**A Mini Project Report on**

**“University Result Analysis”**

**Submitted in partial fulfillment of the requirement for**

**Degree in Bachelor of Engineering (Information Technology)**

**By**

Dheeren Gaud (5021115)

Mathew Alex (5021130)

Manish Suthar (5021161)

Sajid Momin (5021167)

**Guided by:**

Prof. Rupali Deshmukh

****

**Department of Information Technology**

**Fr. Conceicao Rodrigues Institute of Technology**

Sector 9A, Vashi, Navi Mumbai – 400703

**University of Mumbai**

**2023-2024**

**CERTIFICATE**

This is to certify that the Mini Project entitled.

**“University Result Analysis”**

**Submitted By**

Dheeren Gaud

Mathew Alex

Manish Suthar

Sajid Momin

In partial fulfillment of the degree of **B.E**. in **Information Technology** for term work of the Semester V Mini Project – 2 A is approved.

**External Examiner Internal Examiner**

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**Internal Guide**

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**Head of the Department Principal**

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**Date: - College Seal**

**Declaration**

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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(Signature)

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(Dheeren Gaud)

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(Mathew Alex)

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(Manish Suthar)

-----------------------------------------

(Sajid Momin)

Date:

**ABSTRACT**

Passing exams and coursework demonstrates that students have acquired the foundational knowledge and skills expected in their chosen field of study. University courses not only impart knowledge but also help develop critical skills, including problem-solving, critical thinking, research, and communication. Passing courses indicates that students are progressing in their skill development. The "University Results Analysis" is a data-driven initiative undertaken by a university to systematically evaluate and derive insights from student academic performance data.

This project typically involves the collection, processing, and analysis of various data points related to student performance, including grades, exam scores, course enrollments, and potentially other relevant factors. Main Objective is to Tracking student performance and outcomes over multiple academic terms or years to assess the effectiveness of implemented interventions and long-term trends. Sharing the results and findings with university stakeholders, including faculty, administrators, and students, to foster transparency and collaboration in addressing challenges and enhancing educational quality. The "University Results Analysis " plays a pivotal role in fostering data-driven decision-making in higher education. It not only helps improve the academic performance and overall educational experience of students but also contributes to the institution's reputation and competitiveness in the higher education landscape. Additionally, it supports universities in fulfilling their mission to provide quality education and prepare students for successful futures.

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**Introduction**

1. **Background of Study**

Education is a pivotal component of personal and societal development, and evaluating student performance is essential for improving learning outcomes. This data analysis report delves into the examination results of students, aiming to extract insights that can guide educational strategies, curriculum enhancement, and support systems. By analyzing student performance data, we aim to uncover patterns, trends, and factors that influence academic achievement. University data analysis is a critical component of the modern education system, where data-driven decision-making plays a central role in improving the quality of education, student outcomes, and institutional efficiency.

University data analysis is a multifaceted field that plays a crucial role in shaping the direction and effectiveness of educational institutions. By harnessing the power of data, universities can make informed decisions, drive improvements in student success, research outcomes, and administrative efficiency, and adapt to the ever-evolving landscape of higher education.

1. **Problem Statement**

Universities are data-rich environments with vast amounts of information collected from various sources, including student records, academic departments, and administrative units. This wealth of data presents an opportunity to improve institutional effectiveness and enhance the student experience. Universities can analyze results of students of different semesters and determine the success rate of their university.

1. **Objectives:**

The objective of this project is to develop a university result analysis that will have the following functions:

* Optimize resource allocation to support educational and research objectives.
* Ensure compliance with accreditation standards and regulatory requirements.
* Analyze research output and identify opportunities for improvement.
* Streamline administrative processes for cost savings and improved service delivery.

1. **Scope**

* Analyzing student performance data and grades.
* Assessing enrollment trends over time to aid in admissions and enrollment planning.
* Identifying Students Success rate in universities.
* Identifying University success rate.

**2. Literature Survey**

To study the system being built will require us to study and analyze current systems, in order identify the problems and difficulties with the existing system. Included major steps involved in this stage to identify needs users and a study current system to verify the problem. Studying current systems is also benefited to know expected performance by the new system in order meet user requirements. Also, analysis this information that has been collected and evaluated to help us inbuild our project.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No.** | **Name & year** | **Author** | **Features** | **Limitations** |
| 1 | Universities responded to E-Learning because of COVID-19. (2022) | 1. Elena Guillermina Martinez 2. Elmer Benito Rivera Mansilla 3. Wily Leopoldo Velásquez | This system analyzes the responses and effectiveness of e-learning in universities during the covid pandemic by various research. | Research may focus on institutions or students already predisposed to e-learning, potentially excluding those who have limited access to technology or prefer traditional learning methods. |
| 2 | Predicting Student Performance in Higher Educational Institutions Using Data Mining(2020) | 1. Salman Mahmood 2. Raza Hasan 3. Sellappan Palaniappan | This system uses technology of web mining refers to the discovery of associable patterns from large datasets. It facilitates the categorization of data into different dimensions, identifying relationships and categorizing the information. | The accuracy of predictions heavily relies on the quality and quantity of available data. Incomplete or inaccurate data can lead to unreliable results. |
| 3 | Toward Predicting Student’s Academic Performance Using Artificial Neural Networks | 1. Yahia Baashar 2. Gamal Alkawsi 3. Sieh Kiong Tiong | ANNs can capture complex relationships and patterns in data by introducing non-linear transformations through activation functions. ANNs can automatically learn relevant features from raw data, reducing the need for manual feature engineering. | The accuracy of predictions heavily relies on the quality, completeness, and relevance of available data. Inaccurate or incomplete data can lead to unreliable predictions. |

**Existing System**

* **1. Moodle**

It often includes built-in tools for tracking student performance, grading assignments, and generating basic performance reports.

* **2. Microsoft Power BI**

BI tools offer advanced data visualization and analysis capabilities, allowing institutions to create interactive dashboards and reports to gain insights from student performance data.

* **3. KNIME**

Predictive analytics tools enable institutions to build models to forecast student outcomes based on historical data.

* **4. Banner by Ellucian:**

Banner is a comprehensive student information system used by many universities. It covers various aspects of university management, including registration, grading, and academic analysis.

* **5. Campus Labs**

Campus Labs provides analytics solutions for universities, including tools for assessing and improving student learning outcomes.

* **6. SchoolTool:**

SchoolTool is an open-source student information system that includes features for grading, scheduling, and academic analysis.

**Proposed System**

* Website created using React with user friendly interfaces.
* Only Admin will have access to Login to System
* Admin will have access to manage operations.
* It includes a database connected to MongoDB which makes it easier for ETL process.
* Admin can insert data using excel or manually into database.
* It includes all departments and semester database.
* Admin can also edit data after entering data in database.
* It includes columns like name, roll\_no, cgpi, status and kt\_count Internal and External KT
* Admin can download eligibility with help of data specified.
* With help of eligibility table will generate from which conclusions can be made.

**System Design**

**Flow Diagram**

A diagram of a software company

Description automatically generated

Fig 1(flow diagram)

**ER Diagram for database design.**

A diagram of a business process

Description automatically generated

Fig 2(ER Diagram)

**Use Case Diagram**

A diagram of a research process

Description automatically generated

Fig 3(UseCase Diagram)

**Block Diagram**

A diagram of a software system

Description automatically generated

Fig 4(Block Diagram)

**Block Diagram Details**

1.Signup

2. Admin Login

3.Admin can add batch, edit batch, and download datasheet.

4. Data will be stored in database.

5. If user click on add batch, he/she can upload data of batch students by uploading excel document

6.It should specify the department and batch year.

7.If want to edit batch details then select batch and year and specify marks and internal and external kt with year provided.

8. if any student has dropped the course they can also be specified.

9. If any student has cleared KT they can be update.

10. According to details specified they can download eligibility and withKT and WithoutKT Students

**Eligibility Data**

A screenshot of a computer

Description automatically generated

Fig 5(Eligibility Data)

1. **Implementation Details**

* **Hardware Requirements**

1. 64 Bit Operating System
2. Memory 8GB Ram
3. Core I5 Processor

* **Software requirements**

1. VS Code
2. React
3. MongoDB
4. Postman
5. Nodejs

**Implementation Result**

**A screenshot of a computer

Description automatically generated**

Fig6(Add Batch)

**A screenshot of a computer

Description automatically generated**

Fig7(Edit Batch)

**A screenshot of a computer

Description automatically generated**

Fig8(Drop Student)

**A screenshot of a computer

Description automatically generated**

Fig9(Download Data )

**Conclusion**

The University Data Analysis Website is developed and fully meets its objectives of system. We have tested it, and it has worked.

This website will be helpful for analysis of student grade for university of different department with 100% accuracy. Important decisions can be carried out according to results.

**Future Scope**

We will implement a machine learning model which will predict results of future batches considering current pattern and trends of data. We will also implement more deep analysis considering their attendance monitoring and reason of decrement of grade and providing consulting.

**References**

* [1] Baashar, Y., Alkawsi, G., Mustafa, A., Alkahtani, A.A., Alsariera, Y.A., Ali, A.Q., Hashim, W. and Tiong, " Toward predicting student’s academic performance using artificial neural networks (ANNs).," 2022 2nd International Conference on Intelligent Computing,,Alaska,US,2022,pp.11191123,doi:10.1109/ICICICT46008.2019.8993272.
* [2] D. T. Minh and P. V. Tan, " How universities have responded to E-learning as a result of Covid-19 challenges," Periodicals of Engineering and Natural Sciences ,Kuala Lumpur, Malaysia, 2021, pp. 1-4, doi: 10.1109/ICECCE52056.2021.9514150.
* [3] N. Satiya, V. Varu, A. Gadagkar and D. Shaha, " Predicting Student Performance in Higher Educational Institutions Using Data Mining(2020)," 2020 IEEE Region 10 Symposium(TENSYMP),Cochin,India,2020,pp.16,doi:10.1109/TENCONSpring.2017.8070075

**Appendix A: Code Sample**

import React, { useState } from 'react';

import dayjs from 'dayjs';

import { styled, useTheme, alpha } from '@mui/material/styles';

import { Box, Typography, Button, Dialog, DialogTitle, DialogContent, DialogActions } from '@mui/material';

import DepartmentSelect from '../components/Selectdepartment';

import MonthYearSelect from '../components/Selectmonthyear';

import CloudUploadIcon from '@mui/icons-material/CloudUpload';

import Grid from '@mui/material/Grid';

import Navbar from '../components/Navbar';

import Appbar from '../components/Appbar';

const VisuallyHiddenInput = styled('input')`

clip: rect(0 0 0 0);

clip-path: inset(50%);

height: 1px;

overflow: hidden;

position: absolute;

bottom: 0;

left: 0;

white-space: nowrap;

width: 1px;

export default function Addbatch() {

const [open, setOpen] = React.useState(false);

const handleDrawerOpen = () => {

setOpen(true);

};

const handleDrawerClose = () => {

setOpen(false);

};

const handleDateChange = (date) => {

const selectedYear = dayjs(date).format('YYYY');

setData((prevData) => ({

...prevData,

startYear: Number(selectedYear),

endYear: Number(selectedYear) + 4,

}));

};

const handleFileChange = (event) => {

const file = event.target.files[0];

setData((prevData) => ({

...prevData,

file: file

}));

};

const handleDepartmentChange = (event) => {

const newDepartment = event.target.value;

setData((prevData) => ({

...prevData,

department: newDepartment,

}));

};

const handleKeyDown = (event) => {

if (event.key === 'Enter' && data.department && data.startYear) {

handleBatchSubmit();

}

};

const [openUploadDialog, setOpenUploadDialog] = useState(false);

const handleBatchSubmit = () => {

if (!data.department) {

console.log("Please enter the department.");

} else if (!data.startYear) {

console.log("Please enter the month and year");

} else {

console.log(data);

setOpenUploadDialog(true);

}

const handleUpload = () => {

console.log(data);

};

return (

<Box sx={{ display: 'flex' }}>

<Appbar pageName='Add batch' open={open} handleDrawerOpen={handleDrawerOpen} />

<Navbar open={open} handleDrawerClose={handleDrawerClose} />

<Box component="main" sx={{ flexGrow: 1, p: 10}}>

<Typography variant="h5" align="center" gutterBottom>

Add New Batch

</Typography>

<Grid container spacing={1} justifyContent="center">

<Grid item xs={5}>

<DepartmentSelect value={data.department} onChange={handleDepartmentChange} />

</Grid>

<Grid container spacing={2} justifyContent="center"></Grid>

<Grid item xs={5}>

<MonthYearSelect value={data.startYear} onChange={handleDateChange} onKeyDown={handleKeyDown} />

</Grid>

<Grid container spacing={2} justifyContent="center"></Grid>

<Grid item xs={5}>

<Button variant="contained" color="primary" onKeyDown={handleKeyDown} onClick={handleBatchSubmit} fullWidth>

Submit

</Button>

</Grid>

</Grid>

<Dialog open={openUploadDialog} onClose={() => setOpenUploadDialog(false)}>

<DialogTitle>Upload Batch Data</DialogTitle>

<DialogContent style={{ display: 'flex', justifyContent: 'center' }}>

Select a file

<VisuallyHiddenInput type="file" accept=".xlsm,.csv,.xlsx" onChange={handleFileChange} />

</Button>

</DialogContent>

<DialogActions>

<Button onClick={() => setOpenUploadDialog(false)} color="primary">

Cancel

</Button>

<Button onClick={handleUpload} color="primary">

Upload

</Button>

</DialogActions>

</Dialog>

</Box>

</Box>

**Acknowledgement**

We would like to take this moment to extend our sincere gratitude to our co-ordinator who had played an integral role in the successful completion of this project. Her support, guidance, and contributions have been invaluable, and I wish to express my heartfelt appreciation.

First and foremost, we would like to express our deepest appreciation to our project supervisor, [Prof. Rupali Deshmukh], whose unwavering support, guidance, and expertise was instrumental in shaping this project. Her mentorship has been a source of inspiration, and we are deeply grateful for her patience and valuable insights throughout this journey.

Lastly, we would like to express our appreciation to all the participants and respondents who generously contributed their time, insights, and expertise to this project. In closing, as a group, we are humbled by the collective efforts of all those who have supported and encouraged us throughout this project. Your contributions have been indispensable, and we are grateful for the opportunity to have worked alongside such inspiring individuals.