Intro to Databases
EECS 116

Assignment 2
Translating ER Diagrams and Working with MySQL

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Contents

1 Domain Constraints

ID (BID, LOID, EID, PID, SPID, OID, SID) > 0

Building ZIPCODE > 0

Room CAPACITY, NUMBER > 0

Image Sensor RESOLUTION in `"720 x 480", "1280 x 720", "2048 x 1080"`

Temperature Sensor METRIC SYSTEM in "Celsius", "Kelvin"

GPS Sensor POWER > 0

Location Sensor REAL TIME in {`"True", "False"`}

Event ACTIVITY in {`entering, walking, running, bending, standing, etc`}

2 Key Constraints

2.1 Superkeys

Building = BID

Location Object = LOID, BID

Room = LOID

Corridor = LOID

Open Area = LOID

Office = LOID

Meeting Room = LOID

Event = EID

Person = PID

Sensor Platform = SPID

Sensor = SID, SPID

Mobile Platform = SPID

Fixed Platform = SPID

Location Sensor = SID

Image Sensor = SID

Temperature Sensor = SID

GPS Sensor = SID

Raw Image = SID, OID, EID

Raw Temperature = SID, OID, EID

Raw GPS = SID, OID, EID

Observation = OID, EID

2.2 Primary keys:

Building = BID

Location Object = LOID

Event = EID

Person = PID

Sensor Platform = SPID

Observation = OID, EID

Sensor = SID

2.3 Foreign keys:

Room = LOID

Corridor = LOID

Open Area = LOID

Office = LOID

Meeting Room = LOID

Mobile Platform = SPID

Fixed Platform = SPID

Location Sensor = SID

Image Sensor = SID

Temperature Sensor = SID

GPS Sensor = SID

Raw Image = SID, OID, EID

Raw Temperature = SID, OID, EID

Raw GPS = SID, OID, EID

Observation = EID

3 Entity Identity Constraints

Primary and foreign keys are all not null.

4 Referential Integrity Constraints

The foreign key is a primary key of another entity.

5 Relations

Location Object (LOID , BID , floor , lower_left_x , lower_left_y, upper_right_x, upper_right_y)

Room (LOID , number , capacity)

Office (LOID)

Meeting Room (LOID)

Corridor (LOID)

Open Area (LOID)

Person (PID , firstname , lastname)

Event (EID , activity , confidence , starttime, endtime)

Observation (OID , EID)

Raw Image (OID , EID , SID , timestamp)

Sensor Tables (SID, Name) *Strong Entity Set*

Image_Sensor (SID , resolution)

Temperature_Sensor (SID , metric_system)

GPS_Sensor (SID , power)

Location_Sensor (SID , real_time)

Sensor Platform Tables *Strong Entity Set*

Sensor_Platform (SPID , name)

Mobile_Platform (SPID)

Fixed_Platform (SPID)

Event (EID , confidence, activity)

Observation Table(OID, EID) *Weak Entity Set

Raw_Image (Image , OID , EID)

Raw_Temperature (Temperature , OID , EID)

Raw_GPS (Latitude , Longitude , OID, EID)