



SSIP-2022

Student Dropout Analysis

Team ID: TM000112

Problem Statement: PID048

Team Details



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Department/Office/Industry Name : Education Department

Problem ID : PID048

Problem Statement : Student dropout analysis for school education

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Abstract

Education is one of the basic needs as well as a human right But, dropout is a more serious problem in INDIA Therefore, We have come up with a solution to examine the causes of school dropouts

The solution is using the capabilities of machine learning to help us resolve the problem. It includes independent variables: Age, gender, academic achievement, teaching support, family income, family members, motivation, parent-child relationship, school environment, and neighbors.

While the dependent variable was: (reasons for dropout). The collected data were analyzed by using a descriptive method. (contd.)

Abstract (contd.)

The result showed that there is a significant relationship between the dropout and student, family, school, and community-related factors.

Based on the findings of the study, more girls dropped out of school. At the same time, lack of parents' education, poverty, home environment, early marriage, and lack of interest in education like so many reasons take a more important place in dropping out problems. Though the school pays more attention, many students are dropping out of school in this rural village. Not only school but also family, and community all try to save the students from this problem with more suitable action and activities.

Literature review & Innovations

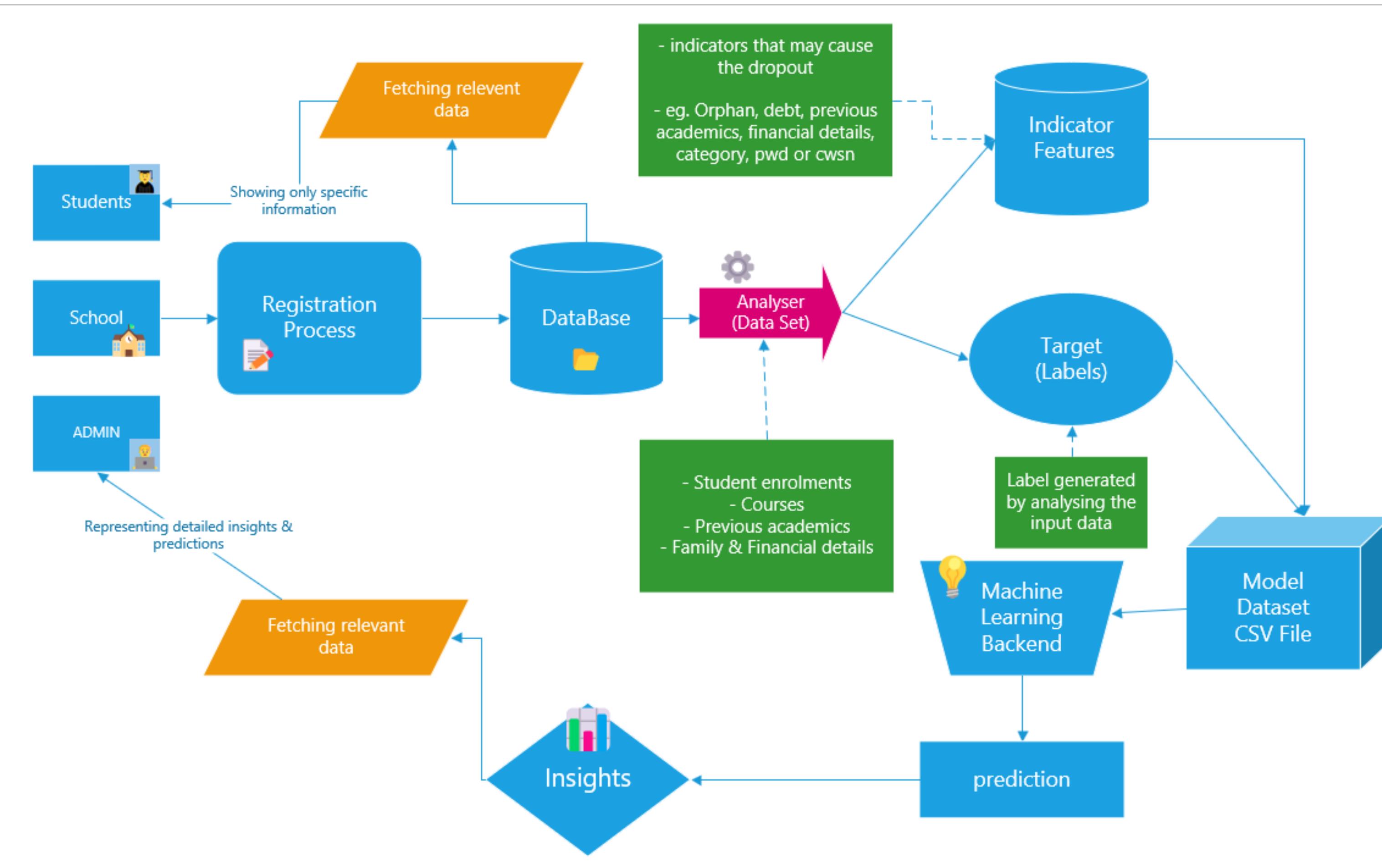
UNESCO's (2012) Global Report on education stated that there was an urgent need to address the high number of children leaving school before completing primary education.

Reasons for School Dropouts

A recent survey by the National Statistical Office (NSO)^[1] has revealed that around 12.6% of students drop out of school in India, 19.8% discontinued education at the secondary level, and 17.5% drop out at the upper primary level. As per the survey, a dropout is an "ever-enrolled person" who does not complete the last level of education for which he/she has enrolled and is currently not attending any educational institution. The Government's Right to Education Act and National Policy on Education may have been motivating to provide education to all but it is equally important to analyze the sustainability and efficiency of the education system. Dropout rates are considered to be a great waste of the education system, not only do many students leave school without acquiring basic skills, but their premature departure represents a significant waste of scarce education resources.

[1] - http://mospi.nic.in/sites/default/files/publication_reports/Report_585_75th_round_Education_final_1507_0.pdf

Architecture



STRATEGIC ANALYSIS

SWOT analysis for the project

Strengths

- The system can predict the causes of dropout
- Weaken the social inequalities & improvise education
- **To increase the literacy rate** by reducing the dropout rate
- Provide the GUI-based software
- Provide detailed insights into the dropout-students

S W

Opportunities

- Such detailed insights into the dropout students can cure existing problems
- To educate every student - by reducing dropout rates

O T

Weaknesses

- Wrong information can be shared
- Lack of accurate information

Threats

- Any data breach or unauthorized attack

Tools & Technologies used

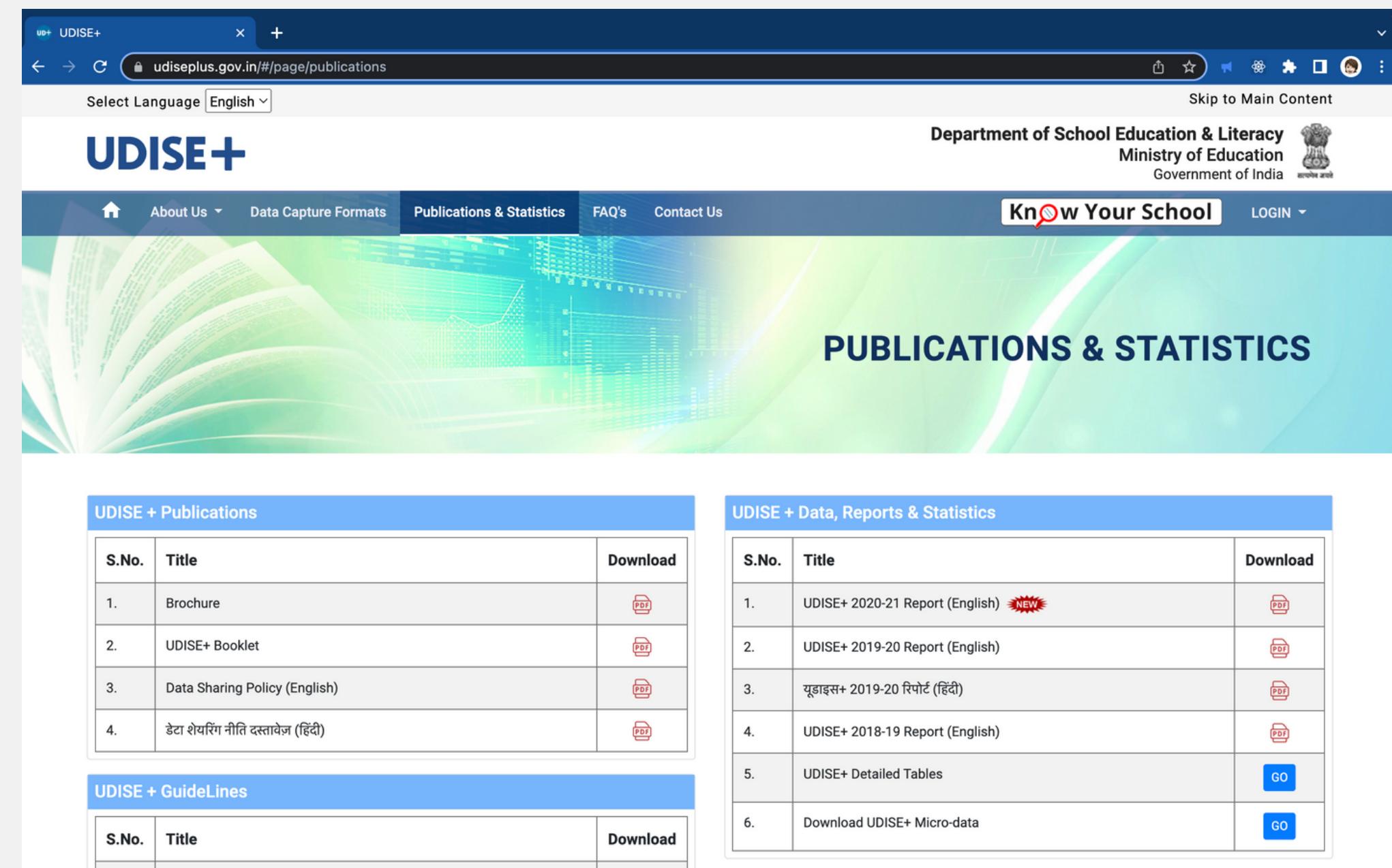
- Python
- React, SQL
- Figma, Photoshop
- MS Excel
- Python machine learning libraries - Pandas, Sklearn, Matplotlib

Machine Learning algorithms implemented:

- Linear regression
- Polynomial regression
- ensemble
- Scilab
- cross sectional regression

Loopholes in existing system

- No prior focus on the tracking of dropout rates.
- There isn't any dedicated solution that can provide detailed insight into dropouts of students.
- Lack of a centralized database to process and analyze the information/insights.
- To analyze the reason for the dropout, no previously innovative methods or machine learning modules exist.



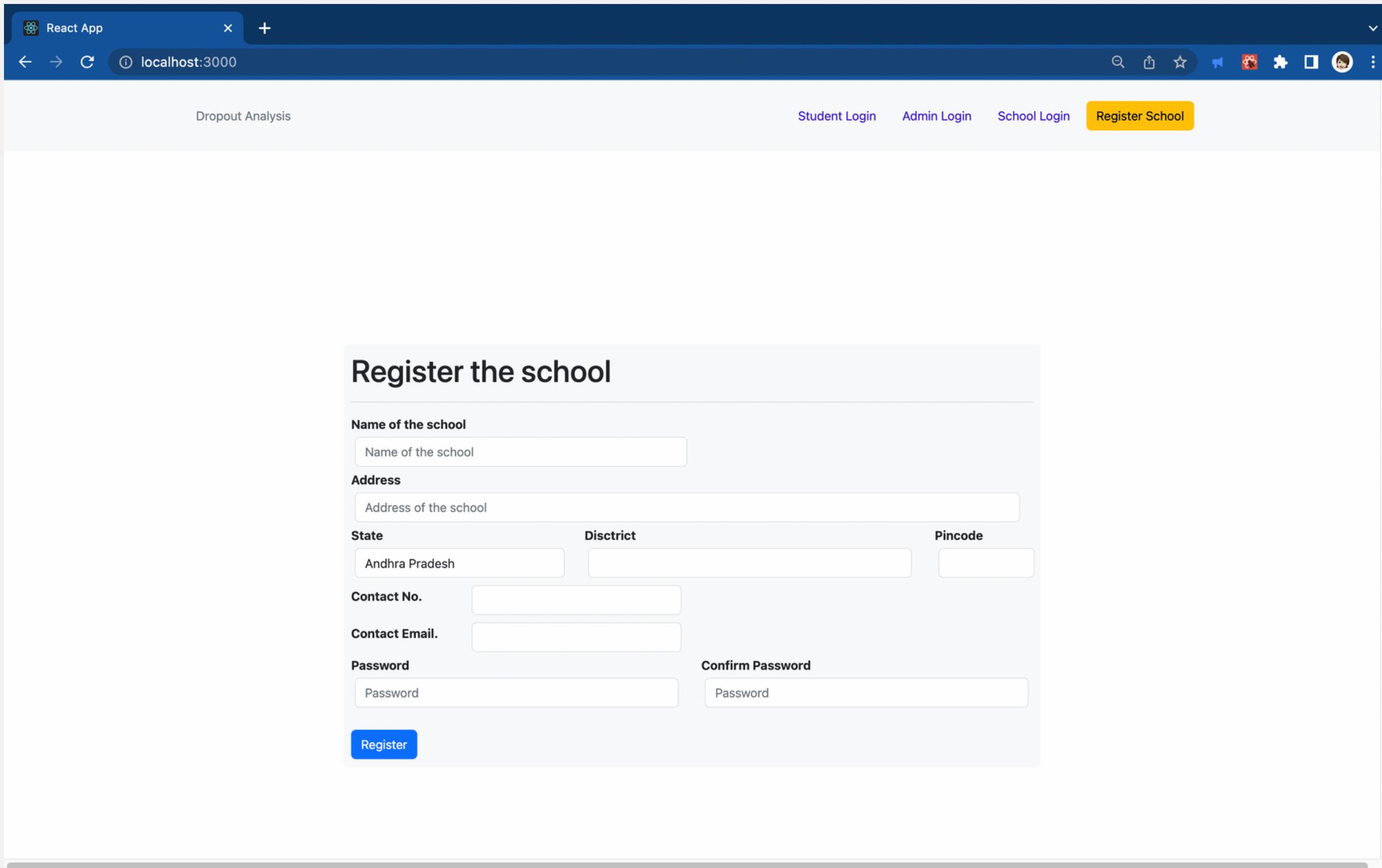
The screenshot shows the 'Publications & Statistics' section of the UDISE+ website. The top navigation bar includes links for Home, About Us, Data Capture Formats, Publications & Statistics (which is the active tab), FAQ's, and Contact Us. A sub-navigation menu for 'Publications & Statistics' has options for UDISE+ Publications, UDISE+ Data, Reports & Statistics, and UDISE+ GuideLines. The main content area features a large green graphic with a stylized book and data charts. The 'Publications & Statistics' section contains two tables: one for 'UDISE + Publications' and one for 'UDISE + Data, Reports & Statistics'. Both tables have columns for S.No., Title, and Download link.

S.No.	Title	Download
1.	Brochure	PDF
2.	UDISE+ Booklet	PDF
3.	Data Sharing Policy (English)	PDF
4.	डेटा शेयरिंग नीति दस्तावेज़ (हिंदी)	PDF

S.No.	Title	Download
1.	UDISE+ 2020-21 Report (English) <small>NEW</small>	PDF
2.	UDISE+ 2019-20 Report (English)	PDF
3.	यूडाइस+ 2019-20 रिपोर्ट (हिंदी)	PDF
4.	UDISE+ 2018-19 Report (English)	PDF
5.	UDISE+ Detailed Tables	GO
6.	Download UDISE+ Micro-data	GO

Graphical User Interface

1- Register page



The screenshot shows a web browser window titled "React App" at "localhost:3000". The main content area displays a registration form for a school. At the top right of the form, there are four buttons: "Student Login", "Admin Login", "School Login", and "Register School", with "Register School" being highlighted by a yellow border. The form itself is titled "Register the school" and contains the following fields:

- Name of the school**: An input field labeled "Name of the school".
- Address**: An input field labeled "Address of the school".
- State**: A dropdown menu currently showing "Andhra Pradesh".
- District**: An input field.
- Pincode**: An input field.
- Contact No.**: An input field.
- Contact Email.**: An input field.
- Password**: An input field labeled "Password".
- Confirm Password**: An input field labeled "Password".

At the bottom left of the form is a blue "Register" button.

2. School login- Admin login

The image displays two separate login forms side-by-side, both titled with their respective sign-in types.

Left Form: Sign in as an Admin

- User Code**: A text input field for entering the user code.
- Password**: A text input field for entering the password.
- Sign in**: A large blue rectangular button labeled "Sign in".

Right Form: Sign in as a school

- School Code**: A text input field for entering the school code.
- Password**: A text input field for entering the password.
- Sign in**: A large blue rectangular button labeled "Sign in".

Input forms

1. Student details

[Student Details](#) | [Family Details](#) | [Financial Details](#) | [Caste Details](#) | [Academic Details](#)

Student Details

First name Father's name Last name

Date Of Birth:

Age:

Gender: Male Female Orphan: yes no

Aadhar No.

Contact No.

Contact Mail Id.

Mother Tongue

Contact No.

CWSN: yes no

Nationality

No. Of Siblings: 1 2 3

Drug addiction: yes no

2. Parent Details, Financial Details, Caste & Category Details

Parent Details

Father's name Mother's name Guardian's name

Contact No.

Aadhar No.

Father's Occupation: 1 - working 0 - non-working
Mother's Occupation: 1 - working 0 - non-working

Father's Occupation: Mother's Occupation:

Financial Details

Family Annual Income:

Debt: 1 - yes 0 - no
BPL beneficiary: 1 - yes 0 - no

Caste & Category Details

Social Category:
Minority: 1 - yes 0 - no

3. Academic details

Academic Details

Admission Number

Admission Date

Academic Stream:

Status in previous year:

Grade in previous year:

Result in previous year type:

Out of the school child: 1 - yes 0 - no

Appeared in previous year examination: 1 - yes 0 - no

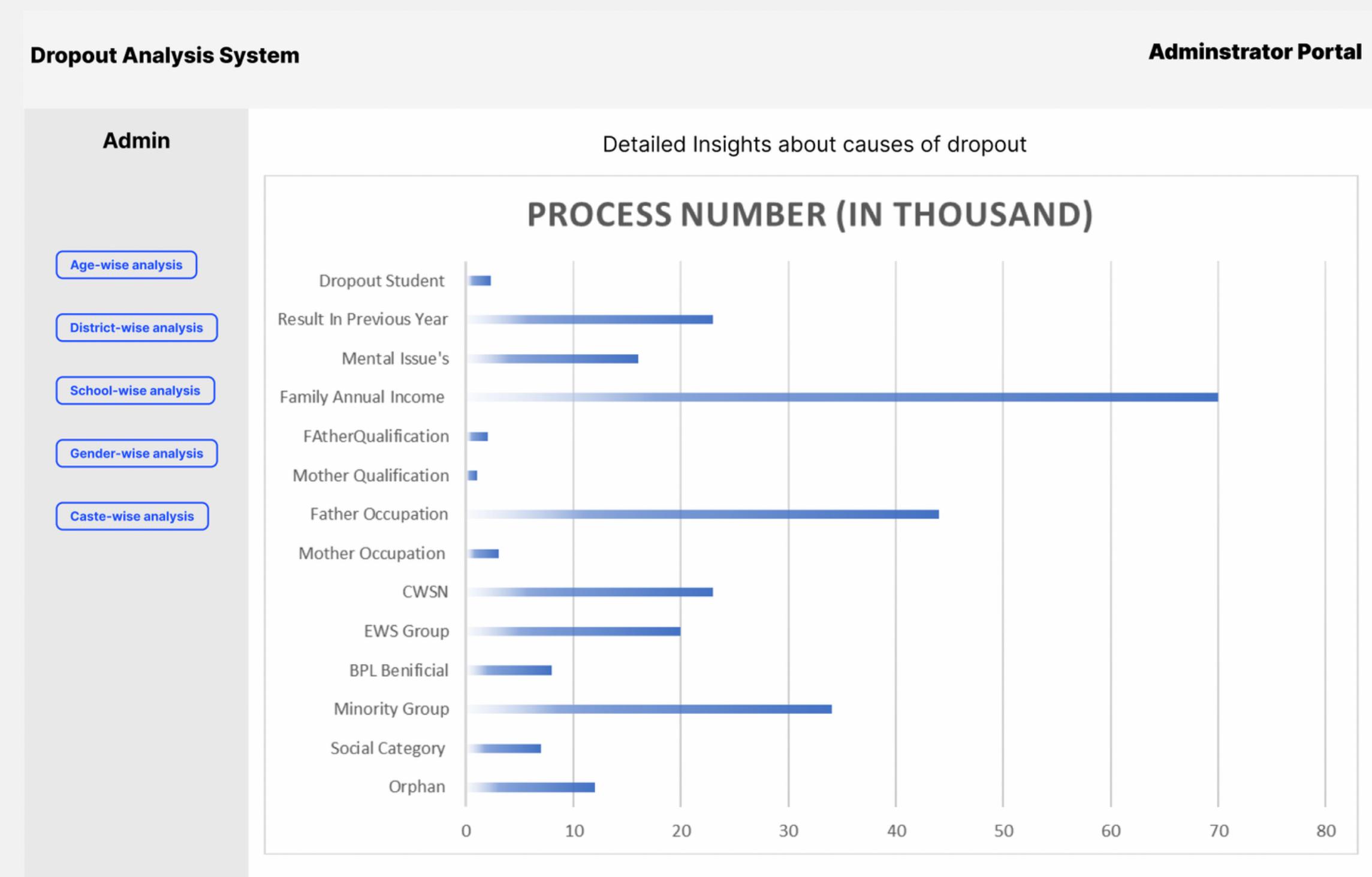
Scholarship Holder: 1 - yes 0 - no

Suspension days:

Student is dropped or continued?: 1 - yes 0 - no

Graphical User Interface for Admin

contains detailed insight of the data



Detailed causes of dropout

Dropout Analysis System

Administrator Portal

Admin

Age-wise analysis

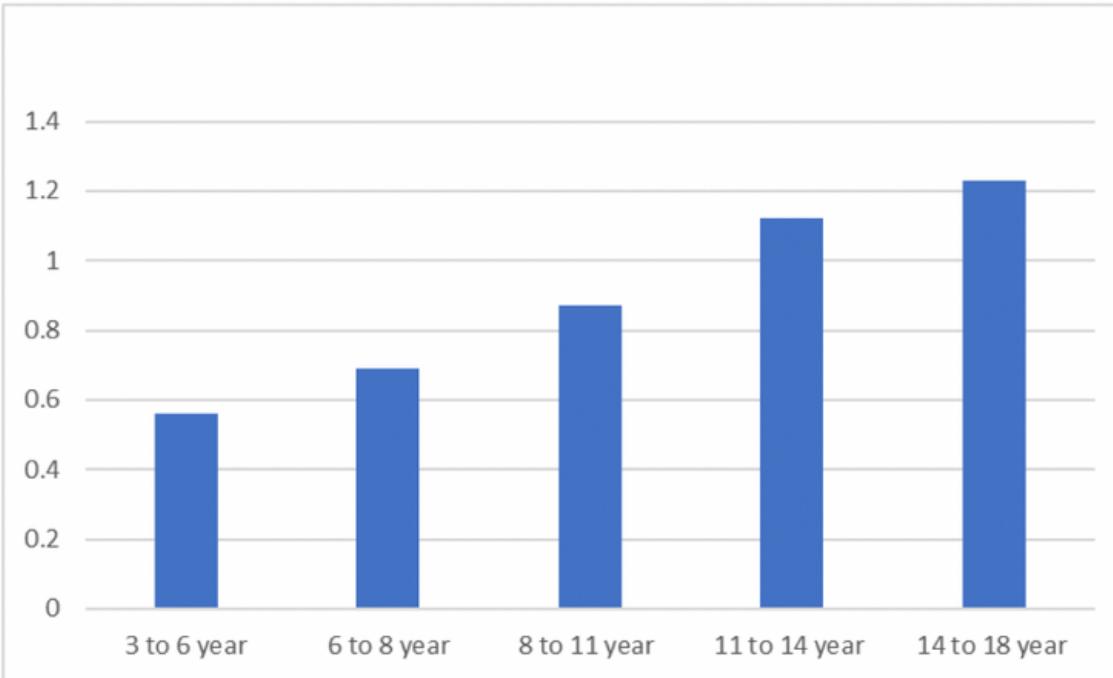
District-wise analysis

School-wise analysis

Gender-wise analysis

Caste-wise analysis

Age group/ standard wise analysis



Age group	Dropout rate
3 to 6 year	0.56
6 to 8 year	0.69
8 to 11 year	0.87
11 to 14 year	1.12
14 to 18 year	1.23

Age wise analysis

Dropout Analysis System

Administrator Portal

Admin

[Age-wise analysis](#)

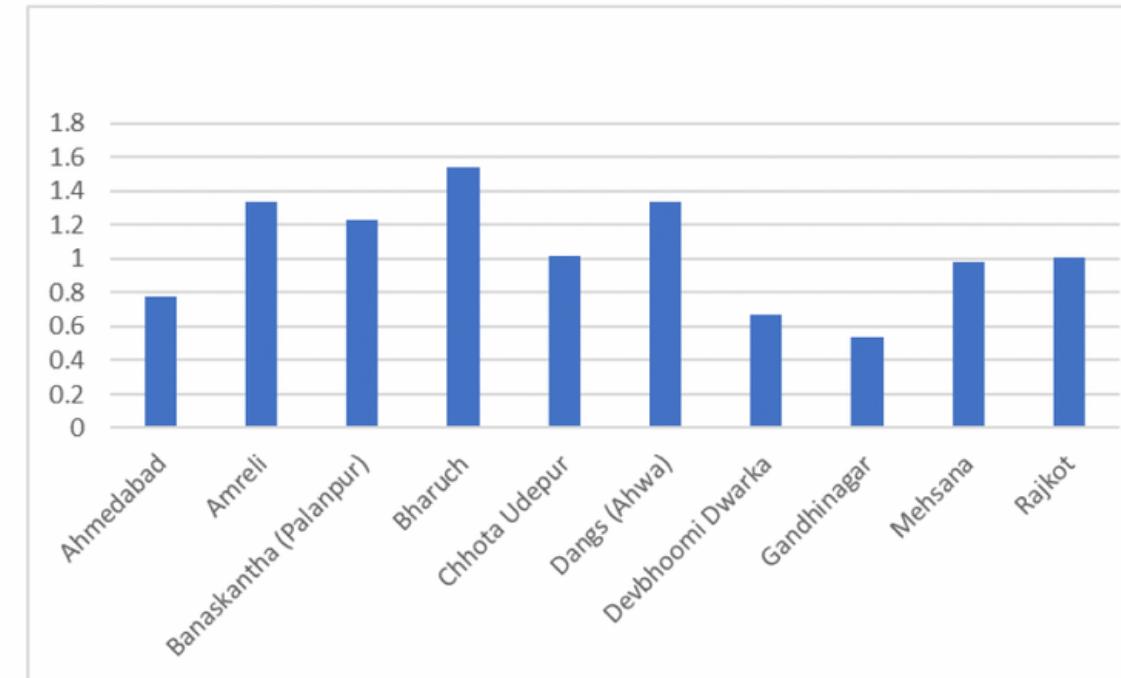
[District-wise analysis](#)

[School-wise analysis](#)

[Gender-wise analysis](#)

[Caste-wise analysis](#)

Age group/ standard wise analysis



Disctrict wise dropout rates

Disctrict group	Dropout rate
Ahmedabad	0.56
Amreli	0.69
Banaskantha	0.87
Bharuch	1.12
Chhota Udepur	1.23

District wise analysis

Dropout Analysis System

Administrator Portal

Admin

Age-wise analysis

District-wise analysis

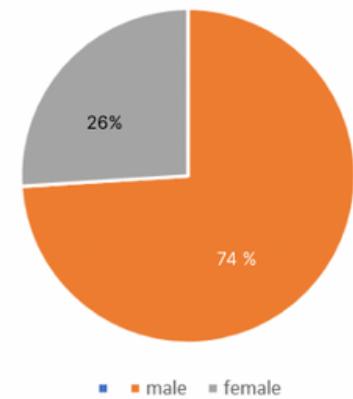
School-wise analysis

Gender-wise analysis

Caste-wise analysis

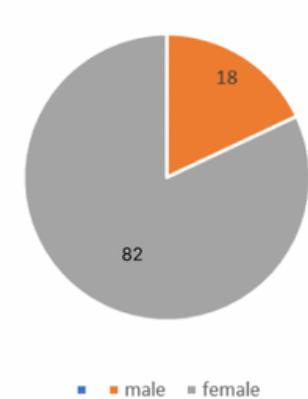
Gender-wise analysis

Dropout Rate



Dropout rates

gender ratio



Dropout Ratio (Gender-wise)

Dropout rates

Gender	Dropout Rate
Male	74%
Female	26%

Dropout ratio

Gender	Ratio
Male	18%
Female	82%

Gender wise analysis

Dropout Analysis System

Administrator Portal

Admin

Age-wise analysis

District-wise analysis

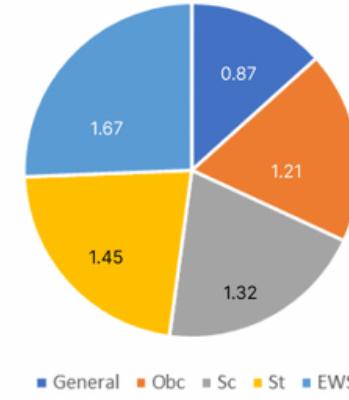
School-wise analysis

Gender-wise analysis

Caste-wise analysis

Caste-wise analysis

Dropout Rate

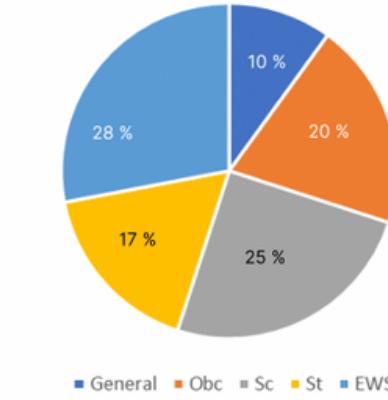


Dropout rates

Dropout rates

Caste	Rate (%)
SC	1.32
ST	1.45
GENERAL	0.87
EWS	1.67
OBC	1.21

Dropout Rate



Dropout Ratio (Caste-wise)

Dropout ratio

Caste	Ratio (%)
SC	25
ST	17
GENERAL	10
EWS	28
OBC	20

Caste wise analysis