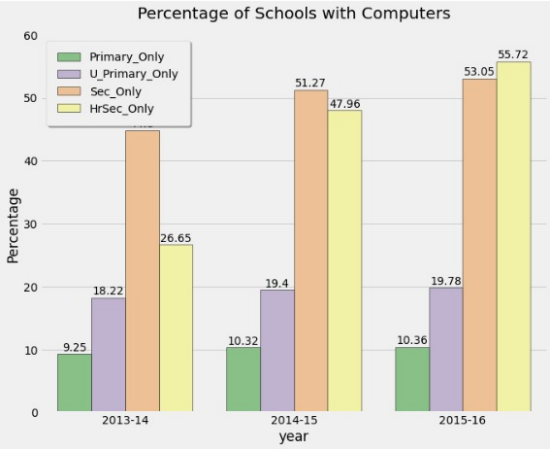


Figure 3: Percentage of School with Computers

Based on the information presented in Figure 3, it appears that there has been a steady increase in the number of computers in schools over time. Specifically, it seems that the number of computers has increased in each successive year. Additionally, the data suggests that there has been a significant increase in the number of computers in higher secondary schools. This information indicates that the use of technology in education has been on the rise, and that schools have been making efforts to keep up with the latest advancements in technology.

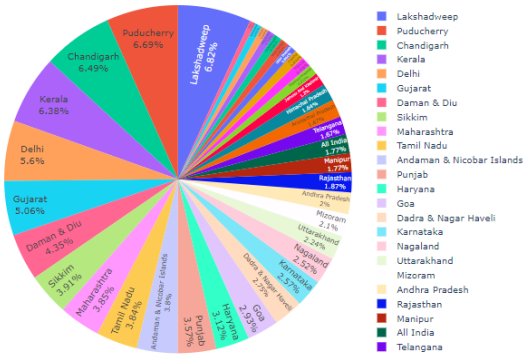


Figure 4: Data in Pie Chart

Figure 4 further shows the computer availability across different states. The data has been divided into segments corresponding to each state, allowing us to see how the availability of computers varies from state to state. This information can be useful in identifying areas where there is a need for improvement, as well as in evaluating the overall level of technology usage across different regions.

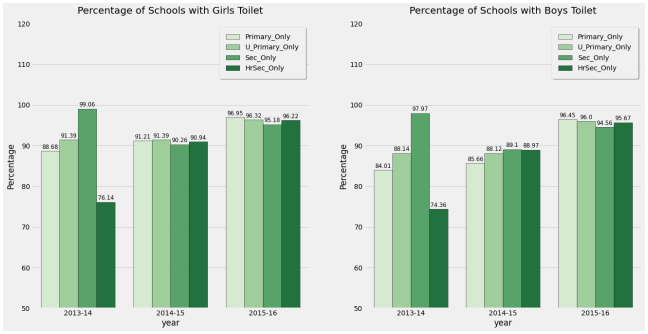
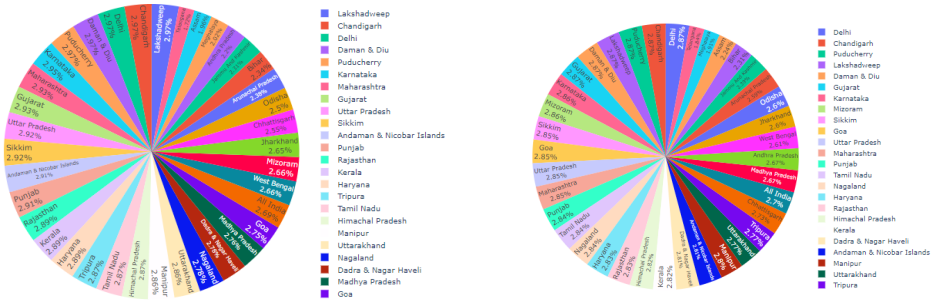


Figure 5: Percentage of Schools with Girls and Boys Toilet

The information presented in this figure shows the percentage of schools with toilets for both girls and boys. The data indicates that there has been a consistent increase in the number of schools with toilets for both genders at each level of schooling. The pie charts in the figure further break down this information by state, allowing us to see the availability of washrooms in each region.

This information highlights the importance of providing adequate sanitation facilities in schools, particularly for girls, who often face inadequate toilet facilities in educational institutions. The increased availability of toilets for both girls and boys in schools can contribute to creating a more comfortable and safe learning environment for all students. The ability to analyze the data by state allows us to identify areas where improvements are needed and to understand the overall level of access to washroom facilities across different regions.

Overall,The data can be useful in guiding future efforts to increase the availability of washroom facilities in schools, particularly in areas where access is limited.



(a) Boys Washroom

(b) Girls Washroom

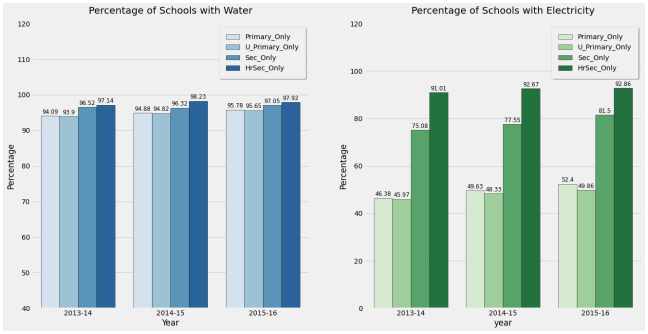


Figure 6: Water and Electricity Availability

The data shows that the percentage of schools with water availability has remained relatively stable over time. On the other hand, the data indicates that the availability of electricity has significantly increased in each level of schooling in each successive year. This information suggests that while access to water in schools has remained constant, there has been a significant effort to improve access to electricity in educational institutions. The increased availability of electricity in schools can have a positive impact on the learning environment, as it can facilitate the use of technology and other electrical equipment in the classroom. It also suggests that there has been a focus on improving the infrastructure and resources available in schools

4 Schema

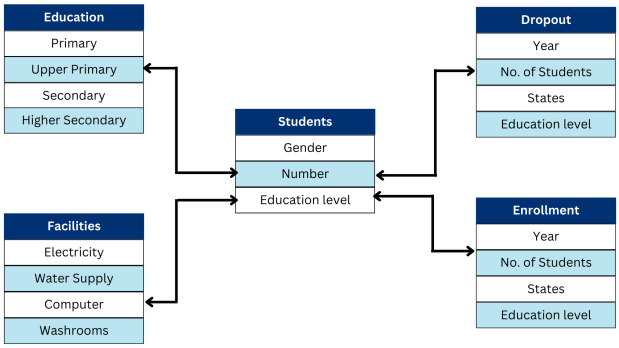


Figure 7: Schema

5 Outcome

The dataset played a crucial role in gaining a better understanding of the data. By using various visual representations such as charts, graphs, and pie charts, it was possible to gather insights into trends related to education enrollment and dropouts, as well as the availability of resources like water, electricity, computers, and washrooms. The data was also organized in a state-wise manner, which gave a larger perspective and helped to better understand the data.

The schema diagram showed the relationships between different entities and databases, providing a clear picture of the connections between them.

6 Software Used

1) Python Libraries:
a) Numpy
b) Pandas

2) Canva

3) Overleaf

7 References:

1) `https://www.education.gov.in/en/school-education`

2) `http://wikipedia.org`

8 Dataset Source

`https://www.kaggle.com/datasets/vidyapb/indian-school-education-statistics?resource=download&select=gross-enrollment-ratio-2013-2016.csv`

9 Overleaf Link

`https://www.overleaf.com/9173543482ttqyzmsdzfqf`