DBS Project Phase 1

A database system for student clubs in University of Tabuk

Team Members:

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Description of Chosen Database Example:

Our team choose to make a database system on student clubs in University of Tabuk, Student Clubs are communities of students within the university that share an interest or a passion toward something that they have in common, so our goal is to organize these communities into a database system to make it easier for the students and their supervisors to have a clear understanding of the clubs, the paths within them, the students in these clubs and their roles, and the activities that they have done.

The database contains 7 relations, and each relation ranges from 4 to 6 attributes and from 5 to 19 records.

User Categories:

- **Students of University of Tabuk.**
- **Academic and teaching staff of University of Tabuk.**
- **Any Organization that might want to collaborate with one or more student clubs in some activity.**

UT Student Clubes

clubID	clubName	clubMembers	Paths
GDC	Google Developer Club	219	4
TRC	Tourism Club	26	1
PGC	Programming Club	32	2
CTC	Culture Club	25	2
SPC	Sports Club	31	2

Cardinality: 5

Degree: 4

Keys:

Super Keys: clubID, clubName, cublID&clubName, clubID&clubMembers, clubID&Paths, clubName&clubMembers, clubName&Paths, clubID&clubName&clubMembers, clubID&clubName&Paths, clubID&clubMembers&Paths, clubName&clubMembers&Paths, clubID&clubName&clubMembers&Paths.

Candidates Keys: clubID, clubName.

Primary Key: clubID.

Alternate Keys: clubName.

Foreign Key: none.

Paths in Clubs

pathName	pathLeaderName	pathLeaderID	pathMembers	clubID
Game Development	Yazan Barakat	411010698	11	GDC
Artificial Intelligence	Mohamed Ali	3900106332	61	GDC
Computer science	Khalid Dossary	3900150221	104	GDC
Cyber Security	Mousa Ahmed	3800101022	43	GDC
Saudi Culture	Fhad Salah	420100235	15	CTC
Global Culture	Yasser Shehri	3800002252	7	CTC
Football	Fawaz Oribi	3910005555	22	SPC
Body Building	Aziz Hazazi	4210002146	9	SPC
Development	Ahmed Naser	4110103535	15	PGC
Design	Ali Khalid	3900110146	7	PGC
General Tourism	Mohamed Mustafa	3900150846	26	TRC

Cardinality: 11

Degree: 5

Keys:

Super Keys: pathName, pathLeaderID, pathName&pathLeaderName, pathName&pathLeaderID, pathName&pathMembers, pathLeaderName&pathLeaderID, pathLeaderID&pathMembers, pathName&pathLeaderName&pathLeaderID, pathName&pathLeaderName&pathMembers, pathName&pathLeaderID&pathMembers, pathLeaderName&pathLeaderID&pathMembers, pathName&pathLeaderName&pathLeaderID&pathMembers.

Candidate Keys: pathName, pathLeaderID.

Primary Key: pathName.

Alternate Keys: pathLeaderID.

Foreign Key: clubID

memberName	memberID	clubID	pathName	memberRole
Harethah AbuShariah	4110103535	GDC	Game Development	Participant
Nawaf Al-shihri	411010558	PGC	Development	Participant
Mohamed Yasser	411000235	TRC	Local Tourism	Participant
Khaled Naser	421000235	CTC	Saudi Culture	Participant
Mazen Ali	390001154	SPC	Football	Participant
Ahmed Naser	4110103535	PGC	Development	Participant
Ali Khalid	3900110146	PGC	Design	Participant
Mohamed Mustafa	3900150846	TRC	General Tourism	Participant
Yazan Barakat	411010698	GDC	Game Development	Leader
Mohamed Ali	3900106332	GDC	Artificial Intelligence	Leader
Khalid Dossary	3900150221	GDC	Computer science	Leader
Mousa Ahmed	3800101022	GDC	Cyber Security	Leader
Fhad Salah	420100235	CTC	Saudi Culture	Leader
Yasser Shehri	3800002252	CTC	Global Culture	Leader
Fawaz Oribi	3910005555	SPC	Football	Leader
Aziz Hazazi	4210002146	SPC	Body Building	Leader
Ahmed Naser	4110103535	PGC	Development	Leader
Ali Khalid	3900110146	PGC	Design	Leader
Mohamed Mustafa	3900150846	TRC	General Tourism	Leader

Cardinality: 19

Degree: 5

Keys:

Super Keys: MemberID, memberName&MemberID, MemberID&clubID, MemberID&pathName, MemberID&memberRole, MemberID&clubID&pathName, memberName&MemberID&clubID, memberName&MemberID&memberRole, memberName&MemberID&pathName, memberName&MemberID&clubID&pathName&memberRole.

Candidate Key: memberID.

Primary Key: memberID.

Alternate Key: none.

Foreign Keys: clubID, pathName.

Organizations

orgID	orgName	orgSpecialty	orgCollabCount
Org01	Google	Computer Technology	1
Org02	Chalk Studio	Game Development	1
Org03	Ministry of Tourism	Tourism	1
Org04	National Cybersecurity	Cyber Security	1
Org05	Ministry of Sports	Sports	1

Cardinality: 4

Degree: 5

Keys:

Super Keys: orgID&orgName&orgSpecialty&orgCollabCount, orgID&orgName&orgSpecialty, orgID&orgName&orgCollabCount, orgID&orgSpecialty&orgCollabCount, orgName&orgSpecialty&orgCollabCount, orgID&orgName, orgIDorgCollabCount, orgID&orgSpecialty, orgName&orgSpecialty, orgName&orgCollabCount, orgID, orgName.

Candidate Keys: orgID, orgName.

Primary Key: orgID.

Alternate Key: orgName.

Foreign Key: None.

Club Activities

activityName	activityType	Participants	Date	clubID
Game Jam	Online	7	19-Jan-2022	GDC
Java Course	Online	30	12-Mar-2021	PGC
Visiting Mount Al-Loz	Outdoors	13	1-Apr-2021	TRC
Hackathon	Online	142	10-Jan-2022	GDC
Html Contest	Online	34	20-Jan-2022	PGC
Football Tournament	Outdoors	88	10-Feb-2021	SPC

Cardinality: 6

Degree: 5

Keys:

Super Keys: activityName, activityName&activityType, activityName&Participants, activityName&Date, activityName&activityType&Participants, activityName&activityType&Date, activityName&Participants&Date, activityName&activityType&Participants&Date.

Candidate Keys: activityName.

Primary Key: activityName.

Alternate Key: None.

Foreign Key: clubID.

Collaborations

collabNo	orgID	clubID	collabType	collabDesc	activityName
C001	Org01	GDC	General	Create and sponsor the club	Null
C002	Org02	GDC	Specific	Organize a game design competition	Game Jam
C003	Org03	TRC	Specific	Organize multiple tours around Tabuk	Null
C004	Org04	PGC	Specific	Organize a programming competition	Hackathon
C005	Org05	SPT	General	Provide Club with equipment and support	Null

Cardinality: 5

Degree: 6

Keys:

Super Keys: collabNo, collabNo&orgID, collabNo&clubID, collabNo&orgID&clubID, collabNo&orgID&clubID&collabType, collabNo&orgID&clubID&collabType&collabDesc, collabNo&orgID&clubID&collabType&collabDesc&activityName
#Note: Due to the high number of attributes only a sample of the possible set of Super Keys is provided.

Candidate Keys: collabNo.

Primary Key: collabNo.

Alternate Key: None.

Foreign Key: clubID, orgID, activityName.

Clubs Supervisors

supervisorName	supervisorFaculty	supervisorID	clubID
Dr. Majed	Computer And IT	101101	GDC
Dr. Ahmad	Art And Design	105664	CTC
Dr. Awad	Computer And IT	102246	PGC
Dr. Khaled	Toursim	109531	TRC
Dr. Yasir	Applied Sciences	105411	SPC

Degree: 4

Cardinality: 5

Keys:

Super Keys: supervisorID, supervisorID&supervisorName, supervisorID&supervisorFaculty, supervisorID&clubID, supervisorID&supervisorName&supervisorFaculty, supervisorID&supervisorName&clubID, supervisorID&clubID&supervisorFaculty.
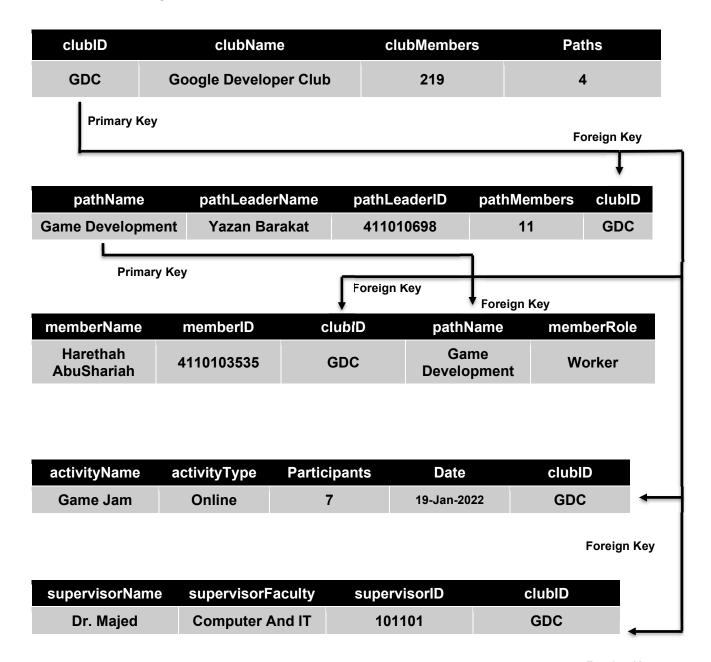
Candidate Keys: supervisorID.

Primary Key: supervisorID.

Alternate Keys: None.

Foreign Key: clubID.

Relation Example:

clubID	clubName	clubMembers	Paths
GDC	Google Developer Club	219	4

Primary Key

Foreign Key

pathName	pathLeaderName	pathLeaderID	pathMembers	clubID
Game Development	Yazan Barakat	411010698	11	GDC

Primary Key

Foreign Key

Foreign Key

memberName	memberID	clubID	pathName	memberRole
Harethah AbuShariah	4110103535	GDC	Game Development	Worker

activityName	activityType	Participants	Date	clubID
Game Jam	Online	7	19-Jan-2022	GDC

Foreign Key

supervisorName	supervisorFaculty	supervisorID	clubID
Dr. Majed	Computer And IT	101101	GDC

Foreign Key

Domain Table

Attribute	Domain Name	Meaning	Domain Definition
clubID	Club ID	The set of all possible club Identifiers	Characters: size 3
clubName	Club Name	The set of all possible Club Names	Characters: size 25
clubMembers	Club Members	The Number of members in each club	Int: size 3
Paths	Path Count	The number of Paths in each club	Int: size 2
pathName	Path Name	The set of all possible Path Names	Characters: size 25
pathLeaderName	Path Leader Name	The set of all possible Path Leader Names	Characters: size 25
pathLeaderID	Path Leader ID	The set of all possible Path Leader Identifiers	Characters: size 10
pathMembers	path Members	The Number of members in each path	Int: size 4
memberName	Member Name	The set of all possible Members Names	Characters: size 25
memberID	Member ID	The set of all possible members Identifiers	Characters: size 10
memberRole	Member Role	The set of all possible member roles.	Characters: size 11, value Participant or Leader
date	Date	The possible value of the activity date	Date, range of 1-jan-20, Format dd-mmm-yy
supervisorName	Supervisor Name	The set of all possible Names of supervisors from UT	Characters: size 25
supervisorFaculty	Supervisor Faculty	The name of faculty that the supervisor belongs to	Characters: size 25
supervisorsID	Supervisors ID	The set of all possible supervisors Identifiers	Characters: size 10
activityName	Activity Name	The set of all possible names of activities done by the club	Characters: size 25
activityType	Activity Type	The type of activity	Characters: size 8, value Online or Outdoors
participants	Participants	The number of participants in an activity	Characters: size 6
orgID	Organization ID	The set of all possible organization Identifiers	Characters: size 5

orgName	Organization name	The set of all possible Names of organizations	Characters: size 25
orgSpecialty	Organization Specialty	The field the organization is specialized in	Character: size 25
collabNo	Collaboration Number	The set of all possible collaboration numbers	Character: size 4
orgCollabCount	Organization Collaborations Counter	The number of times an org collaborated with any of the student clubs	Int: size 2
collabType	Collaboration Type	The type of collaboration	Characters: size 8, value General or Specific
collabDesc	Collaboration Description	The Description of the collaboration	Characters: size 40