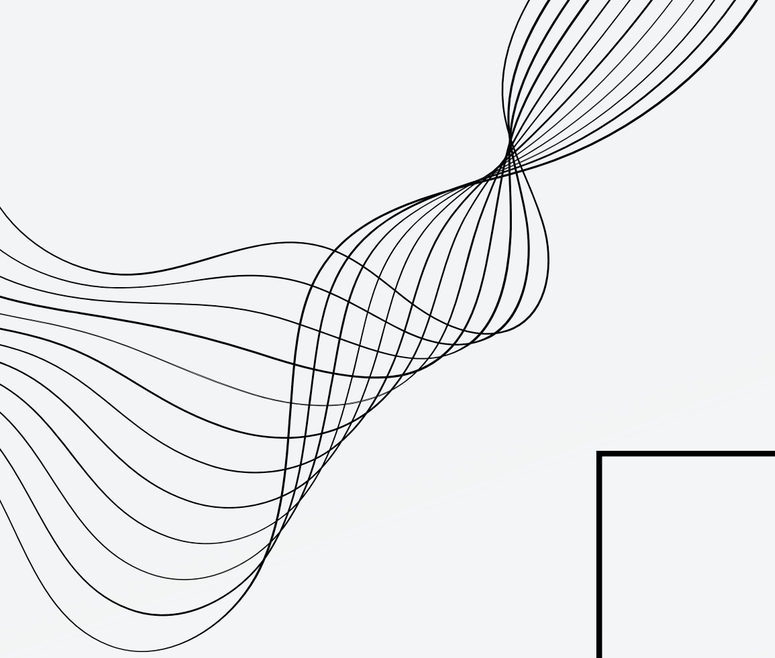


# INTER-COLLEGE COMPETITION DATABASE

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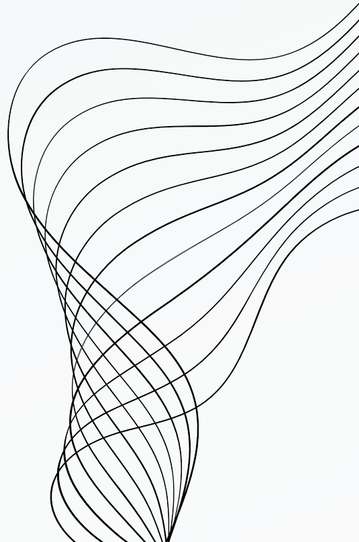


# CONTENT

# INTRODUCTION

- INTER-COLLEGE COMPETITIONS ARE A GREAT WAY FOR STUDENTS TO SHOWCASE THEIR TALENTS, ENGAGE IN HEALTHY COMPETITION AND DEVELOP ESSENTIAL SKILLS SUCH AS TEAMWORK AND LEADERSHIP.
- HOWEVER, IT CAN BE CHALLENGING FOR STUDENTS TO KEEP TRACK OF ALL THE INTER-COLLEGE COMPETITIONS IN VARIOUS FIELDS AND CATEGORIES. A DATABASE PROJECT CAN BE DEVELOPED TO ADDRESS THIS ISSUE TO PROVIDE STUDENTS WITH A COMPREHENSIVE AND UP-TO-DATE RESOURCE FOR INTER-COLLEGE COMPETITIONS.

# ENTITIES

- *JUDGE_LIST: A table that stores information about judges, including their unique ID, first and last name, and email address.*
- *ORGANIZER: A table that stores information about organizers, including their unique ID, name, and type.*
- *SPONSOR: A table that stores information about sponsors, including their unique ID, name, amount of sponsorship, and type.*
- *COMPETITION: A table that stores information about competitions, including their unique ID, date, location, name, and the ID of the organizer that is hosting the competition.*
- *JUDGES: A table that represents the many-to-many relationship between competitions and judges, storing the IDs of the competition and the judge, with a primary key that is a combination of both IDs. It uses foreign keys to reference the COMPETITION and JUDGE_LIST tables.*
- *SPONSORSHIPS: A table that represents the many-to-many relationship between competitions and sponsors, storing the IDs of the competition and the sponsor. It uses foreign keys to reference the COMPETITION and SPONSOR tables.*

- *COLLEGE: A table that stores information about colleges, including their unique ID, name, and location.*
- *PARTICIPANTS: A table that stores information about participants, including their unique ID, first and last name, email address, roll number, and the ID of the college they belong to. It uses a foreign key to reference the COLLEGE table.*
- *TEAMS: A table that stores information about teams, including their unique ID and name.*
- *MAKE_TEAM: A table representing the many-to-many relationship between teams and participants, storing the team's and participant IDs. It uses foreign keys to reference the TEAMS and PARTICIPANTS tables.*
- *WINNERS: A table that represents the many-to-many relationship between teams and competitions, storing the IDs of the team and the competition, along with the bounty amount for winning the competition. It uses foreign keys to reference the TEAMS and COMPETITION tables.*
- *REGISTERS: A table that represents the many-to-many relationship between teams and competitions, storing the IDs of the team and the competition, along with the payment information for registering in the competition. It uses foreign keys to reference the TEAMS and COMPETITION tables.*

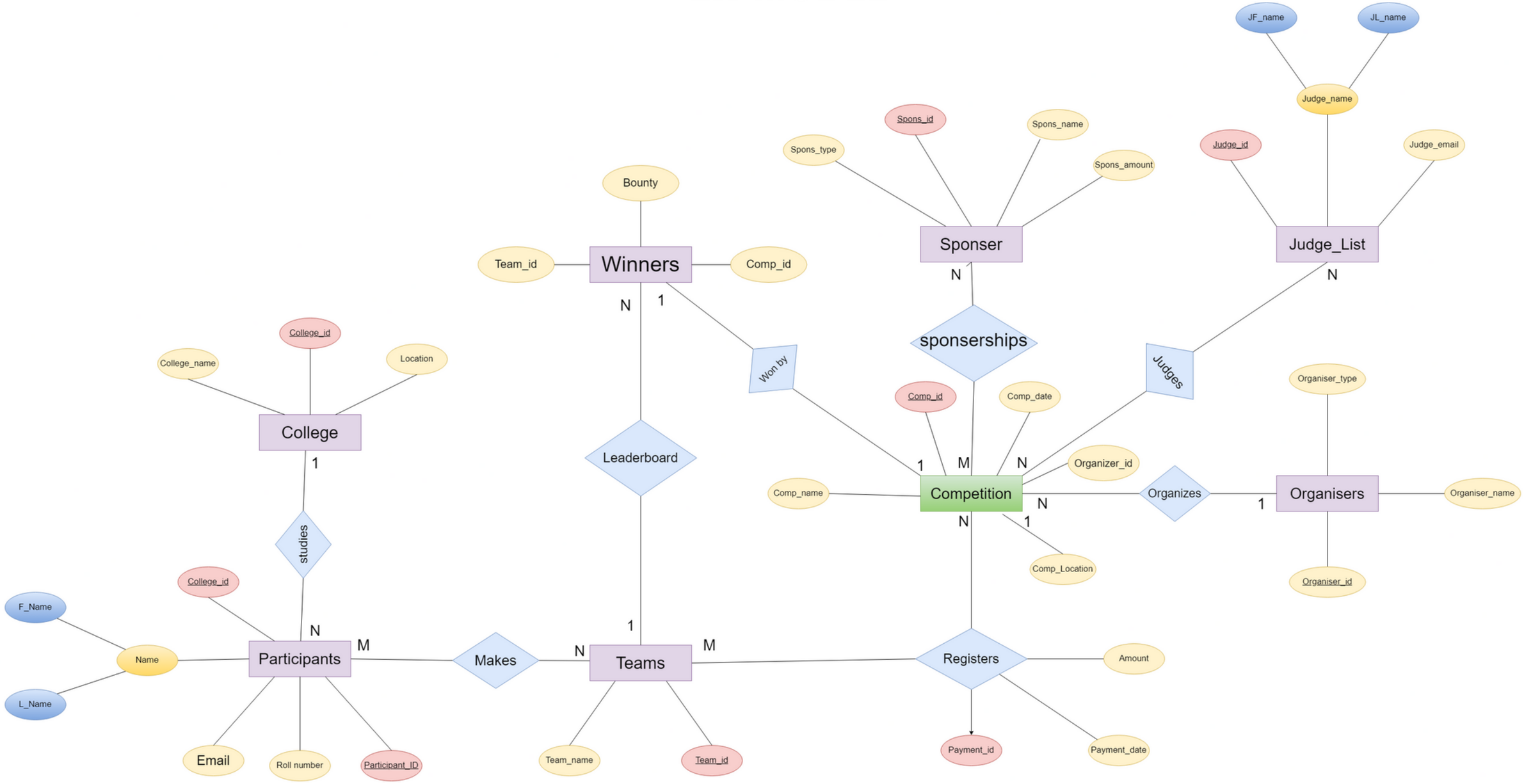
# ABOUT RELATIONSHIPS

- *One organizer can organize many competitions. (ORGANIZER to COMPETITION)*
- *One sponsor can sponsor many competitions. (SPONSOR to SPONSORSHIPS)*
- *One college can have many participants. (COLLEGE to PARTICIPANTS)*
- *One team can have many participants. (TEAMS to MAKE_TEAM)*
- *One competition can have many registers. (COMPETITION to REGISTERS)*
- *Many competitions can have many judges, and a judge can judge many competitions. (COMPETITION to JUDGES)*
- *Many competitions can have many sponsors, and a sponsor can sponsor many competitions. (COMPETITION to SPONSORSHIPS)*
- *Many teams can participate in many competitions, and competition can have many teams. (TEAMS to WINNERS)*
- *One competition can be won by one team so there will be one winner (Competition to WINNERS)*
- *Many students can be from one college (Student to College)*
- *One Student can make many teams (Student to Team)*

# RELATIONAL SCHEMA

```
JUDGES(
  COMP_ID VARCHAR(256),
  JUDGE_ID VARCHAR(256),
  PRIMARY KEY (COMP_ID, JUDGE_ID),
  FOREIGN KEY (COMP_ID) REFERENCES
COMPETITION(COMP_ID),
  FOREIGN KEY (JUDGE_ID) REFERENCES
JUDGE_LIST(JUDGE_ID)
)

SPONSERSHIPS(
  COMP_ID VARCHAR(256),
  SPONS_ID VARCHAR(256),
  FOREIGN KEY (COMP_ID) REFERENCES
COMPETITION(COMP_ID),
  FOREIGN KEY (SPONS_ID) REFERENCES
SPONSER(SPONS_ID)
)

COLLEGE(
  COLLEGE_ID VARCHAR(256) PRIMARY KEY,
  COLLEGE_NAME VARCHAR(256),
  LOCATION VARCHAR(256)
)

PARTICIPANTS(
  PARTICIPANT_ID VARCHAR(256) PRIMARY KEY,
  F_NAME VARCHAR(256),
  L_NAME VARCHAR(256),
  COLLEGE_ID VARCHAR(256),
  ROLL_NUMBER VARCHAR(256),
  EMAIL VARCHAR(256),
  FOREIGN KEY (COLLEGE_ID) REFERENCES
COLLEGE(COLLEGE_ID)
)

JUDGE_LIST(
  JUDGE_ID VARCHAR(256) PRIMARY KEY,
  JF_NAME VARCHAR(256),
  JL_NAME VARCHAR(256),
  JUDGE_EMAIL VARCHAR(256)
)

ORGANIZER(
  ORGANISER_ID VARCHAR(256) PRIMARY KEY,
  ORGANISER_NAME VARCHAR(256),
  ORGANISER_TYPE VARCHAR(256)
)

SPONSER(
  SPONS_ID VARCHAR(256) PRIMARY KEY,
  SPONS_NAME VARCHAR(256),
  SPONS_AMOUNT NUMBER,
  SPONS_TYPE VARCHAR(256)
)

COMPETITION(
  COMP_ID VARCHAR(256) PRIMARY KEY,
  COMP_DATE DATE,
  ORGANISER_ID VARCHAR(256),
  COMP_LOCATION VARCHAR(256),
  COMP_NAME VARCHAR(256),
  FOREIGN KEY (ORGANISER_ID) REFERENCES
ORGANIZER(ORGANISER_ID)
)

TEAMS(
  TEAM_ID VARCHAR(256) PRIMARY KEY,
  TEAM_NAME VARCHAR(256)
)

MAKE_TEAM(
  TEAM_ID VARCHAR(256),
  PARTICIPANT_ID VARCHAR(256),
  PRIMARY KEY (TEAM_ID, PARTICIPANT_ID),
  FOREIGN KEY (TEAM_ID) REFERENCES TEAMS(TEAM_ID),
  FOREIGN KEY (PARTICIPANT_ID) REFERENCES
PARTICIPANTS(PARTICIPANT_ID)
)

WINNERS(
  TEAM_ID VARCHAR(256),
  COMP_ID VARCHAR(256),
  BOUNTY NUMBER,
  PRIMARY KEY (TEAM_ID, COMP_ID),
  FOREIGN KEY (TEAM_ID) REFERENCES TEAMS(TEAM_ID),
  FOREIGN KEY (COMP_ID) REFERENCES
COMPETITION(COMP_ID)
)

REGISTERS(
  COMP_ID VARCHAR(256),
  TEAM_ID VARCHAR(256),
  PAYMENT_ID VARCHAR(256),
  AMOUNT NUMBER,
  PAYMENT_DATE VARCHAR(256),
  PRIMARY KEY (TEAM_ID, COMP_ID),
  FOREIGN KEY (COMP_ID) REFERENCES
COMPETITION(COMP_ID),
  FOREIGN KEY (TEAM_ID) REFERENCES TEAMS(TEAM_ID)
)
```

# ER MODEL


JF_name
JL_name
Judge_name
Spons_id
Spons_name
Spons_type
Spons_amount
Judge_id
Judge_email
Bounty
Sponser
Judge_List
Team_id
Winners
Comp_id
N
1
N
N
sponsorships
Won by
Judges
College_id
College_name
Location
Comp_id
Comp_date
Organizer_id
Organiser_type
College
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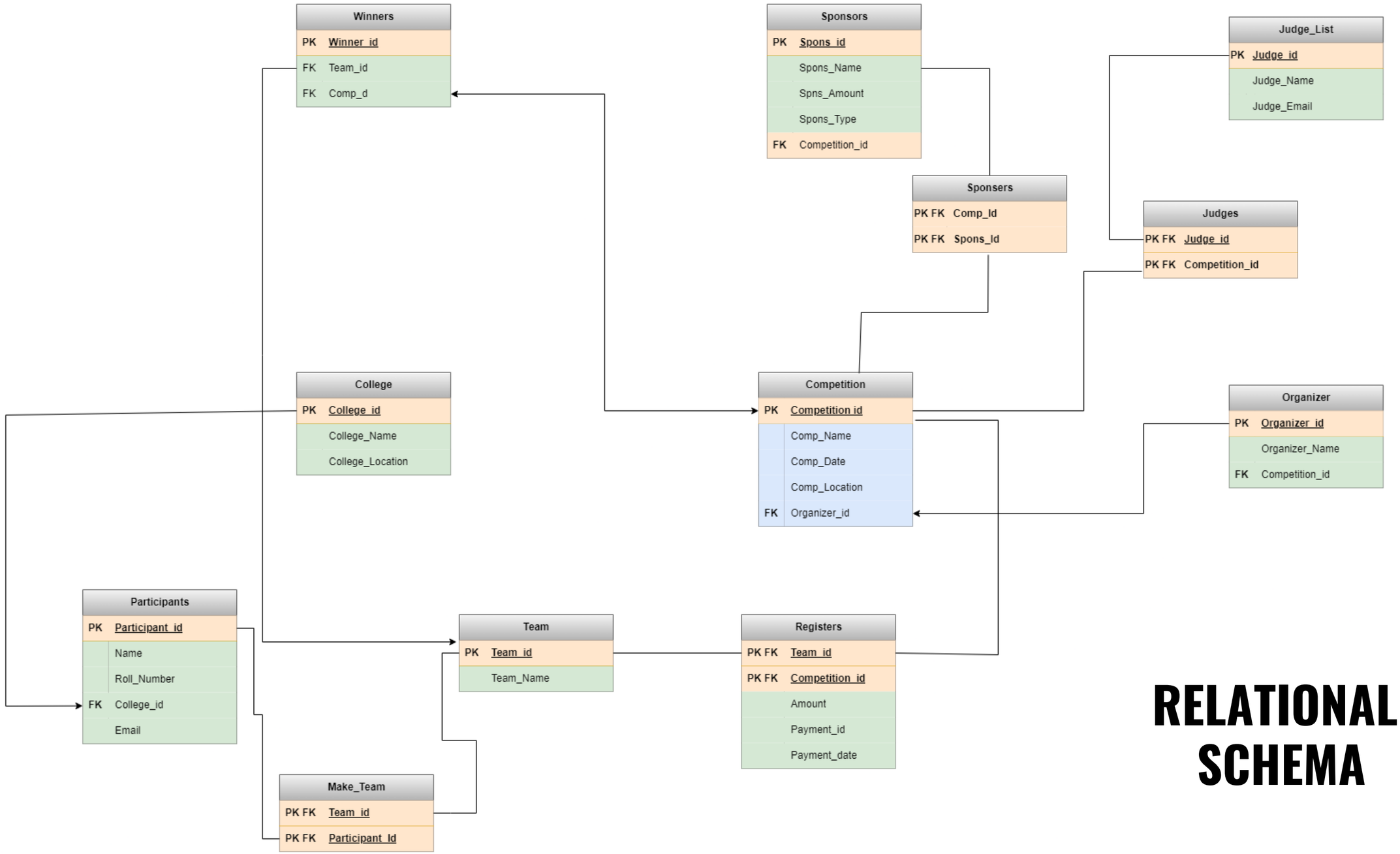
M
N
Competition
Organizes
Organisers
Organiser_name
Comp_name
N
1
1
Comp_Location
studies
Organiser_id
College_id
F_Name
1
N
M
Name
Participants
Makes
N
Teams
M
Registers
Amount
L_Name
Email
Roll number
Participant_ID
Team_name
Team_id
Payment_id
Payment_date




# RELATIONAL SCHEMA

# NORMALIZATION

- *First Normal Form (1NF):*

*A table is in 1NF if it doesn't contain repeating groups and each column contains only atomic values.*
*All the tables in the provided database schema are in 1NF because there are no repeating groups, and each column contains only atomic values.*

- *Second Normal Form (2NF):*

*A table is in 2NF if it is in 1NF and every non-key attribute is fully functionally dependent on the primary key.*
*In our schema, the JUDGE's table is not in 2NF because the COMP_ID and JUDGE_ID together make up the primary key, and the JF_NAME, JL_NAME, and JUDGE_EMAIL attributes depend only on the JUDGE_ID. Therefore, we need to remove these attributes from the JUDGES table and create a new JUDGE_LIST table.*

*After splitting the JUDGE's table, all tables in the schema are in 2NF.*

- *Third Normal Form (3NF):*

*A table is in 3NF if it is in 2NF and there are no transitive dependencies between non-key attributes.*
*The COMPETITION table has a transitive dependency between the ORGANISER_TYPE attribute and the ORGANISER_NAME attribute through the ORGANISER_ID attribute. Therefore, we need to remove the ORGANISER_TYPE attribute from the COMPETITION table and create a new ORGANIZER table.*

*After splitting the COMPETITION table, all tables in the schema are in 3NF.*

- *Boyce-Codd Normal Form (BCNF):*

*A table is in BCNF if, for every non-trivial functional dependency, the determinant is a superkey.*
*All tables in the provided schema are in BCNF after the normalization to 3NF. Therefore, there is no need to further decompose any tables to achieve BCNF.*

# CONCLUSION

CREATING AN INTER COLLEGE COMPETITION DATABASE CAN BE A USEFUL TOOL FOR MANAGING AND ORGANIZING VARIOUS ASPECTS OF THE COMPETITION, SUCH AS PARTICIPANT REGISTRATION, TEAM FORMATION, SPONSORSHIP MANAGEMENT, JUDGING, AND MORE. BY STORING ALL RELEVANT DATA IN A CENTRALIZED DATABASE, ORGANIZERS CAN EASILY TRACK AND MANAGE VARIOUS ASPECTS OF THE COMPETITION, MAKING IT EASIER TO ENSURE EVERYTHING RUNS SMOOTHLY.

IN ADDITION, THE DATABASE CAN BE USED TO GENERATE VARIOUS REPORTS AND ANALYTICS, SUCH AS PARTICIPANT STATISTICS, TEAM PERFORMANCE, SPONSORSHIP ROI, AND MORE. THIS CAN HELP ORGA HINIZERS GAIN VALUABLE INSIGHTS INTO THE COMPETITION, IDENTIFY AREAS FOR IMPROVEMENT, AND MAKE DATA-DRIVEN DECISIONS.

OVERALL, A WELL-DESIGNED INTER-COLLEGE COMPETITION DATABASE CAN BE A POWERFUL TOOL FOR ORGANIZING AND MANAGING A SUCCESSFUL COMPETITION. HOWEVER, IT IS IMPORTANT TO ENSURE THAT THE DATABASE IS DESIGNED TO MEET THE SPECIFIC NEEDS OF THE COMPETITION AND IS EASY TO USE FOR ALL STAKEHOLDERS, INCLUDING ORGANIZERS, PARTICIPANTS, SPONSORS, AND JUDGES. WITH THE RIGHT APPROACH, A COMPETITION DATABASE CAN HELP ENSURE A FAIR, ENGAGING, AND SUCCESSFUL EVENT FOR EVERYONE INVOLVED.

# OUTCOMES

- *Creating an inter-college competition database can have several positive outcomes. Some of these outcomes are:*
- *Efficient Management: A well-designed database can provide efficient management of the competition by automating tasks such as registration, team formation, scheduling, and scoring. This can save time and resources for the organizers and judges.*
- *Accurate Records: A database can maintain accurate records of all the competition-related information, such as the participants, teams, judges, sponsors, and winners. This can help the organizers to track the progress of the competition and make informed decisions.*
- *Improved communication huon: The database can facilitate better communication among the organizers, judges, sponsors, and participants. For example, the participants can receive timely updates about the competition schedule and rules, and the judges can communicate the scoring criteria and results to the organizers and participants.*
- *Transparency: A well-designed database can enhance the transparency of the competition by providing equal access to information for all the stakeholders. This can help to build trust and confidence among the participants and sponsors.*
- *Evaluation: The database can be used to evaluate the performance of the competition over time. The organizers can analyze the data to identify areas of improvement and make changes accordingly.*
- *Overall, creating an inter-college competition database can lead to a well-organized, transparent, and successful competition. It can also provide valuable insights and data that can be used to improve future competition.*