

	ENTITY	RELATIONSHIP	CONNECTIVITY	ENTITY
1	USER	Has	1:M	SUBSCRIPTION
2	VIDEO_CONSUMER	Has(Inherits from USER)	1:M	SUBSCRIPTION
3	VIDEO_CREATOR	Has(Inherits from USER)	1:M	SUBSCRIPTION
4	USER	Comments	1:M	COMMENT
5	USER	Watches	1:M	VIDEO
6	USER	Gives	1:M	STATISTICS
7	VIDEO_CREATOR	Creates	1:M	CHANNEL
8	VIDEO_CREATOR	Uploads	1:M	VIDEO
9	CHANNEL	Has	1:M	SUBSCRIPTION
10	CHANNEL	Has	1:M	VIDEO
11	VIDEO	Has	1:1	STATISTICS
12	VIDEO	Has	1:M	SPONSER
13	VIDEO	Has	1:M	COMMENT

I am assuming VIDEO_CREATOR and VIDEO_CONSUMER are inheriting the relationship of the USER entity to COMMENT, VIDEO and STATISTICS and SUBSCRIPTION.

1	The relationship between USER and SUBSCRIPTION is 1:M since a user can subscribe to multiple channels. A user can also not subscribe to any channel. Hence the relationship notation is zero or many on SUBSCRIPTION. The subscription is unique to a particular user. Hence the notation is one and only one on the USER. This relationship of the user is inherited by VIDEO_CREATOR and VIDEO_CONSUMER.
2	Inherits relationship from USER
3	Inherits relationship from USER
4	The relationship between USER and COMMENT is 1:M since a user can have multiple comments. A user can also not have any comments. Hence the relationship notation is zero or many on COMMENT. A particular comment with a specific comment id is commented by only one user. Hence the notation is one and only one on the USER. This relationship of the

	user is inherited by VIDEO_CREATOR and VIDEO_CONSUMER.
5	A user can watch multiple videos. A user can also not watch any video. This relationship of the user is inherited by VIDEO_CREATOR and VIDEO_CONSUMER.
6	A user gives statistics for video. This relationship of the user is inherited by VIDEO_CREATOR and VIDEO_CONSUMER.
7	A video creator can create multiple channels. For a user to be a video creator, at least one video must be uploaded, so the relationship notation is one or many on CHANNEL. Video creators upload their unique video, hence the relationship notation is one and only one on VIDEO_CREATOR.
8	A video creator can upload multiple videos.
9	A CHANNEL can have multiple subscriptions.
10	A CHANNEL can have multiple videos.
11	Statistics are specific for a particular video.
12	A VIDEO can have multiple sponsors.
13	A VIDEO can have multiple comments.

USER

Since the user id is unique, it is the primary key. USER_ID, NAME, EMAIL, AGE, and ADDRESS are required attributes.

VIDEO_CREATOR and VIDEO_CONSUMER

Youtube users can be both VIDEO_CREATOR and VIDEO_CONSUMER, and an overlapping subtype represents this relationship.

USER_IS_VIDEO_CONSUMER and USER_IS_VIDEO_CREATOR are attributes created in the USER table to identify which users are video consumers and video creators.

Video consumers can subscribe to the 'N' number of channels. Here, I have assumed that the video consumer inherits the relationship between the subscription and the user. The minimum value can be 0, and the maximum can be N. The cardinality is (0, N). I am assuming in N is 1000, so cardinality is (0,1000)

USER_ID of VIDEO_CREATOR table IS UPLOADER_ID of VIDEO table.

Attribute REVENUE represents the revenue earned by VIDEO_CREATOR. Revenue earned by the content creator is determined by the popularity of channels and videos, which is gauged by statistics. I have added a column REVENUE in VIDEO_CREATOR a table and CHANNEL_ID in VIDEO_TABLE. I can get statistics of all videos in a channel by joining CHANNEL_TABLE and VIDEO_TABLE on CHANNEL_ID. This will give me all the VIDEO_ID of a particular channel to find popularity.

SUBSCRIPTION

SUBSCRIPTION is designed as a bridge entity between the user and the channel. A user can have zero or more subscriptions, but a subscription is unique to a channel. The details of the subscription of video consumers to video are available to subscribers(video consumers) and video creators.

The attribute SUBSCRIPTION_COUNT represents the details of the subscription of video consumers. The attribute CHANNEL_COUNT represents the subscription details of the video with the video creator.

Since a subscription can be either free or paid and not both, the subtype is disjoint. The subscription type is the primary and foreign key in the subtype table.

I am assuming SUBSCRIPTION_ID and SUBSCRIPTION_TYPE are the primary keys of the SUBSCRIPTION entity.

CHANNEL

The owner attribute of the CHANNEL entity is USER_ID of VIDEO_CREATOR.

STATISTICS

A USER watches a video and also can give statistics. I am assuming that the relationship between USER and STATISTICS, VIDEO, is inherited by VIDEO_CONSUMERS.

VIDEO

Videos are categorized into informational, entertainment, etc. The completeness is partial since there can be categories of videos other than informational and entertainment. Since entertainment video is identified based on tags and informational videos are identified based on keywords, I am assuming there is no overlapping; hence, the subtype disjoint subtype.

COMMENT

Each video can have an 'N' number of comments. The minimum value is 0, and the maximum value is N. Cardinality is (0, N). One user can have zero or many comments. I am assuming N is 1000, so cardinality is (0,1000).

SPONSOR

Since the third-party sponsor is the optional source of income, the relationship is zero to many mapping.