UNLEASHING THE POTENTIAL OF OUR YOUTH: A STUDENT PERFORMANCE ANALYSIS

CSE

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INTRODUCTION

- The "Student Performance Analysis and Improvement Recommendations" project is a data-driven initiative that harnesses the power of IBM Cognos to comprehensively examine academic performance at the individual, class, and school levels.

- By amalgamating diverse data sources, including grades, test scores, attendance records, and surveys, the project seeks to unveil academic strengths and weaknesses, while also identifying the key determinants of student success or challenges.

- Leveraging IBM Cognos for analysis, the project customizes instructional strategies and prescribes targeted interventions to enhance academic achievement

ABSTRACT

- In a world where a nation's progress is intrinsically tied to the quality of its educational system, the global education landscape faces mounting challenges, including declining student success rates and elevated dropout rates.
- This project, underpinned by a dataset featuring the examination scores of 1000 students from a school, delves deep into the correlation between student performance and various factors, such as parental education levels and test preparation.
- The primary objective is to unravel the intricate web of influences on academic outcomes.
- Ultimately, this analysis endeavors to illuminate the complex dynamics that underlie student performance in education.

DRAWBACKS IN EXISTING SYSTEM

- student performance modeling in educational data mining (EDM), a challenging research topic.
- Multiple non-linear factors influence performance, attracting researchers.
- Existing EDM surveys primarily focus on predictor identification and modeling, lacking a specific focus on class room based education and temporal prediction.
- This systematic review addresses these gaps, analyzing 140 studies to highlight efficient prediction during the course but emphasizing the need for pre-course prediction improvement.

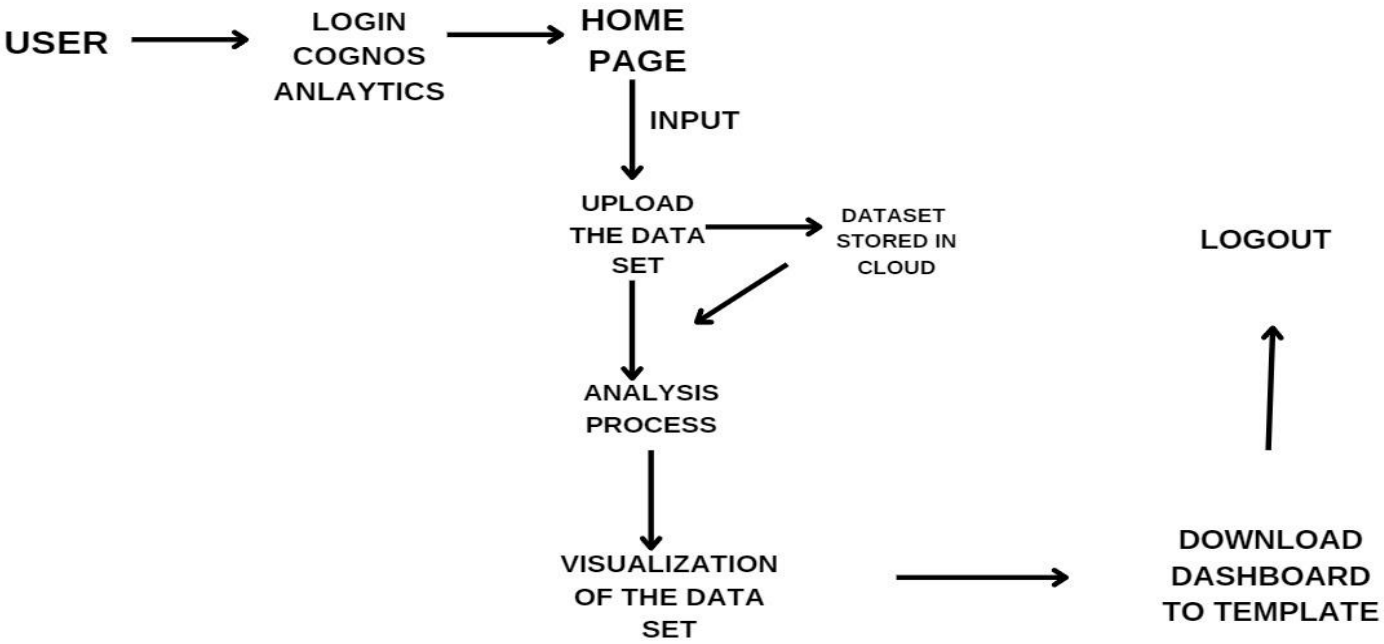
PROPOSED SOLUTION

- The project aims to enhance academic performance through data-driven analysis, pinpointing strengths and weaknesses in student classes and schools, and providing actionable recommendations for improvement.
- Collect and analyze data with IBM Cognos to track student progress, identify contributing factors, and visualize performance via Flask-based UI with dashboards and reports.
- It acknowledges a broader trend of educators and institutions adopting similar projects and engaging with resources such as webinars, tutorials, and research papers to enhance academic outcomes.

ADVANTAGES

- The system enables in-depth analysis of extensive data from various sources including grades, test scores, attendance, and surveys.
- It provides personalized instruction and suggests interventions based on a thorough analysis of each student's data.
- The data-driven approach facilitates informed decisions regarding curriculum design, instructional methods, and allocation of resources.
- It allows for early detection of students facing challenges, enabling timely and targeted interventions.

DATA FLOW DIAGRAM



SYSTEM SPECIFICATION

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HARDWARE USED:

Processor : Intel core i5-4200Ucpu

Ram : 8GB

Hard Disk : 1TB

SOFTWARE USED:

Operating system : Windows 11/10

Program Tool : IBM Cognos , IBM Cloud

LITERATURE SURVEY

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1. STUDENT PERFORMANCE ANALYSIS USING MACHINE LEARNING TOOLS

Authors: Atul Prakash Prajapati, Sanjeev Kr. Sharma, Manish Kr. Sharma

Year of Publication: 10 Oct 2018

This paper presents a survey of existing tools and techniques that have been designed in this area. This Paper uses a machine learning tool for analysing and predicting the results based on various factors that can improve the student's performance. Section methodology describes the machine learning tool and the approach for choosing a data set.

LITERATURE SURVEY

2. STUDENT PERFORMANCE ANALYSIS SYSTEM USING DATA MINING

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Authors: Disha Kalambe, Anita Labade, Surabhi Khedekar, Komal Mahajan

Year of Publication: 03 Mar 2019

In this age of computerization, education has also re-constructed itself and is not limited to old lecture method. Nowadays, lots of data is collected in educational databases, but it remains unutilized. In order to get required benefits from such a big data, powerful tools are required. Data mining is an emerging powerful tool for analysis. The previous system doesn't give the guidance to student based on the overall performance

LITERATURE SURVEY

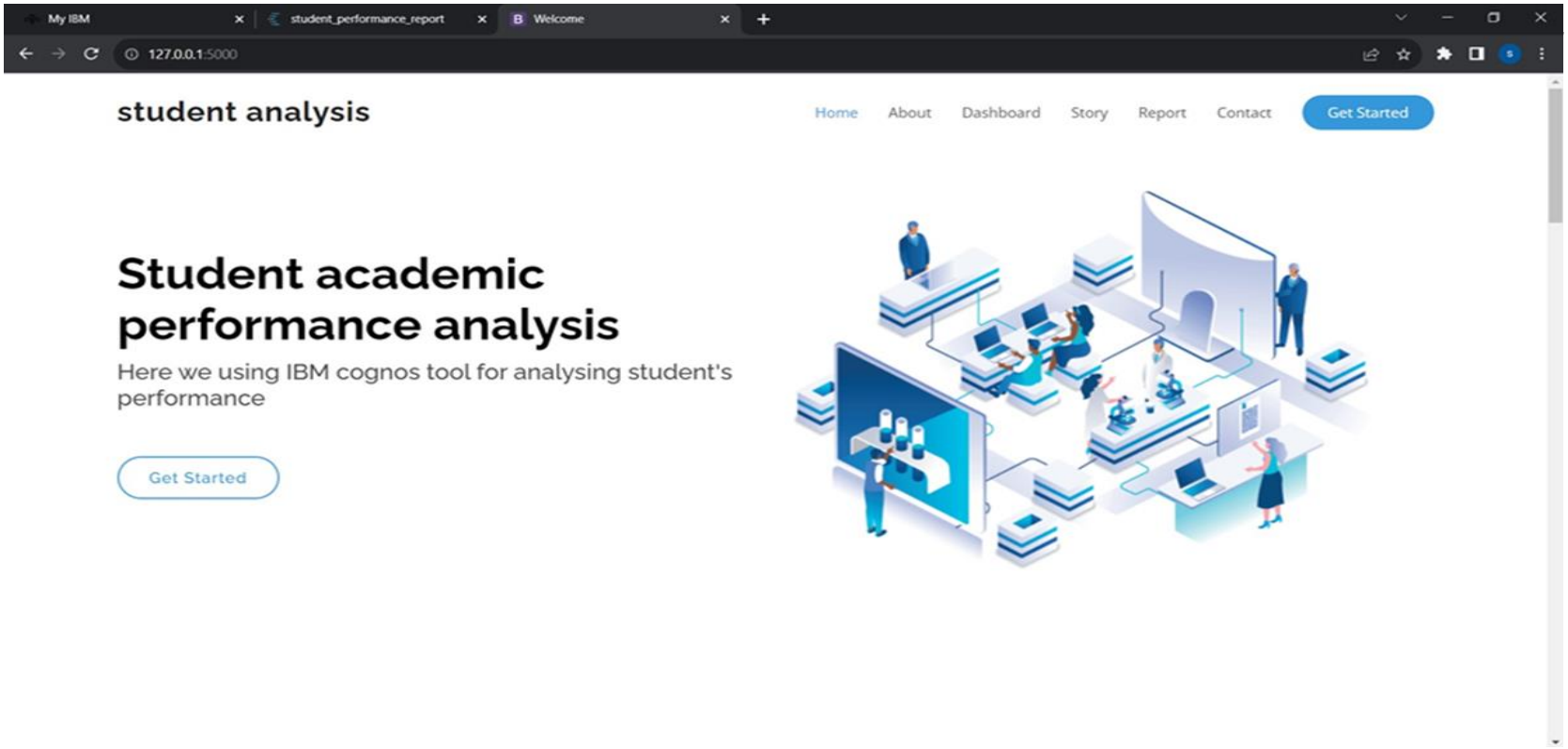
3. STUDENT PERFORMANCE ANALYSIS AND LEARNING ANALYTICS

Authors: Ismail duru, Gulustan Dogan, Banu Diribin Hossin

Year of Publication: 08 Dec 2020

In this paper, we aimed to guide about latest development and studies about students performance analysis and Learning Analytics in Massively Open Online Courses (MOOCs) for researchers related with the topics. For this purpose short review for usage of performance prediction and Learning Analytics in MOOCs is investigated. In our study, to help readers get familiar with our topic, firstly NM2023TMID01992 4 literature information about basic concepts are explained.

RESULT AND DISCUSSION



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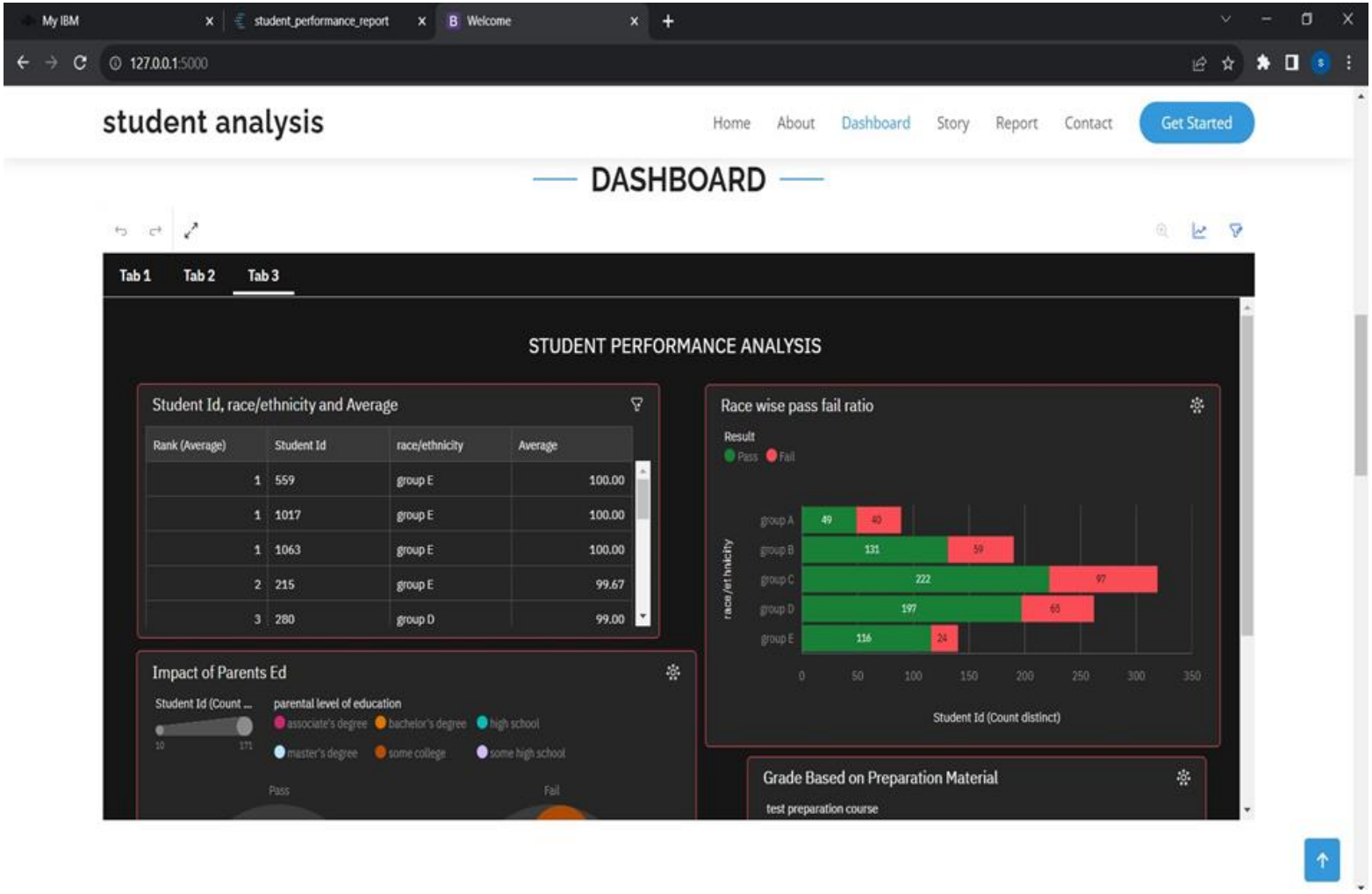
My IBM
student_performance_report
Welcome
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student analysis
Home
About
Dashboard
Story
Report
Contact
Get Started
DASHBOARD
Tab 1
Tab 2
Tab 3
STUDENT PERFORMANCE ANALYSIS
Student Id, race/ethnicity and Average
Rank (Average)
Student Id
race/ethnicity
Average
1 559 group E 100.00
1 1017 group E 100.00
1 1063 group E 100.00
2 215 group E 99.67
3 280 group D 99.00
Race wise pass fail ratio
Result
Pass
Fail
group A
group B
group C
group D
group E
race/ethnicity
49
40
131
59
222
97
197
65
116
24
0
50
100
150
200
250
300
350
Student Id (Count distinct)
Impact of Parents Ed
Student Id (Count ...
parental level of education
associate's degree
bachelor's degree
high school
master's degree
some college
some high school
Pass
Fail
Grade Based on Preparation Material
test preparation course

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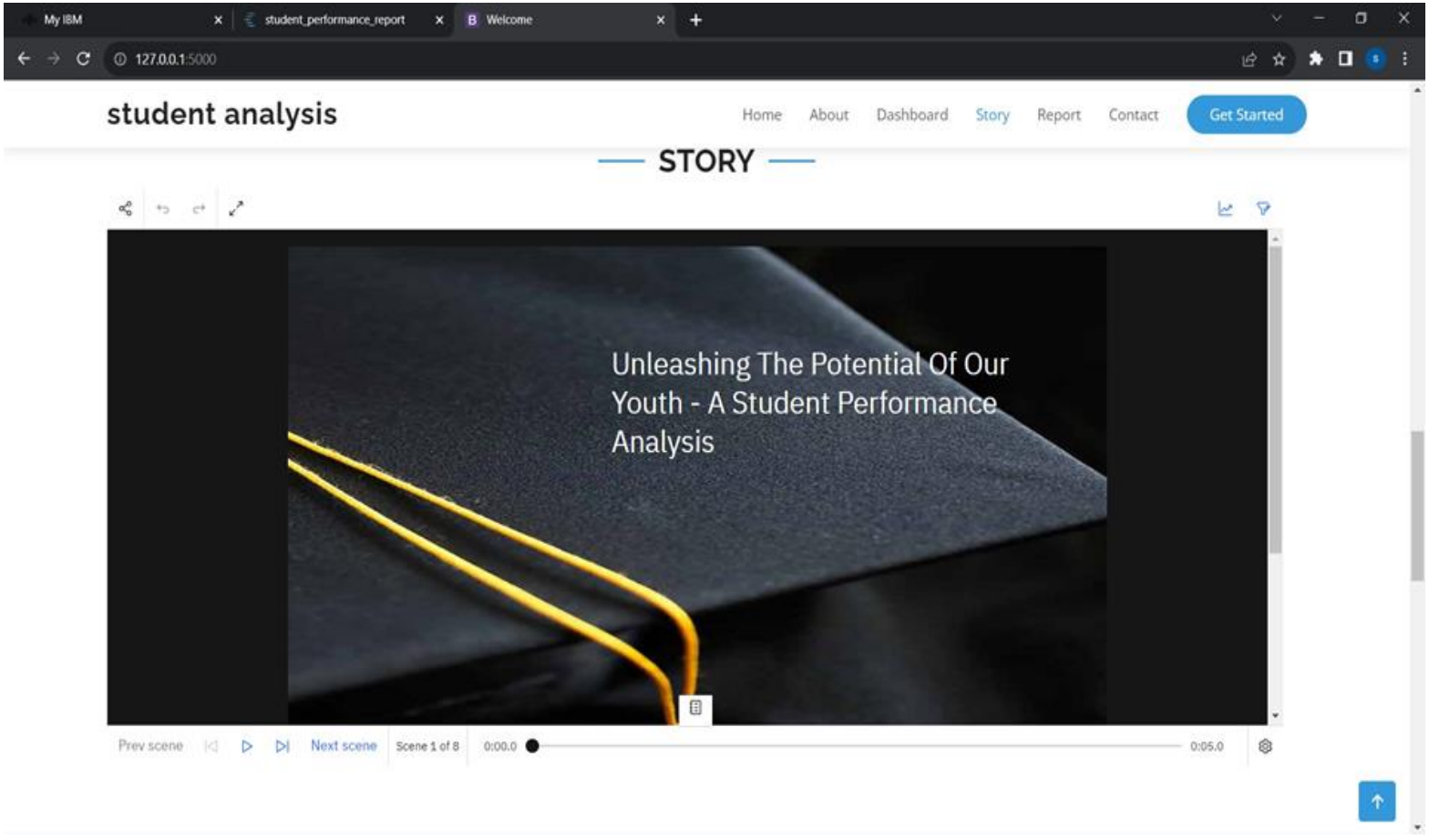
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student analysis
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Dashboard
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Report
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Get Started
STORY
Unleashing The Potential Of Our Youth - A Student Performance Analysis
Prev scene
Next scene
Scene 1 of 8
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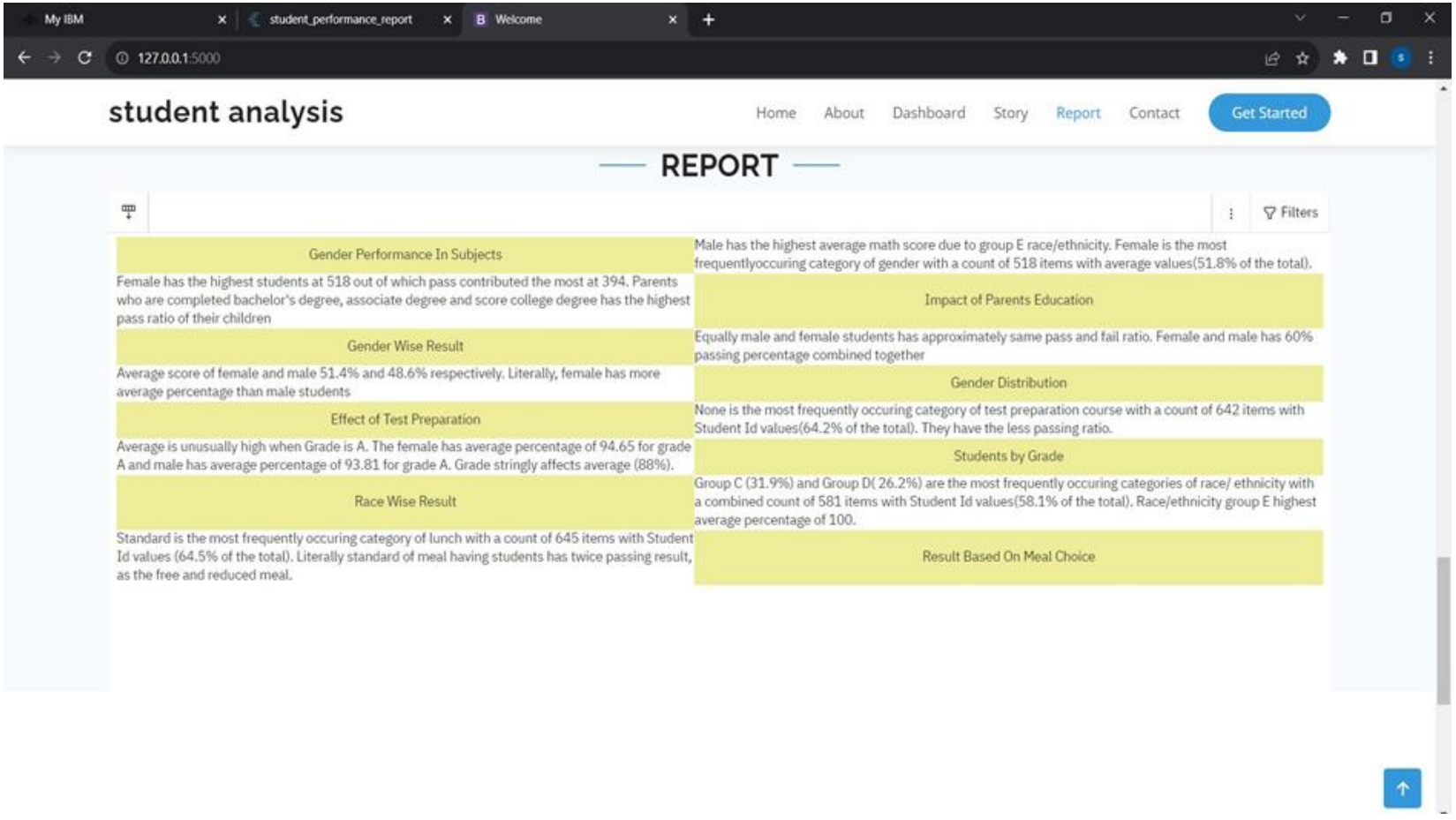
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REPORT
Filters
Gender Performance In Subjects
Male has the highest average math score due to group E race/ethnicity. Female is the most frequentlyoccuring category of gender with a count of 518 items with average values(51.8% of the total).
Female has the highest students at 518 out of which pass contributed the most at 394. Parents who are completed bachelor's degree, associate degree and score college degree has the highest pass ratio of their children
Impact of Parents Education
Gender Wise Result
Equally male and female students has approximately same pass and fail ratio. Female and male has 60% passing percentage combined together
Average score of female and male 51.4% and 48.6% respectively. Literally, female has more average percentage than male students
Gender Distribution
Effect of Test Preparation
None is the most frequently occuring category of test preparation course with a count of 642 items with Student Id values(64.2% of the total). They have the less passing ratio.
Average is unusually high when Grade is A. The female has average percentage of 94.65 for grade A and male has average percentage of 93.81 for grade A. Grade stringly affects average (88%).
Students by Grade
Race Wise Result
Group C (31.9%) and Group D(26.2%) are the most frequently occuring categories of race/ ethnicity with a combined count of 581 items with Student Id values(58.1% of the total). Race/ethnicity group E highest average percentage of 100.
Standard is the most frequently occuring category of lunch with a count of 645 items with Student Id values (64.5% of the total). Literally standard of meal having students has twice passing result, as the free and reduced meal.
Result Based On Meal Choice

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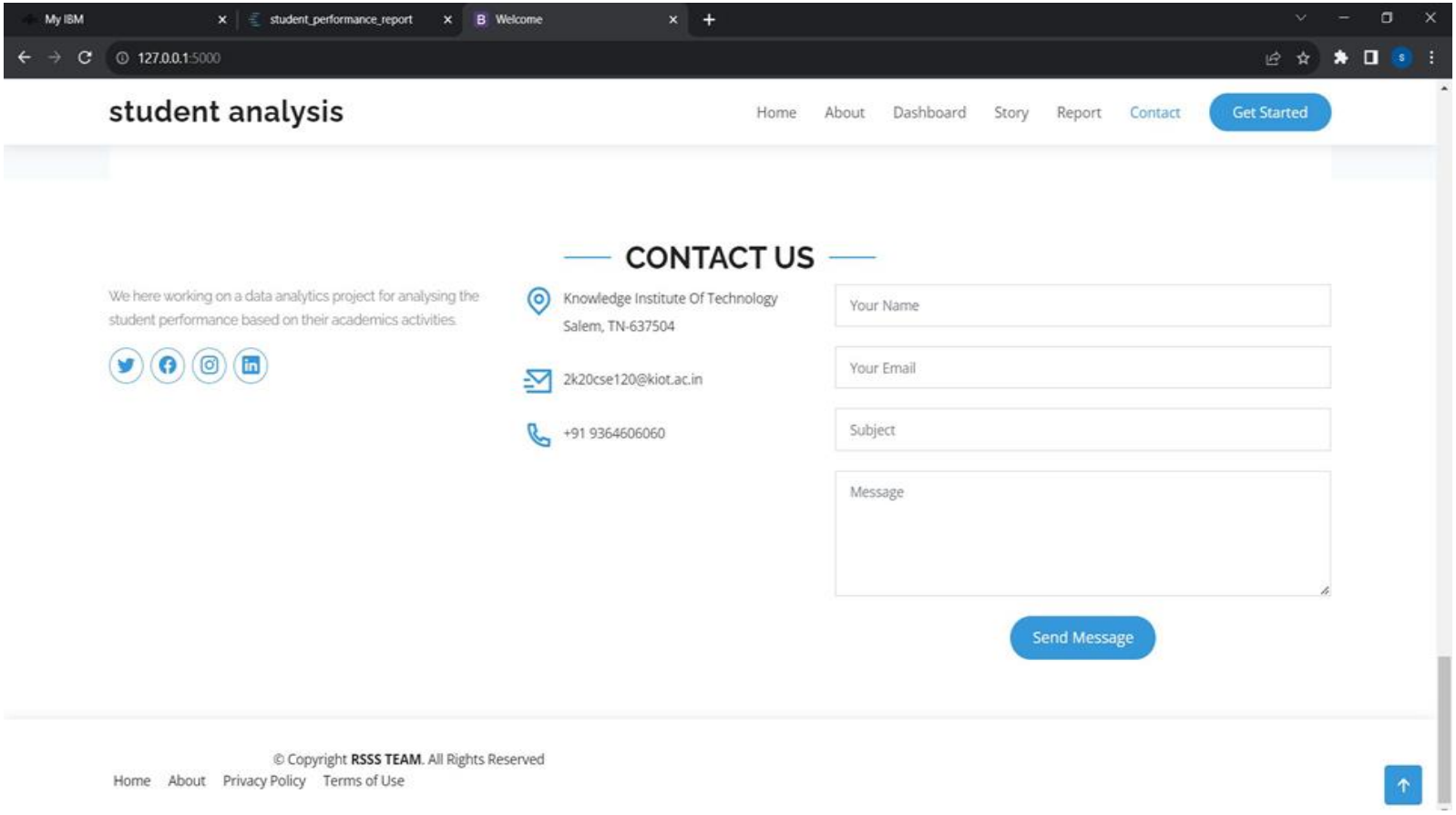
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We here working on a data analytics project for analysing the student performance based on their academics activities.
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+91 9364606060
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Subject
Message
Send Message
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CONCLUSION AND FUTURE ENHANCEMENT

- In conclusion, the "Student Performance Analysis and Improvement Recommendations" initiative employs IBM Cognos to gather and analyze diverse academic data such as grades, test scores, attendance, and surveys.
- It tailors instructional approaches and suggests interventions to enhance student performance by pinpointing strengths, weaknesses, and the underlying factors influencing success or difficulties.
- The expected outcomes revolve around gaining valuable insights into student performance, identifying areas ripe for improvement, and providing targeted recommendations to elevate academic achievement.

REFERENCES

- STUDENT PERFORMANCE ANALYSIS USING MACHINE LEARNING TOOLS [10 Oct 2018] Atul Prakash Prajapati, Sanjeev Kr. Sharma, Manish Kr. Sharma .

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  Website Linkhttps://www.ijert.org/student-performance-analysis-system-usingdata-mining

- Student Performance analysis and prediction in classroom learning [05 Mar 2021] Rosemary Vargheese, AdlenePeraira , Aswathy Ashok and Bassant Johnson

  Website Link: https://link.springer.com/article/10.1007/s10639-020-10230-3

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THANK YOU