DATA WAREHOUSING HACKATHON PROPOSAL

INGAGE DATA WAREHOUSING-2024

Prepared by:
Student At Mailam Engineering College
Department Of Computer Science
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Submitted To:
Ingage Technologies Pvt Ltd Company
Chennai

OUR TEAM

SS Solution builders

GREAT TEAMWORK

SIVARANJANI P

I Have Played Important Role in this Project, to Analysis the Data Set Using **Power Bi Tool and Data Set Preparation**

SANTHOSH V

I Have Played Important Role in this Project, to find Solution for the problem statement Using **Snowflake Tool and Preparation of Proposal**

ACADEMIC PERFORMANCE OF STAFF WITH REFERENCE TO STUDENTS' SUCCESS

PROBLEM STATEMENT:

Nowadays all Institutions of higher education are committed to providing quality education and fostering student success. Staff members, including faculty, instructors, advisors, and support personnel, play a critical role in shaping the academic experiences and outcomes of students. However, assessing the effectiveness of staff members in supporting student success requires a comprehensive evaluation framework that considers both qualitative and quantitative measures. We took our college staff's details to find out their performance, since every college performance depends on department performance, department depends on staff and students' performance, staff's performance depends on student success. Through details we can ably find their knowledge, who(staff) active toward subject as well as other activities. We take 4 years Academic performance of staffs and students' details, for this problem statement star schema is better to implement easily, based on that Management can take next step toward staffs like increment in salary, bonus etc.....

In our college to analysis semester result, each staff's having to find students' performance in semester examination by their result, depends on that our Management is Identify performance of each staff in the college and each department collaborate their students' performance, Result shows growth of department. Finally collaborate all department Result to show growth of

college in specific year, so staff facing too much difficult to analysis the process (students' performance in semester result), **By using Snowflake tool and Power bi we analysis their performance easily using star schema.**

WHY THIS USE CASE:

The objective of this project is to develop a systematic approach to evaluate the performance of staff members within an academic institution, with a specific focus on their impact on student success and outcomes. By analyzing student performance data in relation to staff activities and interventions, **the aim is to identify strength of staff's, (subject)areas for improvement of staff's, improvement of Departments, best class advisors in department as well as overall college, best department in overall college and opportunities to enhance the overall quality of education provided, compare overall performance of college in a year, compare with previous years...**

USE CASE CREATED TYPE AND DATA SET PREPARATION:

This problem Statement is a real time use case it chose by our own, some data collected from our college (staff details, students semester results percentage), moreover data's created by ourselves.

Sample:
https://1drv.ms/f/c/7a31cb1285a79890/EuroJckly iNLvae9ub0bCJsBVdhusmoI33F0T7wQAhGmyA?e=K R5e3h

Keywords: performance of staff members, students' success, strengths of staff's, area of improvement of staff's, improvement of depts, best class advisor, best dept overall college, compare overall performance of college in a year, compare with previous years...

SOLUTION STATEMENT:

1. Find the best Class Advisor in a specific department in a year.
2. Find or compare performance of two different staffs in an academic (all the four years)
3. Find the best Class Advisor overall college in a year.
4. Find specific staff performance with age in a year.
5. Find performance of staff between student performed in odd semester and even semester in department in a year.
6. Find the best performing Department of the year.
7. Find or compare the performance of two different departments in a year.
8. Find overall performance of college in a year.
9. Find or compare performance of college present year with previous year.
10. Find growth of college in Academic (all the four years).
11. Find salary and attendance of staffs in academic year.

IN FUTURE:

In Future management can find an area of strength of staffs based on providing domain-based subjects, providing salary-based their performance and bonus, if performance is low then replace new staff in place of old one (staff has low performance).
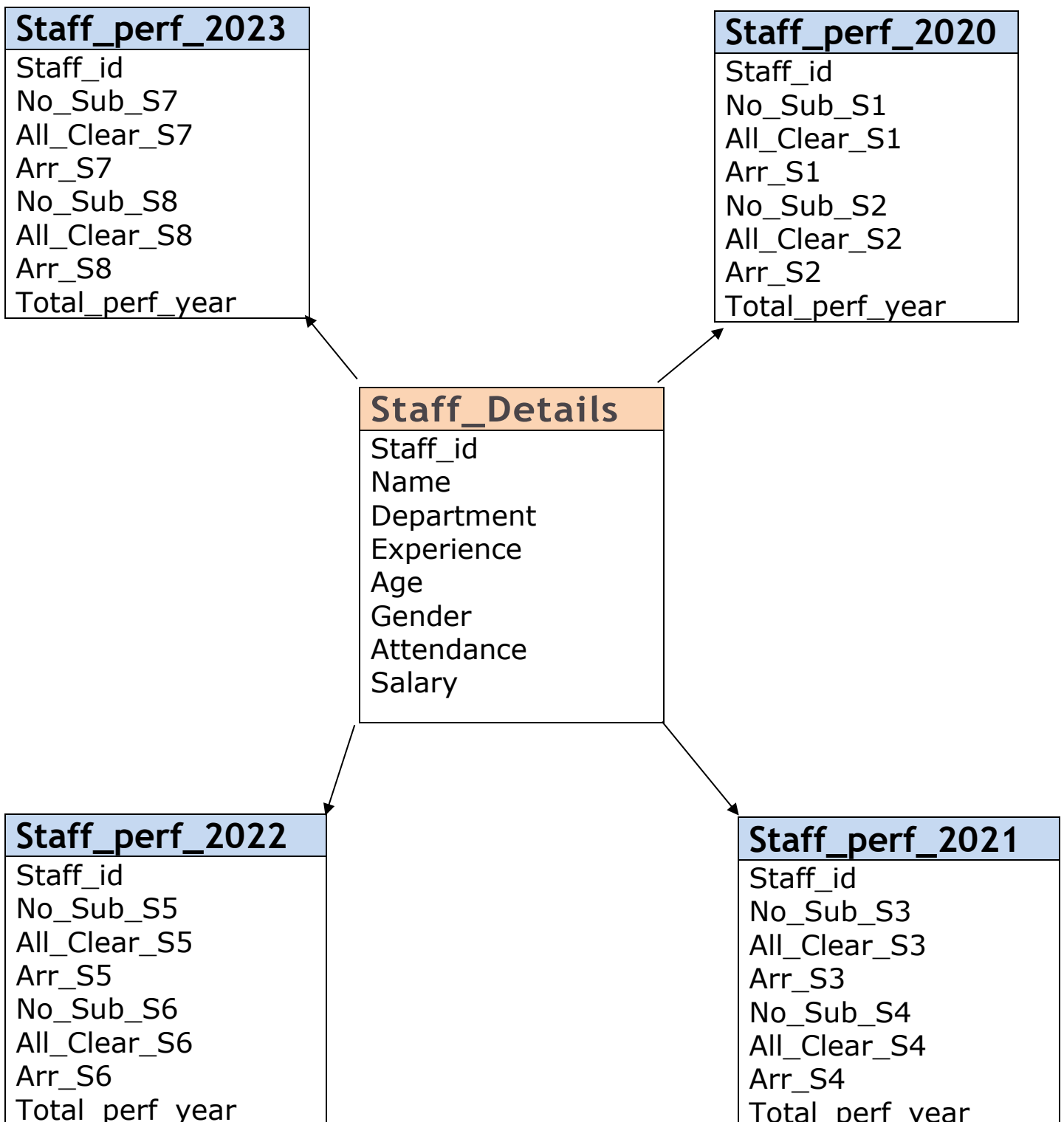
TOOLS REQUIRED:
- Snowflakes
- Power Bi

SCHEMA TYPE:
- Star Schema

FACT AND DIMENSIONAL TABLES:

Staff_perf_2023
Staff_id
No_Sub_S7
All_Clear_S7
Arr_S7
No_Sub_S8
All_Clear_S8
Arr_S8
Total_perf_year

Staff_perf_2020
Staff_id
No_Sub_S1
All_Clear_S1
Arr_S1
No_Sub_S2
All_Clear_S2
Arr_S2
Total_perf_year

Staff_Details
Staff_id
Name
Department
Experience
Age
Gender
Attendance
Salary

Staff_perf_2022
Staff_id
No_Sub_S5
All_Clear_S5
Arr_S5
No_Sub_S6
All_Clear_S6
Arr_S6
Total_perf_year

Staff_perf_2021
Staff_id
No_Sub_S3
All_Clear_S3
Arr_S3
No_Sub_S4
All_Clear_S4
Arr_S4
Total_perf_year

Expansion for Tables and Attributes Notations:

Tables:

Staff_details – General information's of department of Staff's.

Staff_perf_2020 – Academic of Staff performance in 2020.

Staff_perf_2021– Academic of Staff performance in 2021.

Staff_perf_2022 – Academic of Staff performance in 2023.

Staff_perf_2022 – Academic of Staff performance in 2023.

Attributes:

Staff_id – Unique identity of Staff.

Name – Name of Staff.

Dept – Department of Staff.

Experience – Staff work experience.

Age – Age of Staff.

Attendance – Attendance of staff.

Salary – Salary of staff.

No_Sub_S1 – Number of Subjects taken by Staff in Semester 1, similar for No_Sub_S2, No_Sub_S3... to all dimensional tables.

All_Clear_S1 – Number students All clear in semester 1 similar for All_Clear_S2, All_Clear_S3... to all dimensional tables.

Arr_S1 – Number of students having Arrear in semester 1 similar for Arr_S2, Arr_S3... to all dimensional tables.

Total_per_year – Total percentage in both semester or average percentage of particular year similar to all dimensional tables.

DISCRIPTION OF DIMENSION TABLES:

NO	DIMENSION TABLES	PARTICULAR ATTRIBUTES	LINKED TO FACT/DIMENSION
1	Staff_details (fact)	Staff_id Name Dept Experience Age Gender Attendance Salary	No link
2	Staff_perf_2020	Staff_id No_Sub_S1 All_Clear_S1 Arr_S1 No_Sub_S2 All_Clear_S2 Arr_S2 total_per_year	Linked to Staff_details_2020(fact)
3	Staff_perf_2021	Staff_id No_Sub_S3 All_Clear_S3 Arr_S3 No_Sub_S4 All_Clear_S4 Arr_S4 total_per_year	Linked to Staff_details_2021(fact)
4	Staff_perf_2022	Staff_id No_Sub_S5 All_Clear_S5 Arr_S5 No_Sub_S6 All_Clear_S6 Arr_S6 total_per_year	Linked to Staff_details_2022(fact)
5	Staff_perf_2023	Staff_id, No_Sub_S7 All_Clear_S7 Arr_S7 No_Sub_S8 All_Clear_S8 Arr_S8 total_per_year	Linked to Staff_details_2023(fact)

CONCULSION:
This problem statement outlines a structured approach to evaluating staff performance in relation to student success, emphasizing the importance of data-driven decision-making towards growth of college, departments, staffs.

EVALUATE RANKING POSITION OF COLLEGES UNDER ANNA UNIVERSITY

PROBLEM STATEMENT:

Anna University evaluates ranking positions of colleges affiliated with it based on several criteria including academic excellence, faculty quality, research output, infrastructure, sports, student-faculty ratio, industry collaborations, placements, and feedback from students. Academic consists of the number of students passing out in year, who many of getting gold medal, distinction, first class with their graduation and without their graduation. Placement consists of growth recruitment processes in college plus internship opportunities etc. Sport consists of physical education quality in college plus number times of title winner in their zone level. Infrastructure consists of Transportation, classroom, labs, canteen, health system, others. Extracurricular activities like additional events like apart from academics like Nss, Yrc etc... and academic related events like codethon, techathon, hackathon, technovation...The evaluation process typically involves a combination of quantitative data analysis and qualitative assessments to determine the overall performance and standing of each college.

WHY THIS USE CASE:

Anna University may analyze the performance of colleges to ensure quality education and to maintain standards across its affiliated institutions. **This analysis helps in identifying areas of improvement, addressing academic issues, and ensuring that students receive a high-quality education, not only academic, sports, placement, infrastructure, extracurricular activities based on those details, Anna University can give NAAC grade to a college to become autonomous college**. If management requests towards Anna University. The yearly ranking position colleges are changing in Anna University. Additionally, it allows the university to assess the effectiveness of its affiliated colleges in meeting educational objectives and benchmarks.

Keywords: Ranking, position, colleges, Anna University, Academic, placement, sports, infrastructure, extracurricular activities, NAAC grade, autonomous college.

SOLUTION STATEMENT:

1. Find all colleges which has student strength and student passing out under anna university.
2. Find top 10 ranking colleges which are good in Academic, sport, placement, infrastructure, extracurricular activity.
3. Find performance of specific college in Academic, sport, placement, infrastructure, extracurricular activity.
4. Find or compare the sports performance of two specific colleges.
5. Find top 10 colleges with the most title winners in sport at their zone level.
6. Find Placement record, internship record, packages(salary) record of all the college under anna university.
7. Find all colleges gold medal, distinction, first class students under anna university.
8. Find specific college gold medal, distinction, first class students under anna university.
9. Find all college Students who not cleared examination under anna university.

10.Find all colleges conducting events like techathon, hackathon, technovation, codathon, others under anna university.

11.Find college has high facilities in transportation, labs, classroom, health system, others.

IN FUTURE:

   In future students can be able to select best college and university for their career, if any college or university management planned make college as autonomous it is easily providing NACC grade to the college by **All India Council for Technical Education** (**AICTE**)

USE CASE CREATED TYPE AND DATA SET PREPARATION:

- This problem Statement is a real time use case it chose by our own, some data collected from the internet (colleges name, colleges code), moreover data created by ourselves.

Sample:
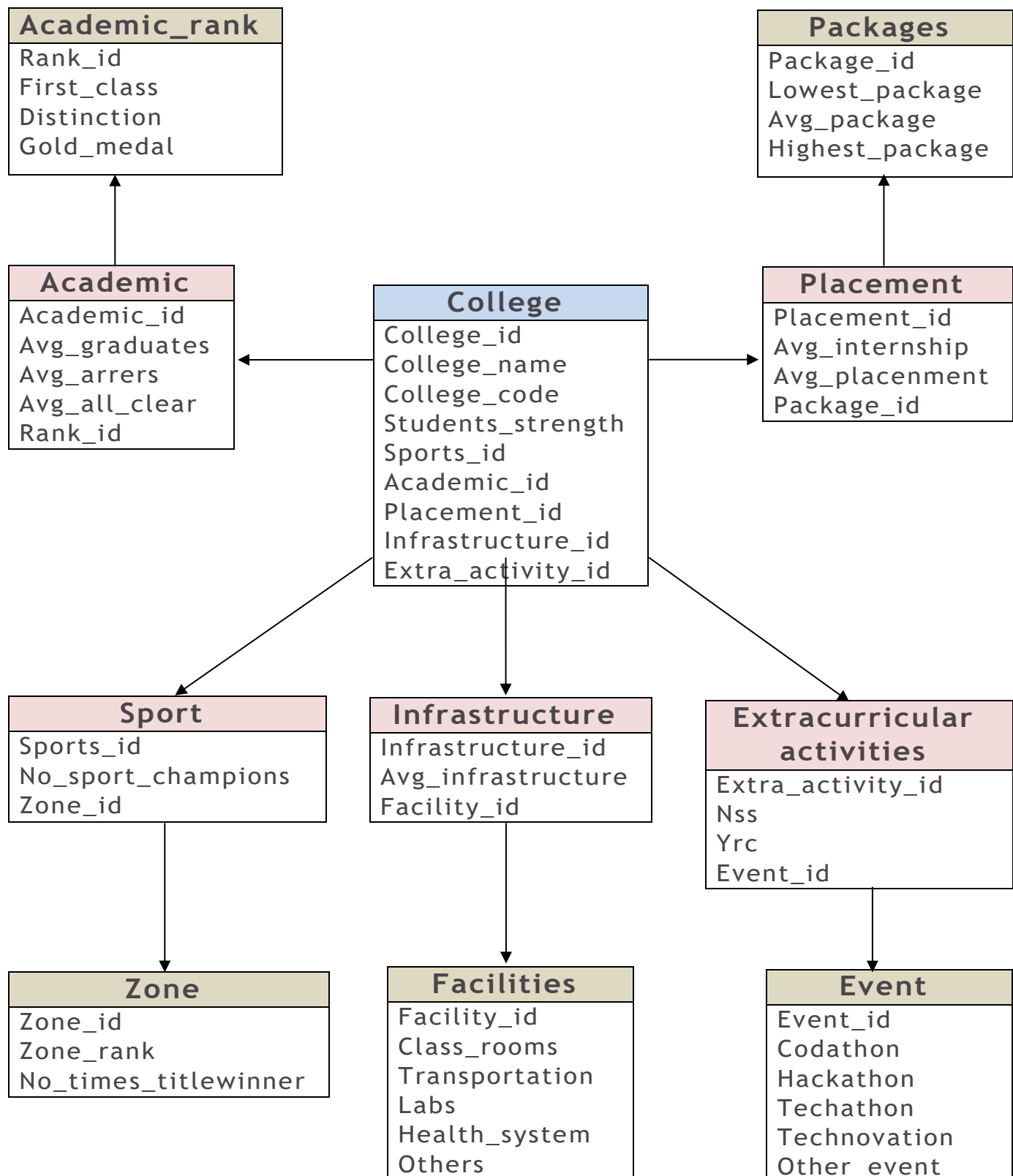https://1drv.ms/f/c/7a31cb1285a79890/EjtckLdZMg1Nsuz0uIjnk-4Brhrl01JbYjjIfFIFvfhF1g?e=twGE6V

TOOLS REQUIRED:

- Snowflake
- Power Bi

SCHEMA TYPE:

- Snowflake Schema

FACT AND DIMENSIONAL TABLES:

Academic_rank
Rank_id
First_class
Distinction
Gold_medal

Packages
Package_id
Lowest_package
Avg_package
Highest_package

Academic
Academic_id
Avg_graduates
Avg_arrers
Avg_all_clear
Rank_id

College
College_id
College_name
College_code
Students_strength
Sports_id
Academic_id
Placement_id
Infrastructure_id
Extra_activity_id

Placement
Placement_id
Avg_internship
Avg_placenment
Package_id

Sport
Sports_id
No_sport_champions
Zone_id

Infrastructure
Infrastructure_id
Avg_infrastructure
Facility_id

Extracurricular activities
Extra_activity_id
Nss
Yrc
Event_id

Zone
Zone_id
Zone_rank
No_times_titlewinner

Facilities
Facility_id
Class_rooms
Transportation
Labs
Health_system
Others

Event
Event_id
Codathon
Hackathon
Techathon
Technovation
Other_event

EXPANSION FOR TABLES AND ATTRIBUTES NOTATIONS:

College - General information of colleges under anna university

Academic - Information of Academic of colleges like students pass out, all clear etc

Academic_rank - Information of students got gold medal, distinction, first class.

Placement - General information of placement of colleges under anna university.

Packages - Information of salary(packages) of students placed in placement.

Sports - General information of sports college has more number of Champions.

Zone - Information of college number of time title winner in zone level and rankig positon in the zone.

Infrastructure - Information about ifrastructure of colleges.

Facilities - Information about classroom, transportation, lab, health system, others.

Extracurricular activity - Information of NSS, YRC.

Event - information of events conducted by colleges like codathon,technovation, techathon, hackathon.

ATTRIBUTES:

Since this snowflake schema contains more attributes, Id is common to all tables each table unique id with different details, please refer the above table or below description of dimension tables.

DISCRIPTION OF DIMENSION TABLES:

NO	DIMENSION TABLES	PARTICULAR ATTRIBUTES	LINKED TO FACT/DIMENSION
1	College (fact)	College_id College_name College_code Students_strength Sports_id Academic_id Placement_id Infrastructure_id Extra_activity_id	No link
2	Academic	Academic_id Avg_graduates Avg_arrers Avg_all_clear Rank_id	Linked to College (fact)
3	Academic_rank	Rank_id First_class Distinction Gold_medal	Linked to Academic (dimensional)
4	Placement	Placement_id Avg_internship Avg_placenment Package_id	Linked to College (fact)
5	Packages	Package_id Lowest_package Avg_package Highest_package	Linked to Placement (dimensional)
6	Sports	Sports_id No_sport_champions Zone_id	Linked to College (fact)

7	Zone	Zone_id Zone_rank No_times_titlewinner	Linked to Sports (dimensional)
8	Infrastructure	Infrastructure_id Avg_infrastructure Facility_id	Linked to College (fact)
9	Facilities	Facility_id Class_rooms Transportation Labs Health_system Others	Linked to Infrastructure (dimensional)
10	Extracurricular activities	Extra_activity_id Nss Yrc Event_id	Linked to College (fact)
11	Event	Event_id Codathon Hackathon Techathon Technovation Other_event	Linked to Extracurricular activities (dimensional)

CONCULSION:

This problem statement outlines a structured approach to evaluating ranking position of colleges under anna university, we find best college in academic, sport, placement, infrastructure, extracurricular activities based on that anna university analysis ranking position of each college yearly once.

THANK YOU, AND WE LOOK FOR GOOD NEWS FROM YOUR SIDE...