- :Project Documentation & Report :-

PROJECT TITLE:-

UnleashingThe Potential Of Our Youth: A Student Performance Analysis

TEAM:-

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Team Size : 5
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Team member : Yesu Revanthkumar

FACULTY MENTOR K. MUNI SANKAR

1INTRODUCTION:-

1.1 OVERVIEW :

The kids of today are our society's future, and their potential is a priceless asset that must be developed and made available. Understanding the elements that go into realising their potential and fostering an environment that supports their achievement is crucial.

The project in the field of data analytics that aims to leverage data analytics techniques to gain insights into student performance and unleash the full potential of young learners. By analysing comprehensive data sets and applying various data analysis techniques, the project seeks to understand the factors influencing student success, develop targeted interventions, and inform evidence-based policies to enhance educational outcomes .

Data Collection and Preprocessing:-

A comprehensive dataset was collected from smartinternz Which includes age,student ID,result,average,sum. The collected data underwent thorough preprocessing to handle missing values, remove inconsistencies, and ensure data quality.

Exploratory Data Analysis (EDA):-

EDA was conducted to gain a deep understanding of the dataset. Visualizations and summary statistics helped in understanding the characteristics of the data and guided further analysis.

Creating a Flask web application:-

For Unleashing The Potential Of Our Youth: A Student Performance Analysis data involves building an interface where We can input relevant information, and the application will use the predictive model For Unleashing The Potential Of Our Youth: A Student Performance Analysis.

1.2 PURPOSE:-

To fully understand the aspects that contribute to our youth's success and growth, completing a student performance analysis is necessary in the context of maximising their potential. The analysis tries to achieve the following goals by looking at several facets of student performance :

KEY OUTCOMES:

1. Identify Factors Influencing Student Performance Improved Financial Planning
2. Addressing Barriers Enhanced Patient Care
3. Improve Academic Interventions
4. Enhance Resource Allocation
5. Foster a Data-Driven Education System.

2. LITERATURE SURVEY:

A literature survey for Student Performance Analysis involves reviewing academic articles, and other sources related to the analytics of Students

Performance. Researchers and practitioners in the field are exploring new methods and tools to improve teaching and learning outcomes and provide more personalized learning experiences for individual students. The analysis can provide a comprehensive understanding of the significance, challenges, and opportunities associated with Student Performance.

2.1 Existing problem:-

Solving the UnleashingThe Potential Of Our Youth: A Student Performance Analysis involves a systematic approach that combines data analysis. model development and evaluation.

2.2 Proposed Solution:-

The proposed solution aims to leverage data analytics to analyse student performance and unleash the potential of our youth. By utilising comprehensive data sets, including academic records, extracurricular activities, and socio-economic backgrounds, we can gain valuable insights into the factors influencing student success.

Solution Steps :-

1.Data Collection and Integration

2.Data Analysis Techniques

*Descriptive Analytics

*Predictive Analytics

*Correlation Analysis

*Data Visualization

3. THEORITICAL ANALYSIS:-

Creating a detailed block diagram for Unleashing The Potential Of Our Youth: A Student Performance Analysis involves breaking down the process into key steps and components.

Below is a high-level block diagram outlining the main stages and elements involved in Unleashing The Potential Of Our Youth: A Student Performance Analysis.

The block diagram illustrates the end-to-end process of Unleashing The Potential Of Our Youth: A Student

Performance Analysis. starting from data collection and preprocessing to deploying the final models for Unleashing The Potential Of Our Youth: A Student Performance Analysis

3.1 Block Diagram:-

Data Collection:

- Gather relevant data sources. which may include A Student Performance Analysis like average,sum,gender,race ethnicity etc and any other factors that impact about Student Performance Analysis.

Data Preprocessing:

- Clean and preprocess the data to handle missing values. outliers. and inconsistencies. This step is essential to ensure the data is suitable for analysis.

Feature Engineering:

- Extract relevant features from the data that are likely to impact A Student Performance Analysis. This might include age, gender. Average ,sum and more.

Performance Analysis EstimationModel:

- Develop a model to Unleashing The Potential Of Our Youth: A Student Performance Analysis based on the features identified in the previous step. This could involve various techniques such as regression analysis, decision trees. or machine learning algorithms.

Performance analysis Prediction Model:

- Build a predictive model to forecast a student performance analysis for students. This model could consider time-series data and other temporal factors to make accurate predictions.

Model Evaluation:

- Evaluate the student performance analysis of both the estimation and prediction models using appropriate metrics. such as mean squared error. root mean squared error. or R-squared.

Student performance Analysis and Visualization:

- Analyze the results to gain insights into the factors influencing A Student Performance Analysis. Visualization tools can help present the findings in a more understandable format.

Model Deployment:

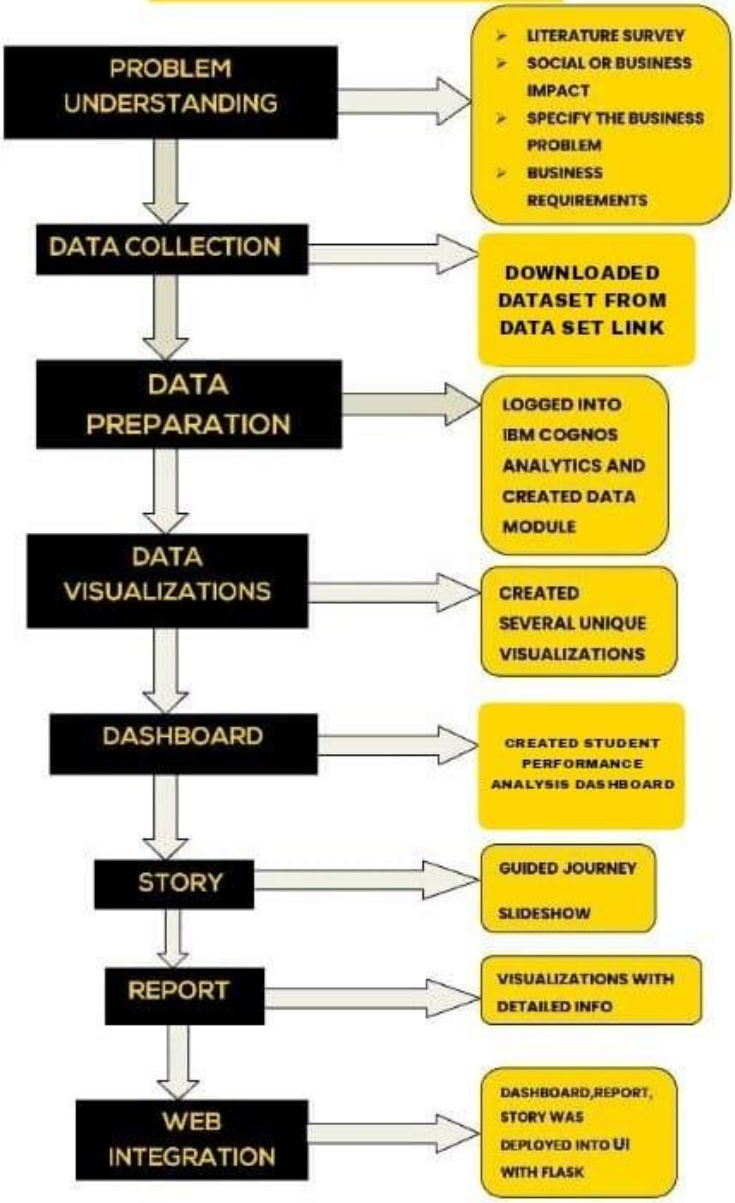
- Integrate the developed models into the Unleashing The Potential Of Our Youth: A Student Performance Analysis for estimation and prediction.

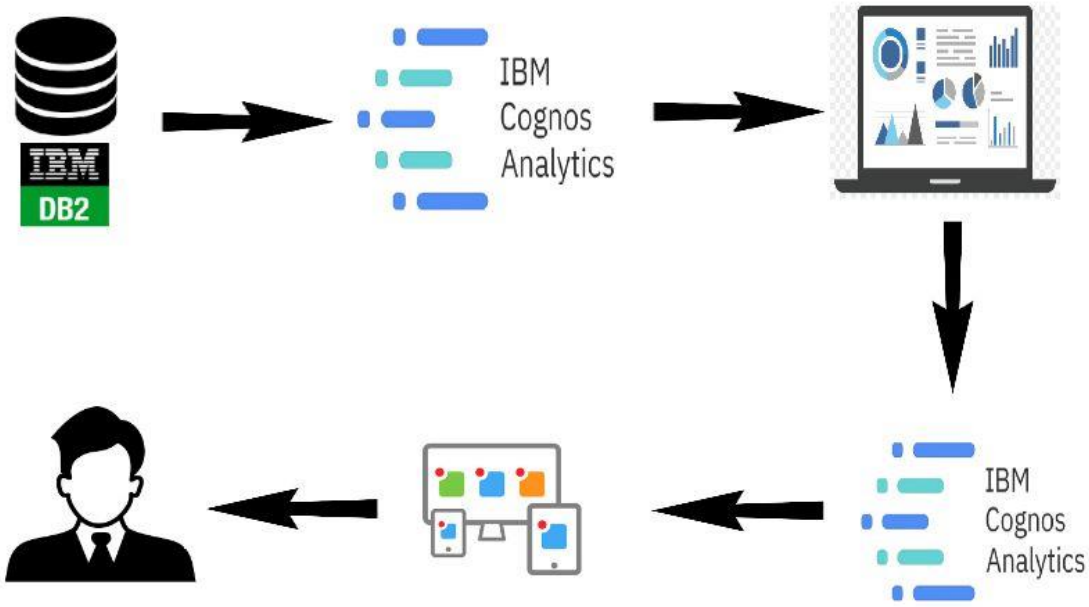
Continuous Monitoring and Updating:

- Regularly monitor the performance of the models and update them as necessary to ensure accuracy and relevance with changing student performance analysis trends and practices.

Unleashing The Potential Of Our Youth: A Student Performance Analysis

BLOCK DIAGRAM





Technical Architecture

3.2 SOFTWARE OR HARDWARE DESIGNING:-

Software Requirements:

1. IBM cognos analytics Tool.
2. Flask.
3. Integrated Development Environment (IDE)-Spyder.

Hardware Requirements:-

Minimum System Requirements(RAM-4GB,Quad core Processor Or above)

4. RESULT:-

The results are promising and astonishing as, it can be seen that:-

1.On the basis of gender, females are performing better than males;

2.On the basis of parental level of education, student's whose parents having master's degree are showing the best performance;

3.On the basis of ethnicity and race, group E had the most promising results;

4.On the basis of test preparation, student who had been prepared for the test are showing the better results;

5.On the basis of lunch, students who are having standard lunch are showing better results;

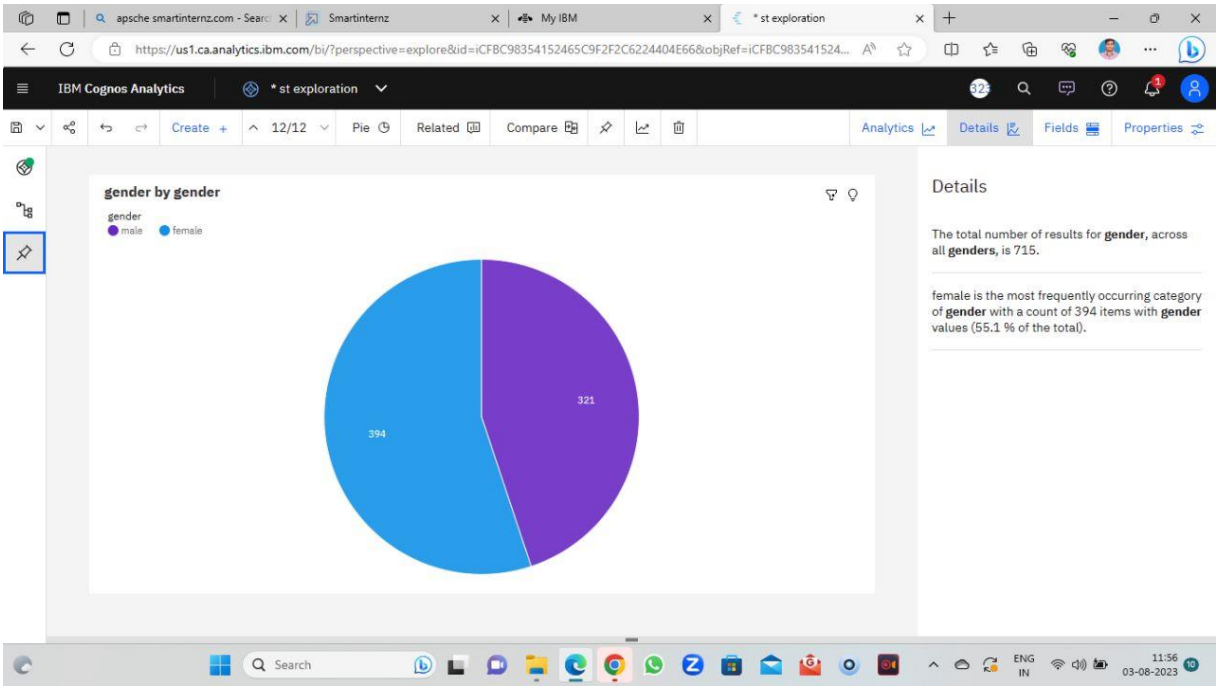
6.On the basis of the scores in three subjects, the average reading score is best, then comes the average writing score and in the last comes is the average maths score.

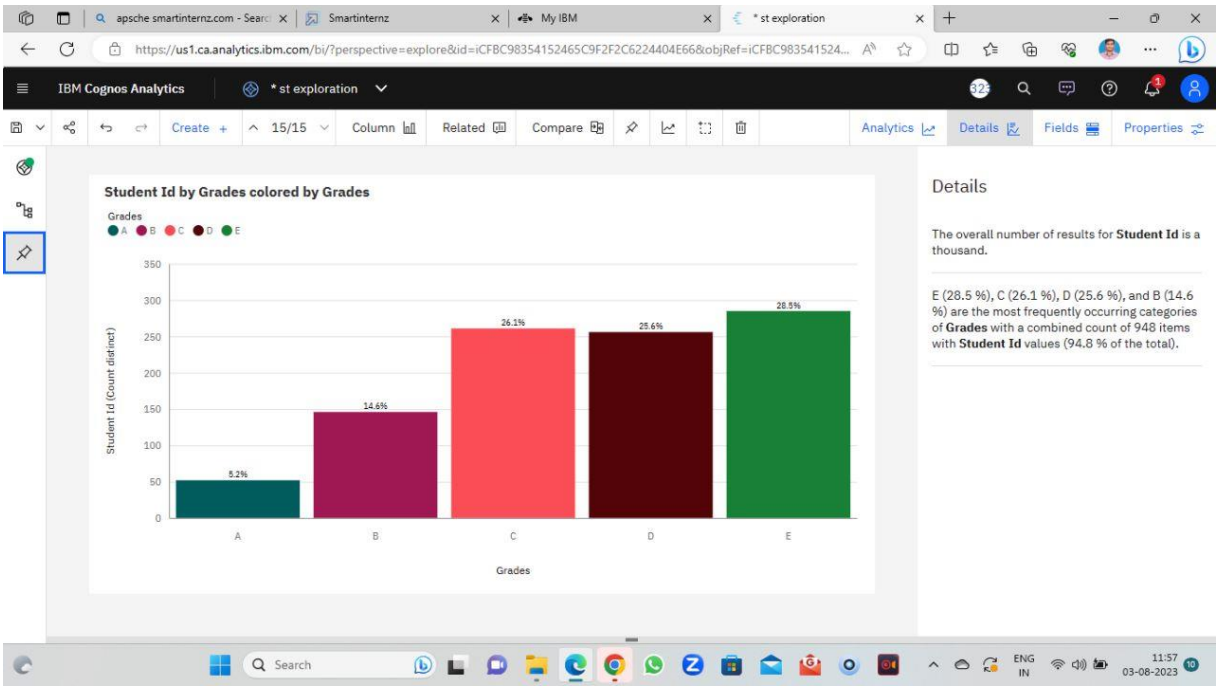
Dashboard 1 provides the information about the students' performance with respect to each domain, and it shows the same results as inferred above.

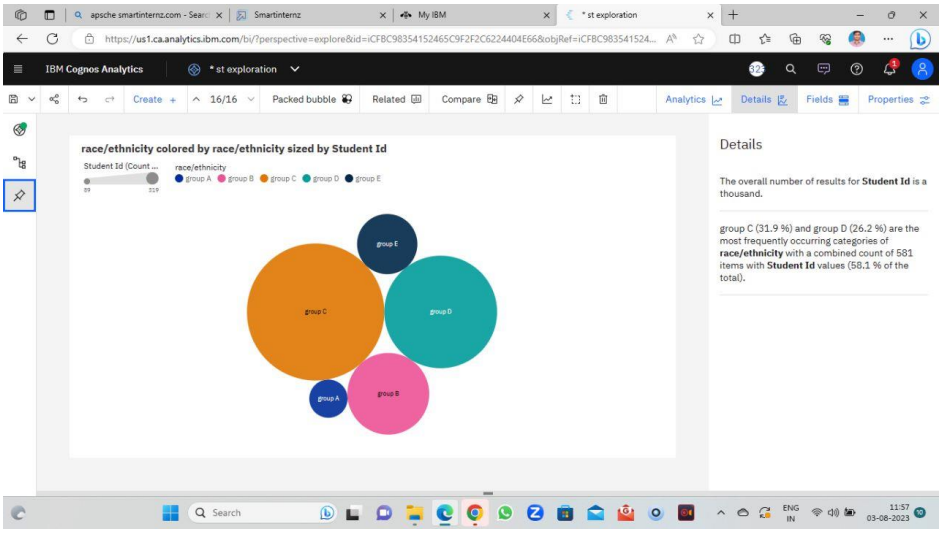
Dashboard 2 provides information about how ethnicity is related with each other dimensions. It shows the largest number of students are from Group C. Students from Group A are performing the worst in all scenarios and students from Group E are performing the best. Females are performing best in each group. Students who have completed the test preparation are performing the best from each group. Students from group E whose parental level degree is Master's degree are the best performers.

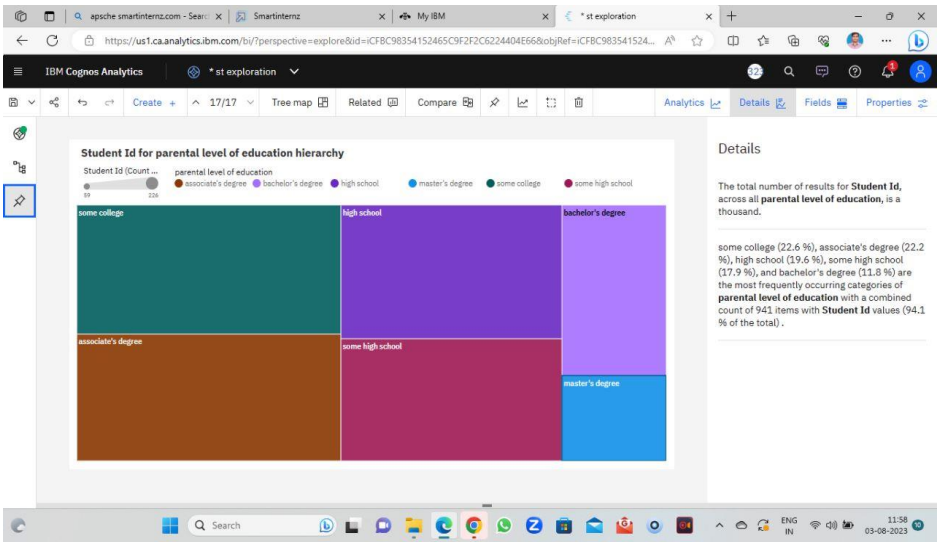
Story provides information about the student's performance. From the whole story, it can be inferred that the females from group E with standard lunch whose parental level of education is Master's degree and completed the test preparation have shown the most promising results.

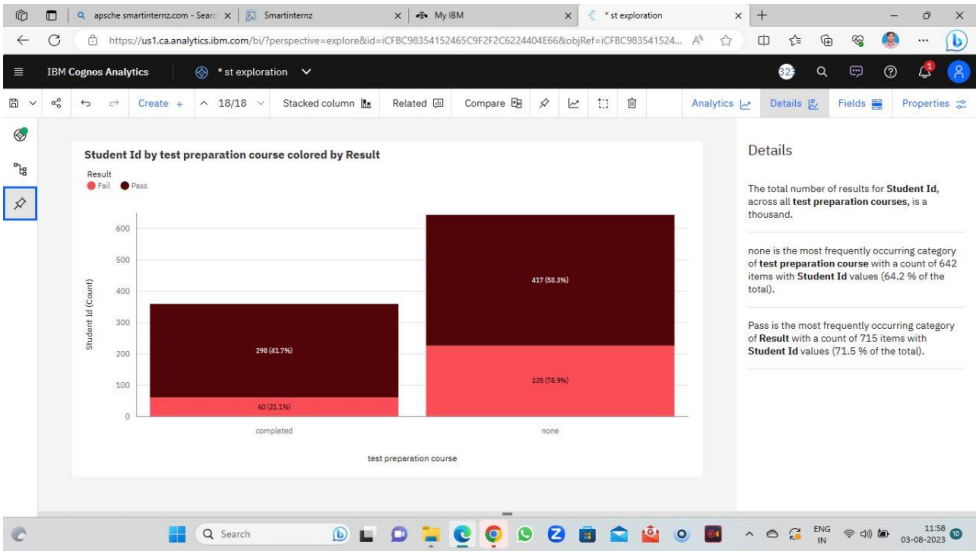
DATA VISUALIZATIONS:-

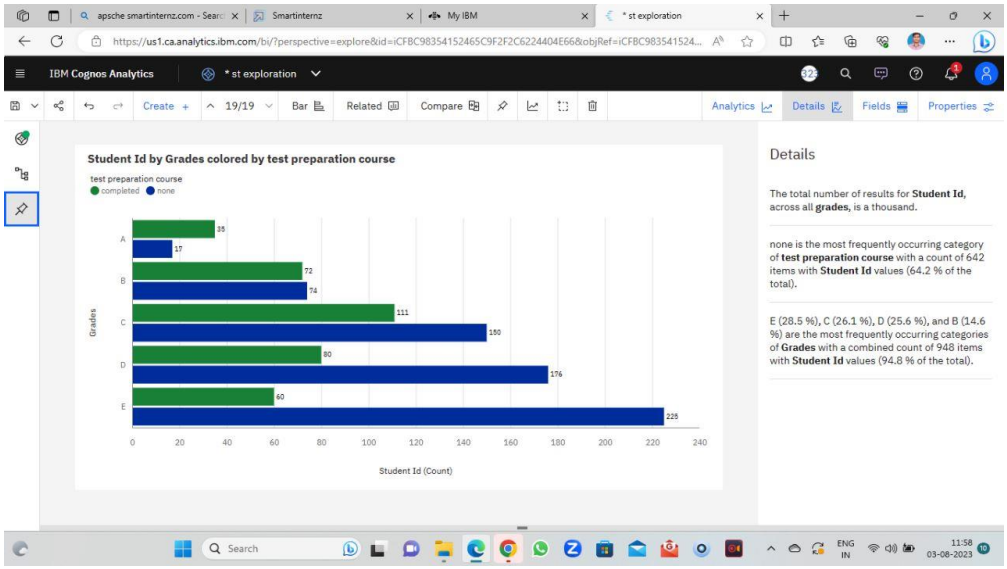


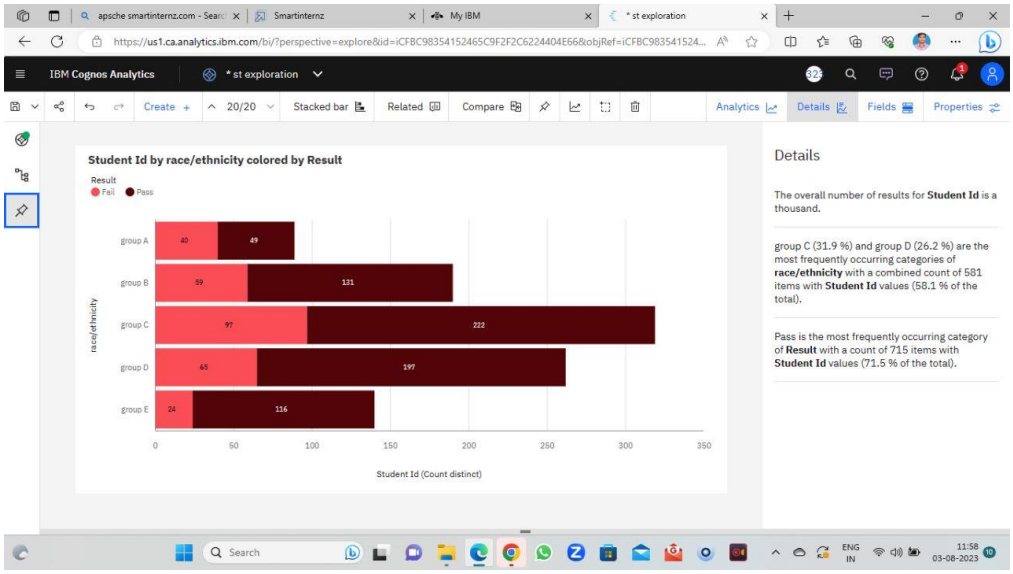


1. 
IBM Cognos Analytics
* st exploration
Create
16/16
Packed bubble
Related
Compare
Analytics
Details
Fields
Properties
race/ethnicity colored by race/ethnicity sized by Student Id
Student Id (Count ...
race/ethnicity
group A
group B
group C
group D
group E
Details
The overall number of results for Student Id is a thousand.
group C (31.9 %) and group D (26.2 %) are the most frequently occurring categories of race/ethnicity with a combined count of 581 items with Student Id values (58.1 % of the total).


IBM Cognos Analytics
* st exploration
Create
17/17
Tree map
Related
Compare
Analytics
Details
Fields
Properties
Student Id for parental level of education hierarchy
Student Id (Count ...
parental level of education
associate's degree
bachelor's degree
high school
master's degree
some college
some high school
Details
The total number of results for Student Id, across all parental level of education, is a thousand.
some college (22.6 %), associate's degree (22.2 %), high school (19.6 %), some high school (17.9 %), and bachelor's degree (11.8 %) are the most frequently occurring categories of parental level of education with a combined count of 941 items with Student Id values (94.1 % of the total) .


IBM Cognos Analytics
* st exploration
Create
18/18
Stacked column
Related
Compare
Analytics
Details
Fields
Properties
Student Id by test preparation course colored by Result
Result
Fail
Pass
Student Id (Count)
298 (61.7%)
60 (21.1%)
417 (58.3%)
225 (78.9%)
completed
none
test preparation course
Details
The total number of results for Student Id, across all test preparation courses, is a thousand.
none is the most frequently occurring category of test preparation course with a count of 642 items with Student Id values (64.2 % of the total).
Pass is the most frequently occurring category of Result with a count of 715 items with Student Id values (71.5 % of the total).


IBM Cognos Analytics
* st exploration
Create
19/19
Bar
Related
Compare
Analytics
Details
Fields
Properties
Student Id by Grades colored by test preparation course
test preparation course
completed
none
Grades
A
B
C
D
E
35
17
72
74
111
150
80
176
60
225
0
20
40
60
80
100
120
140
160
180
200
220
240
Student Id (Count)
Details
The total number of results for Student Id, across all grades, is a thousand.
none is the most frequently occurring category of test preparation course with a count of 642 items with Student Id values (64.2 % of the total).
E (28.5 %), C (26.1 %), D (25.6 %), and B (14.6 %) are the most frequently occurring categories of Grades with a combined count of 948 items with Student Id values (94.8 % of the total).


IBM Cognos Analytics
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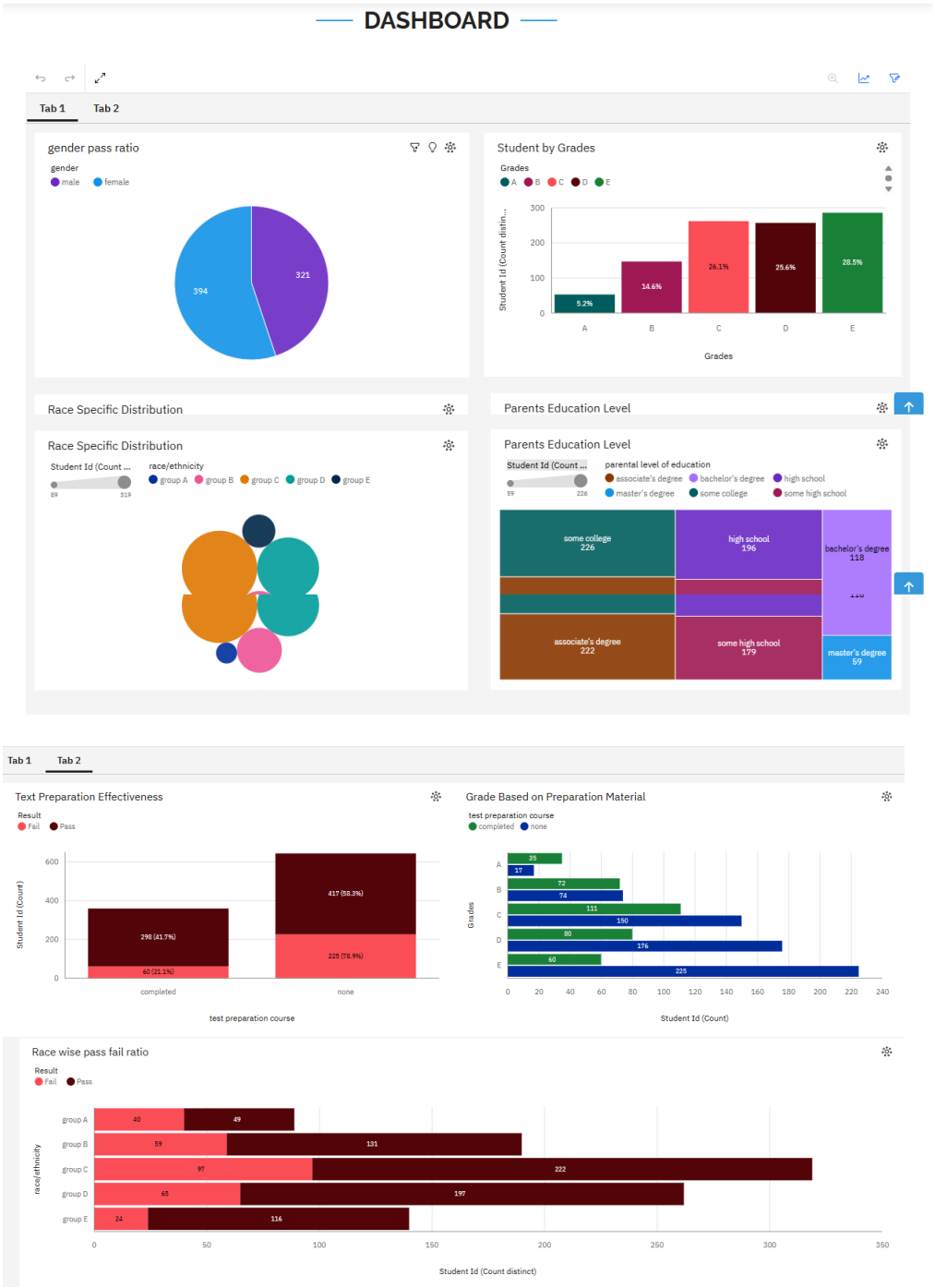
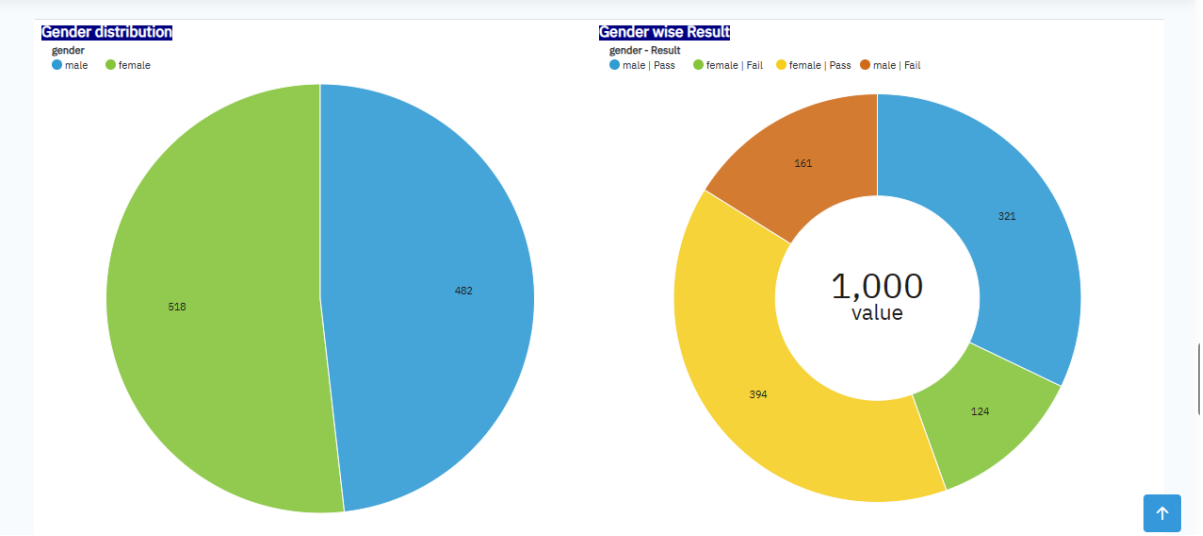
Create
20/20
Stacked bar
Related
Compare
Analytics
Details
Fields
Properties
Student Id by race/ethnicity colored by Result
Result
Fail
Pass
race/ethnicity
group A
group B
group C
group D
group E
40
49
59
131
97
222
65
197
24
116
0
50
100
150
200
250
300
350
Student Id (Count distinct)
Details
The overall number of results for Student Id is a thousand.
group C (31.9 %) and group D (26.2 %) are the most frequently occurring categories of race/ethnicity with a combined count of 581 items with Student Id values (58.1 % of the total).
Pass is the most frequently occurring category of Result with a count of 715 items with Student Id values (71.5 % of the total).

STUDENT PERFORMANCE ANALYSIS DASHBOARD:-



REPORT

(PAGE 1)



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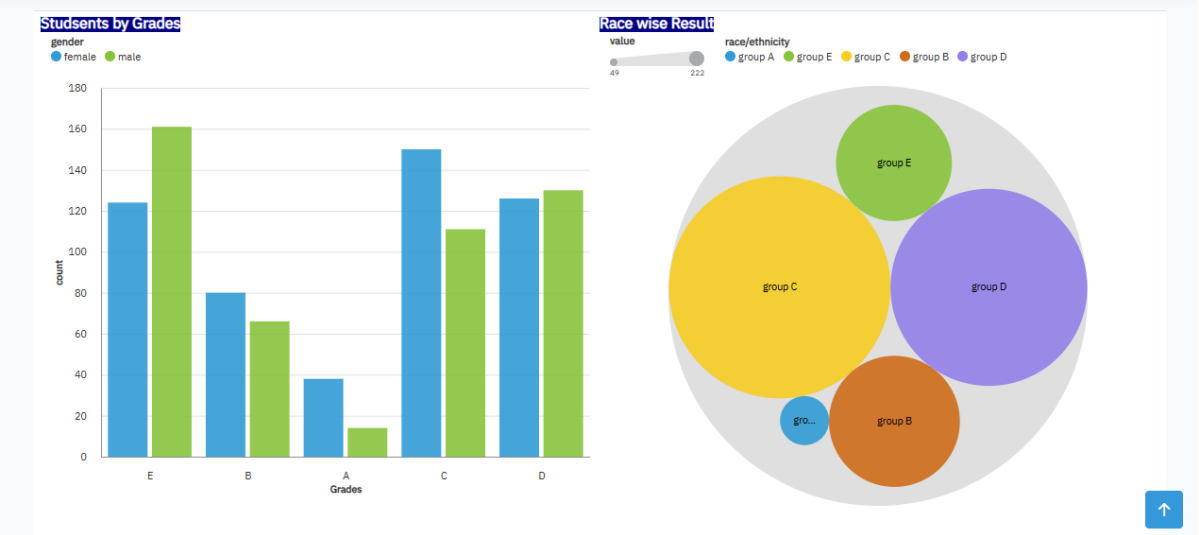

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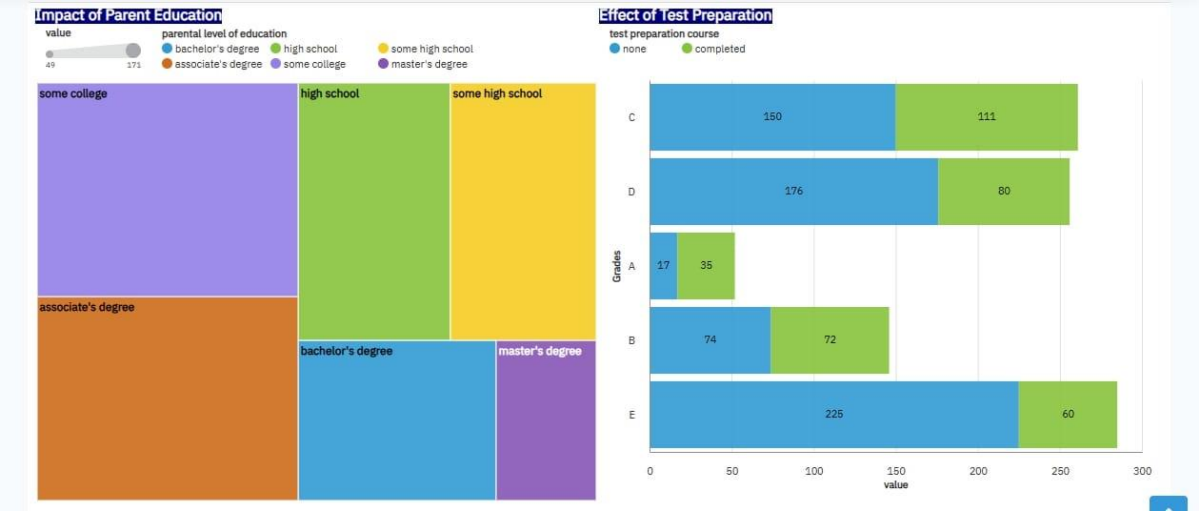
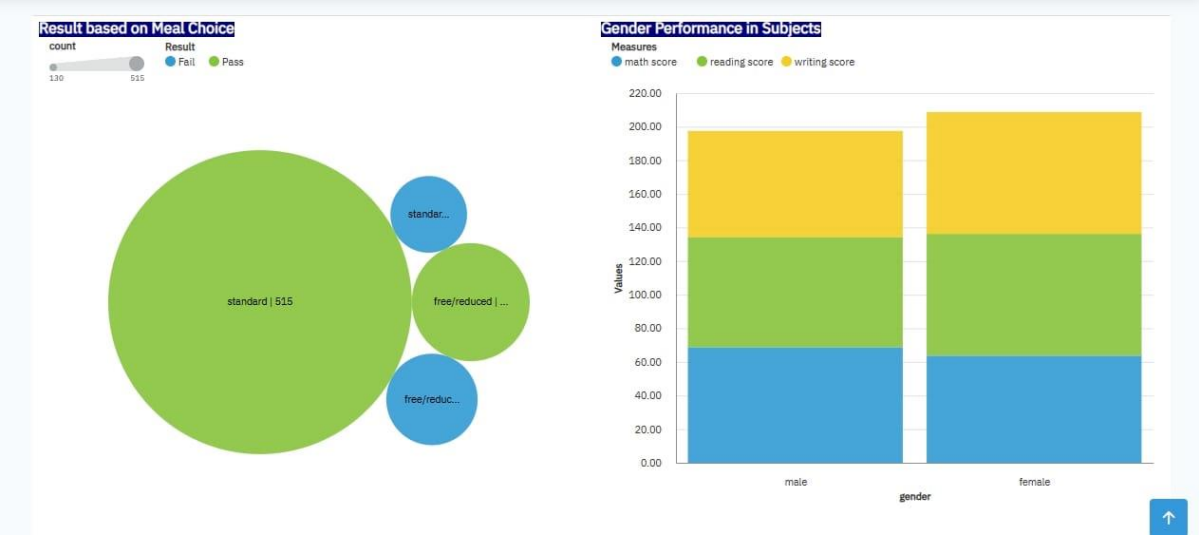
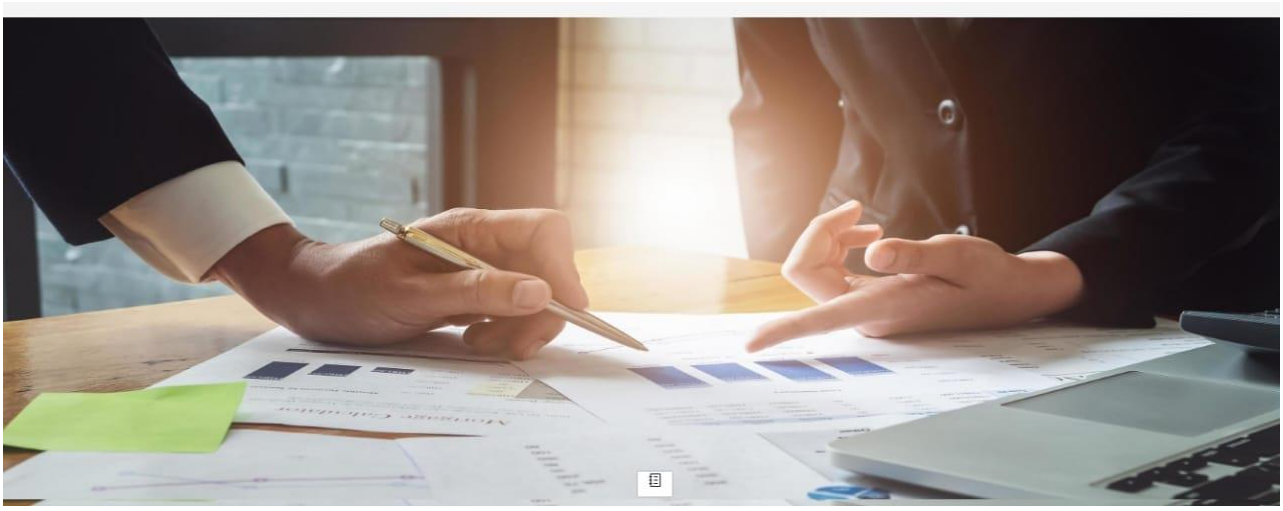
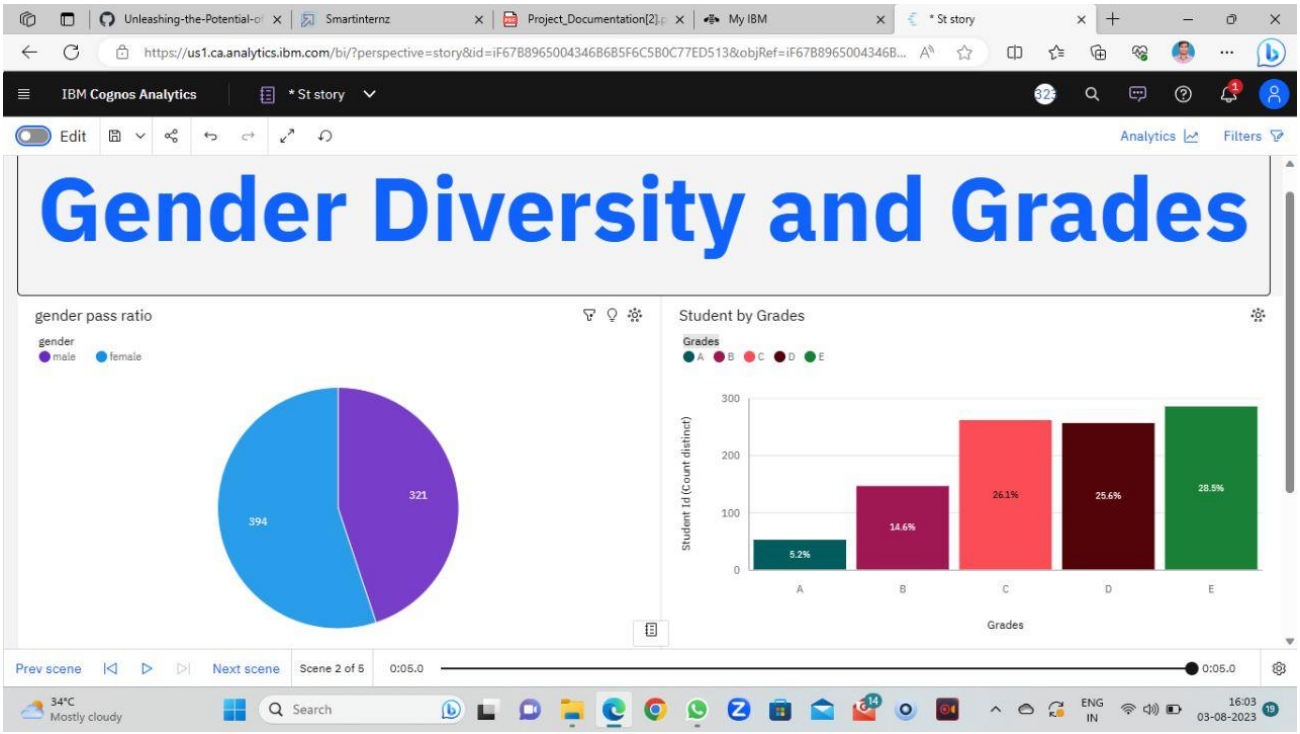

Impact of Parent Education
value
49
171
parental level of education
bachelor's degree
high school
some high school
associate's degree
some college
master's degree
some college
high school
some high school
associate's degree
bachelor's degree
master's degree
Effect of Test Preparation
test preparation course
none
completed
Grades
C
D
A
B
E
150
111
176
80
17
35
74
72
225
60
0
50
100
150
200
250
300
value

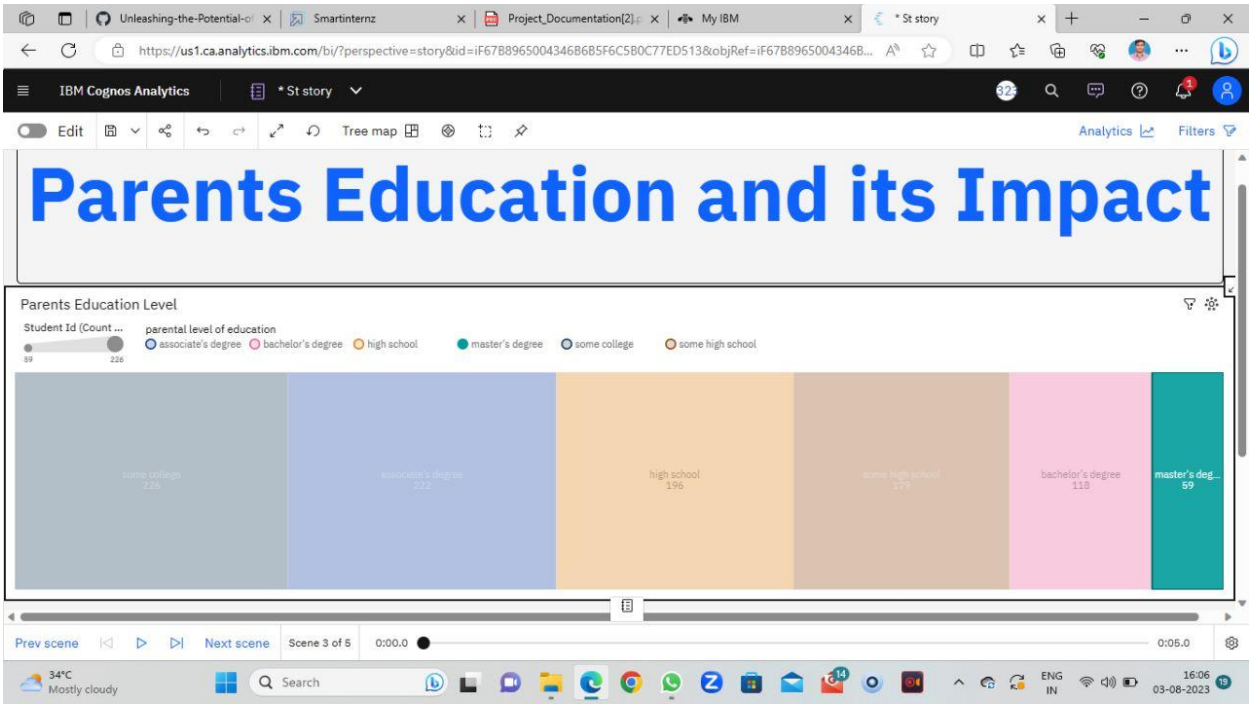
(PAGE 4)


Result based on Meal Choice
count
130
515
Result
Fail
Pass
standard | 515
standar...
free/reduced | ...
free/reduc...
Gender Performance in Subjects
Measures
math score
reading score
writing score
Values
220.00
200.00
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
male
female
gender

STORY (SLIDESHOW)



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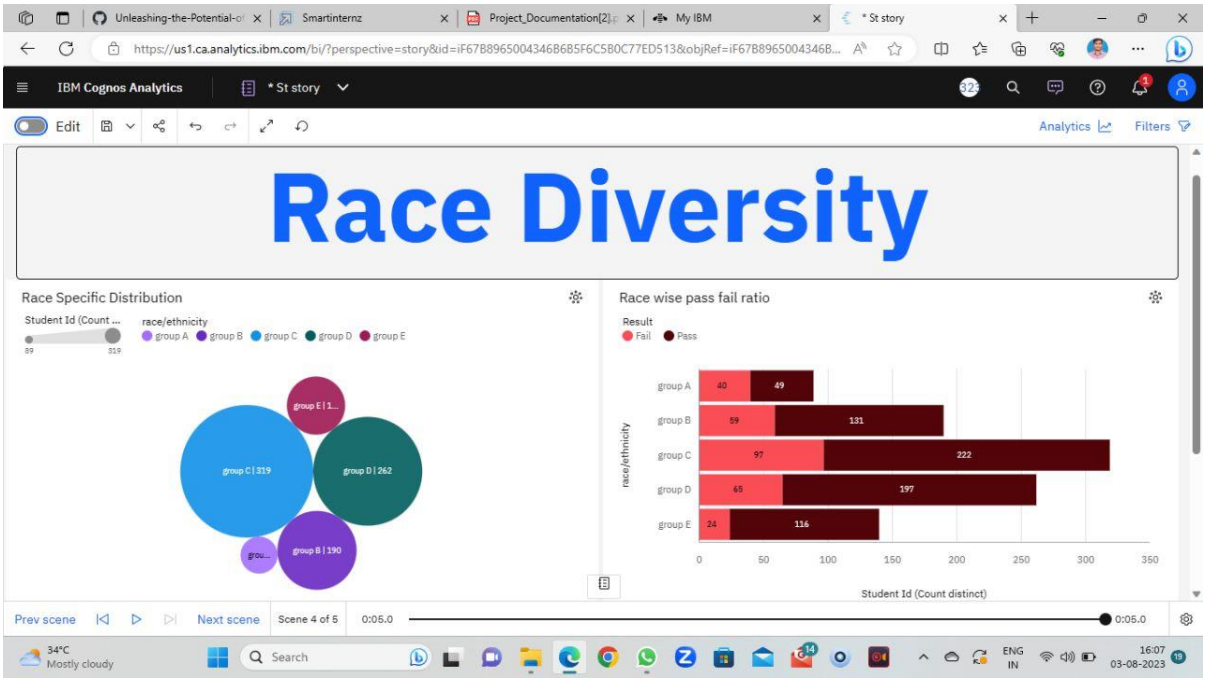
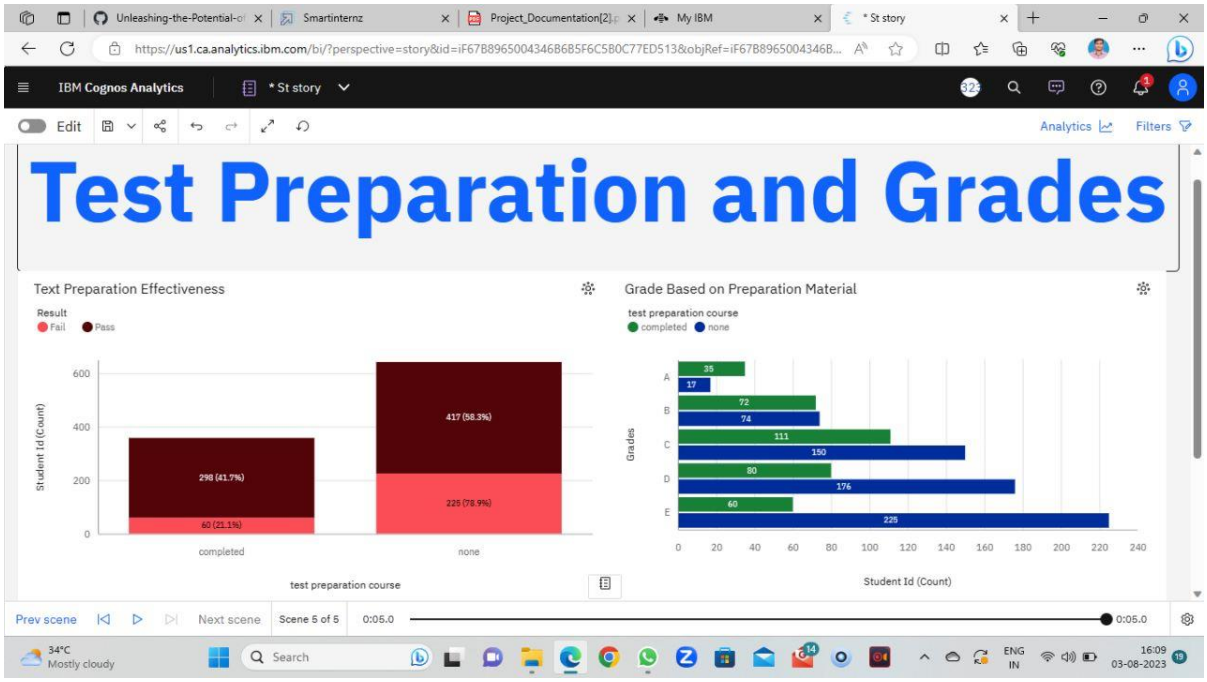
Edit
Tree map
Analytics
Filters
Parents Education and its Impact
Parents Education Level
Student Id (Count ...
parental level of education
associate's degree
bachelor's degree
high school
master's degree
some college
some high school
some college 226
associate's degree 222
high school 196
some high school 179
bachelor's degree 118
master's deg... 59
Prev scene
Next scene
Scene 3 of 5
0:00.0
0:05.0


IBM Cognos Analytics
* St story
Edit
Analytics
Filters
Race Diversity
Race Specific Distribution
Student Id (Count ...
race/ethnicity
group A
group B
group C
group D
group E
group C | 319
group D | 262
group B | 190
Race wise pass fail ratio
Result
Fail
Pass
group A 40 49
group B 59 131
group C 97 222
group D 65 197
group E 24 116
race/ethnicity
0 50 100 150 200 250 300 350
Student Id (Count distinct)
Prev scene
Next scene
Scene 4 of 5
0:05.0
0:05.0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Smartinternz
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My IBM
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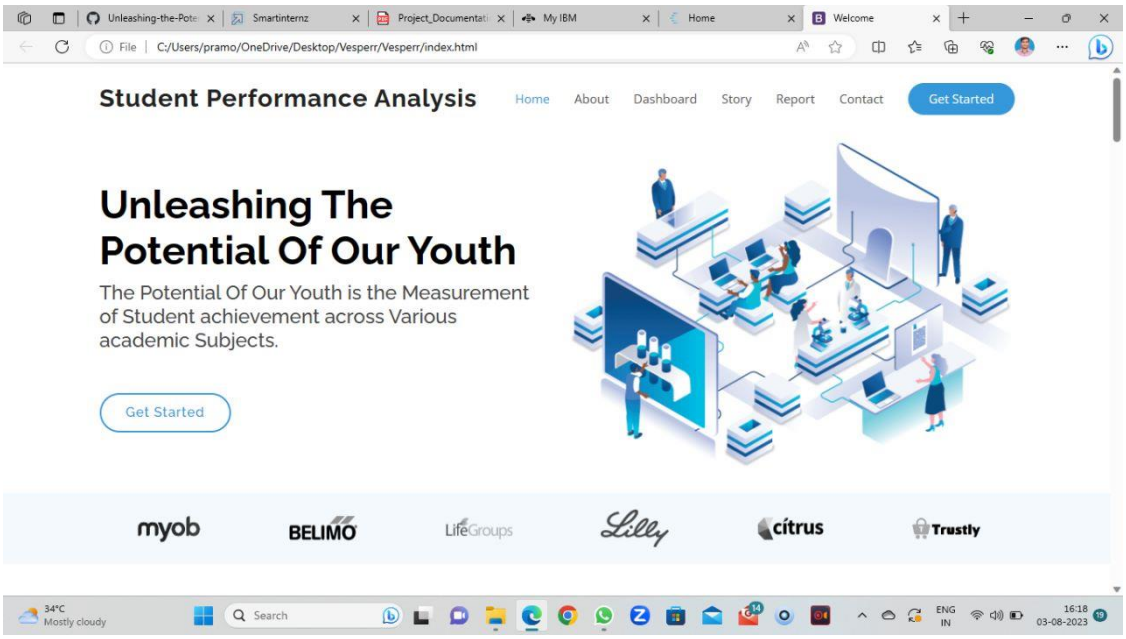
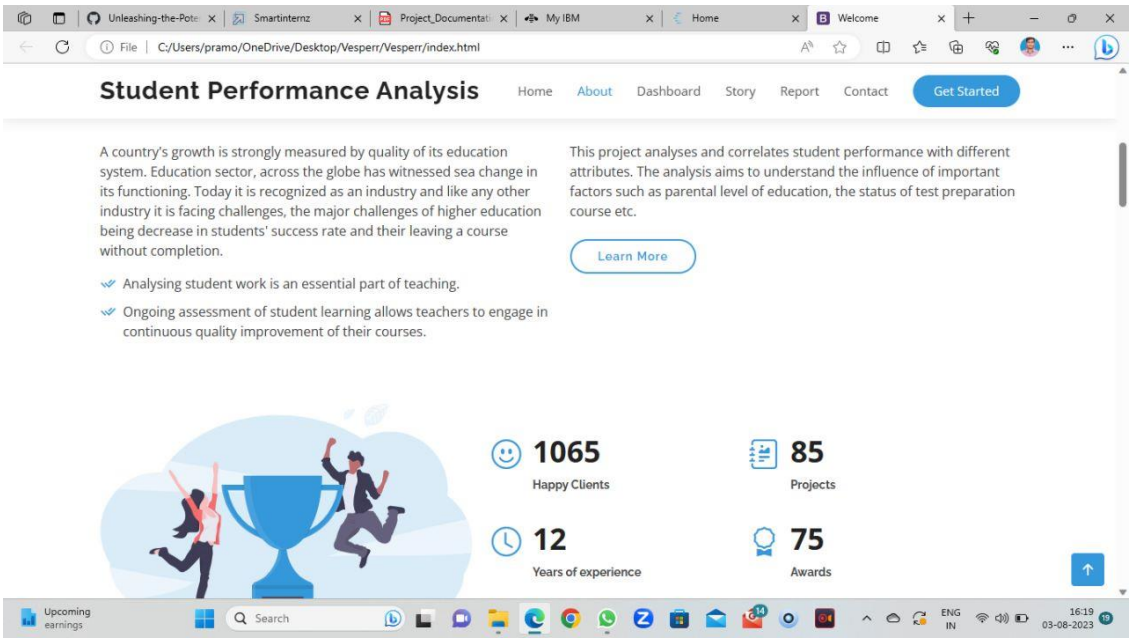
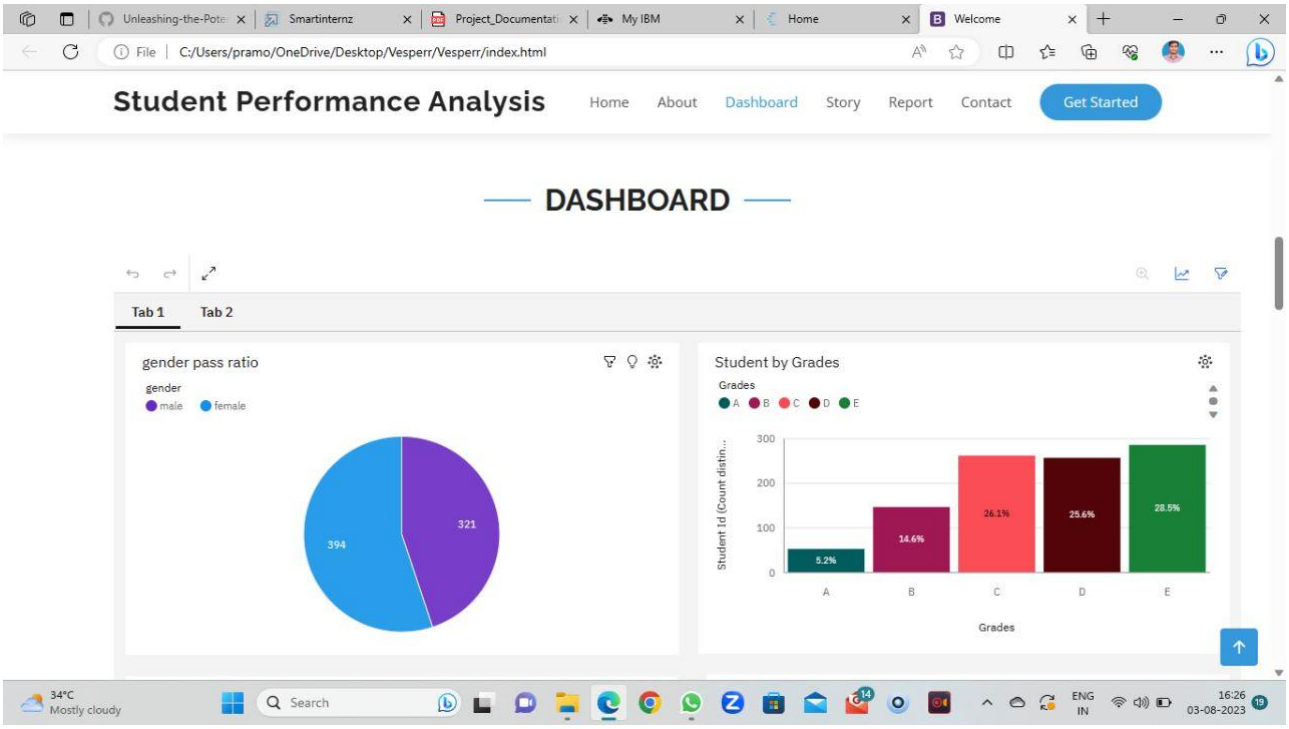
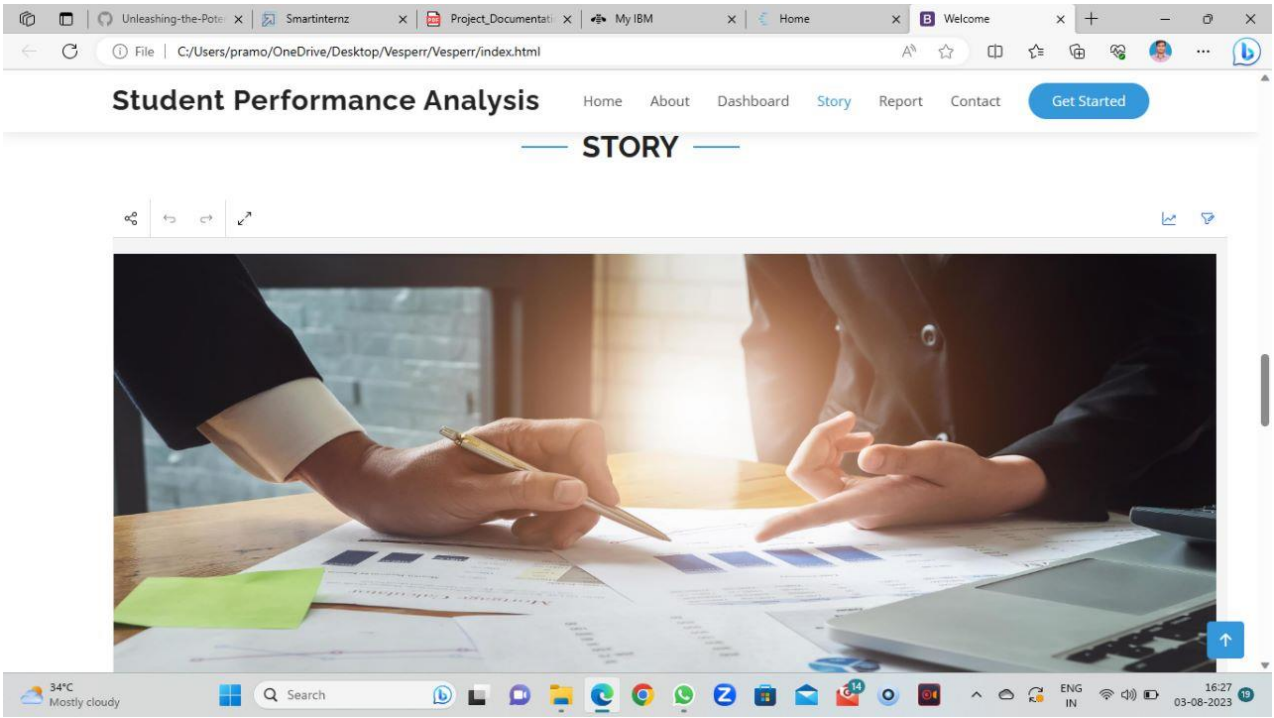
IBM Cognos Analytics
* St story
Edit
Analytics
Filters
Test Preparation and Grades
Text Preparation Effectiveness
Result
Fail
Pass
Student Id (Count)
600
400
200
0
298 (41.7%)
60 (21.1%)
417 (58.3%)
225 (78.9%)
completed
none
test preparation course
Grade Based on Preparation Material
test preparation course
completed
none
Grades
A
B
C
D
E
35
17
72
74
111
150
80
176
60
225
0
20
40
60
80
100
120
140
160
180
200
220
240
Student Id (Count)
Prev scene
Next scene
Scene 5 of 5
0:05.0
0:05.0
34°C
Mostly cloudy
Search
ENG
IN
16:09
03-08-2023

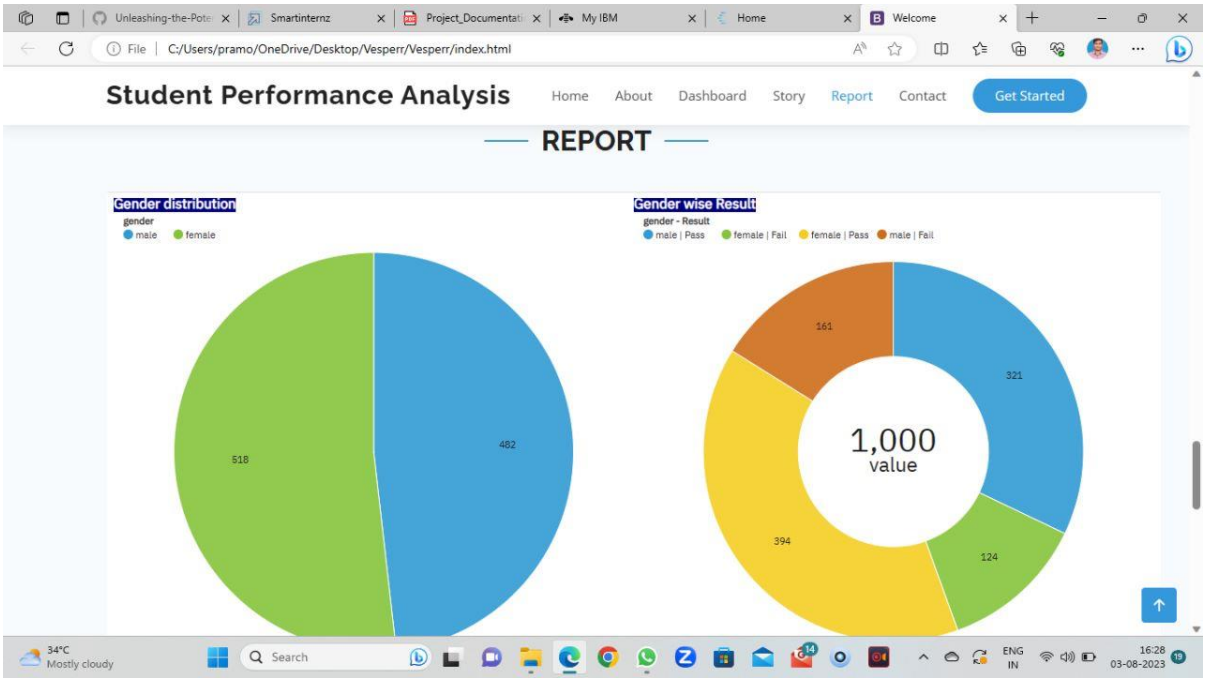
WEB INTEGRATION:

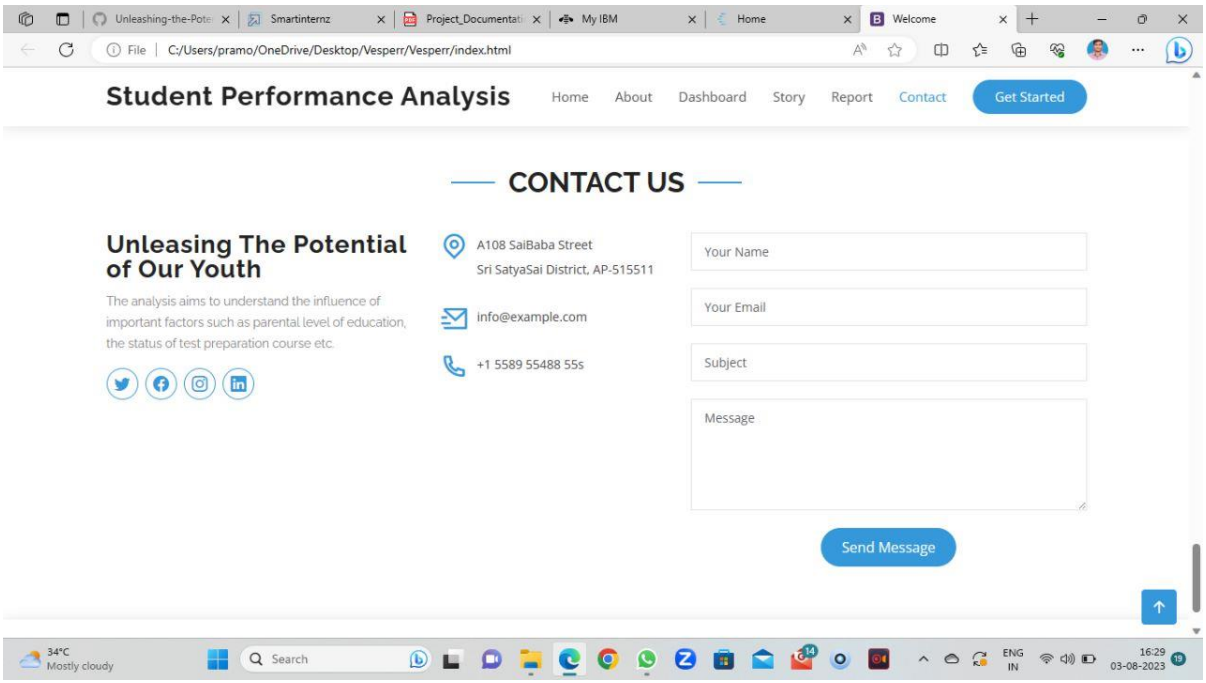





Student Performance Analysis
Home
About
Dashboard
Story
Report
Contact
Get Started
DASHBOARD
Tab 1
Tab 2
gender pass ratio
gender
male
female
394
321
Student by Grades
Grades
A
B
C
D
E
Student Id (Count distin...
300
200
100
0
5.2%
14.6%
26.1%
25.6%
28.5%
Grades


Student Performance Analysis
Home
About
Dashboard
Story
Report
Contact
Get Started
STORY


Student Performance Analysis
Home
About
Dashboard
Story
Report
Contact
Get Started
REPORT
Gender distribution
gender
male
female
518
482
Gender wise Result
gender - Result
male | Pass
female | Fail
female | Pass
male | Fail
161
321
1,000
value
394
124


Student Performance Analysis
Home
About
Dashboard
Story
Report
Contact
Get Started
CONTACT US
Unleasing The Potential of Our Youth
The analysis aims to understand the influence of important factors such as parental level of education, the status of test preparation course etc.
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5. ADVANTAGES:-

1. Data-Driven Insights.
2. Early Intervention.
3. Personalised Learning.
4. Collaboration and Partnerships.
5. Evidence-based Decision Making.

6. DISADVANTAGES:-

Data Privacy Concerns.

1. Data Quality and Availability.
2. Privacy and Ethical Considerations.
3. Overemphasis on Quantitative Measures.
4. Interpretation and Bias.
5. Implementation and Adoption.

6. APPLICATIONS:-

"Unleashing the Potential of Our Youth: A Student Performance Analysis" project has several valuable applications in the student performance analysis and beyond.

1. Education Policy Development.
2. Student Support Systems.
3. Targeted Interventions and Support.
4. Parental Involvement and Support.
5. Continuous Improvement and Assessment.

7. CONCLUSION:-

In conclusion, the project on "Unleashing the Potential of Our Youth: A Student Performance Analysis" has demonstrated the immense potential of data analytics in revolutionising education. By leveraging data-driven insights, personalised learning approaches, early intervention strategies, equitable resource allocation, and evidence-based policy making, we can create an inclusive and effective educational system that empowers our youth to thrive academically and fulfil their potential. Through continued dedication to data analytics and evidence-based decision making, we can pave the way for a brighter future, where every student has the

opportunity to succeed and contribute meaningfully to society.

8. FUTURE SCOPE:-

In order to release the potential of our children, continuing study and constant improvement are built upon an examination of student performance. The analysis presents several possibilities for further research and development, including:

- Studies that are longitudinal can shed light on the long-term effects of educational interventions on the potential of students. Monitoring students' growth over a long period enables a greater comprehension of the elements that contribute to their success and development.

- The confluence of different characteristics, including gender, ethnicity, socioeconomic background, and disability in connection to student potential, might be explored in future evaluations of student performance. Developing more inclusive tactics and treatments requires an understanding of how these overlapping identities affect educational results.

- *Technology Integration:* Examining how technology might help students reach their full potential is part of the future scope of student performance analysis. Investigating how online platforms, data analytics, and digital learning technologies may enhance student engagement and performance is part of this.

- *Global and Cross-Cultural Perspectives:* Research that compares individuals from various nations and cultural backgrounds can shed light on the most efficient ways to maximise student potential. The creation of international frameworks and best practices may be influenced by gaining an understanding of the cultural environment and recognising effective practices from other educational systems.

- *Well-being and mental health:* As the value of these aspects is increasingly recognised, future evaluations of student performance can go deeper to comprehend how they affect the potential of students. Investigating the link between resilience, stress management, and academic achievement can inform interventions that prioritise holistic well-being.

- Future evaluations of student performance might examine the relationship between educational results and professional preparedness in light of the changing employment market. The integration of pertinent curriculum and instructional techniques may be guided by evaluating the learning of future abilities like critical thinking, problem-solving, and adaptability.

- *Collaboration and Knowledge Sharing:* The project can facilitate collaboration and knowledge sharing among educational institutions, researchers, policymakers, and stakeholders. By establishing partnerships and platforms for sharing best practices, successful interventions, and research findings, the project can contribute to a collective effort to unleash the potential of youth on a broader scale.

- *Integration of Additional Data Sources:* The project can explore the integration of additional data sources to enrich the analysis. This can include data from co-curricular activities, community engagement, career aspirations, or parental involvement. Incorporating such data can provide a holistic view of students' lives and enable a more comprehensive analysis of the factors influencing their potential and success.

-:PROJECT REPORT:-