Oblig 4 – Datamodellering & Databasesystemer

Oppgave 1

Building (buildingId, streetId , description, longName, shortName, streetNo)
Primary Key: buildingId
Foreign Keys: streetId **references** Street(streetId)

CommercialBuilding (buildingId, visitorEntrance)
Primary Key: buildingId
Foreign Keys: buildingId **references** Building(buildingId)

ConveyanceInstallation (installationId, capacityKG, entranceCM)
Primary Key: installationId
Foreign Keys: installationId **references** EquipmentInstallation(installationId)

ConveyanceEquipment (energyEfficiencyClass)
Primary Key: equipmentId {FK}
Foreign Keys: equipmentId **references** EquipmentModel(equipmentId)

Country (countryId, country)
Primary Key: countryId

EnergySourceType (code, name)
Primary Key: code

EquipmentInstallation (installationId, buildingId, floorNo, floorSectionNo, interiorSpaceId, equipmentModelId , alias, description, installationDate)
Primary Key: installationId
Foreign Keys: buildingId **references** Building(buildingId)
              floorNo **references** Floor(floorNo)
              floorSectionNo **references** FloorSection(floorSectionNo)
              interiorSpaceId **references** InteriorSpace(spaceId)
              equipmentModelId **references** EquipmentModel(equipmentId)

EquipmentModel (equipmentId, equipmentTypeCode , modelNo, longName, manufacturer, description)
Primary Key: equipmentId
ForeignKeys: equipmentTypeCode **references** EquipmentType(code)

EquipmentType (code, name)

Primary Key: code

Floor (buildingId, floorNumber, description, elevationM, shortName, verticalOrder)
Primary Key: buildingId {FK}, floorNumber
Foreign Keys: buildingId **references** Building(buildingId)

FloorSection (buildingId, floorNo, sectionNo, description, shortName)
Primary Key: buildingId, floorNo, sectionNo (composite)
Foreign Keys: buildingId **references** Floor(buildingId)
         floorNo **references** Floor(floorNo)**HvacEquipment** (equipmentId, code)

HvacEquipment (equipmentId, code)
Primary Key: equipmentId
Foreign Key: equipmentId **references** EquipmentModel(equipmentId)
         code **references** EnergySourceType(code)

InteriorSpace (spaceId, spaceCategoryCode, buildingId, verticalOrder, floorSectionId, capacity, description, longName, occupancy, shortName)
Primary Key: spaceId
Foreign Keys: spaceCategoryCode **references** SpaceCategory(code)
         verticalOrder **references** Floor(verticalOrder)
         buildingId **references** Floor(buildingId)
         floorSectionId **references** FloorSection(buildingId)

OwnershipModel (code, name)
Primary Key: code

ParkingGarage (garageId, buildingId, noOfSpaces, openToPublic)
Primary Key: garageId
Foreign Keys: buildingId **references** Building(buildingId)

PostalCode (countryId, postalCode, countryId, state)
Primary Key: countryId, postalCode
Foreign Keys: countryId **references** Country(countryId)

ResidentialBuilding (buildingId, noOfUnits)
Primary Key: buildingId
Foreign Keys: buildingId **references** Building(buildingId)

ResidentialBuilding_OwnershipModel (code, buildingId)
Foreign Keys: code **references** OwnershipModel(code)
               buildingId **references** ResidentialBuilding(buildingId)

ServiceEvent (serviceDate, installationId, servicemanInitials, description)
Primary Key: serviceDate, installationId
Foreign Key: installationId **references** EquipmentInstallation(installationId)

ServiceOperation (serviceCode, installationId, serviceDate, equipmentModelId, description, longname, serviceInterval)
Primary Key: serviceCode, installationId, serviceDate
Foreign Keys: equipmentModelId **references** EquipmentModel(equipmentId)
               installationId **references** EquipmentInstallation(installationId)
               serviceDate **references** ServiceEvent(serviceDate)

ServiceEvent_ServiceOperation (serviceDate, installationId, description)
Primary Key: serviceDate, serviceCode, installationId, description)
Foreign Keys: serviceDate **references** ServiceEvent(serviceDate)
               installationId **references** ServiceEvent(installationId)
               serviceCode **references** ServiceOperation(serviceCode)

SpaceCategory (code, name)
Primary Key: code

Street (streetId, postalCode, countryId, streetName)
Primary Key: streetId
Foreign Keys: postalCode **references** PostalCode(postalCode)
               countryId **references** Country(countryId)

Oppgave 2

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CREATE TABLE  'Building' (
 'buildingId' int NOT NULL AUTO_INCREMENT,
 'shortName' varchar(20) DEFAULT NULL,
 'longName' varchar(100) DEFAULT NULL,
 'streetId' int NOT NULL,
 'streetNo' int DEFAULT NULL,
 'description' text(2000),
 PRIMARY KEY ('buildingId')
) DEFAULT CHARSET=utf8 ;


CREATE TABLE  'ConveyanceInstallation' (
 'installationId' int NOT NULL,
 'capacityKG' int DEFAULT NULL,
 'entranceCM' int DEFAULT NULL
) DEFAULT CHARSET=utf8 ;

CREATE TABLE  'Country' (
 'countryId' int NOT NULL AUTO_INCREMENT,
 'country' varchar(50) NOT NULL,
 PRIMARY KEY ('countryId')
) DEFAULT CHARSET=utf8 ;

CREATE TABLE  'EnergySourceType' (
 'code' varchar(20) NOT NULL,
 'name' varchar(100) NOT NULL,
 PRIMARY KEY ('code')
) DEFAULT CHARSET=utf8 ;

CREATE TABLE  'EquipmentInstallation' (
 'installationId' int NOT NULL AUTO_INCREMENT,
 'buildingId' int NOT NULL,
 'floorNo' int,
 'floorSectionNo' int,
 'interiorSpaceId' int,
 'equipmentModelId' int NOT NULL,
 'alias' varchar(100) DEFAULT NULL,
 'installationDate' timestamp NULL DEFAULT NULL,
 'description' text,
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  PRIMARY KEY ('installationId'),
  KEY 'buildingId' ('buildingId')
) DEFAULT CHARSET=utf8 ;

CREATE TABLE  'EquipmentModel' (
  'equipmentId' int NOT NULL AUTO_INCREMENT,
  'equipmentTypeCode' varchar(20) DEFAULT NULL,
  'modelNo' varchar(100) NOT NULL,
  'longName' varchar(100) DEFAULT NULL,
  'manufacturer' varchar(100) DEFAULT NULL,
  'description' text,
  PRIMARY KEY ('equipmentId')
) DEFAULT CHARSET=utf8 ;

CREATE TABLE  'EquipmentType' (
  'code' varchar(20) NOT NULL,
  'name' varchar(100) NOT NULL,
  PRIMARY KEY ('code')
) DEFAULT CHARSET=utf8;

CREATE TABLE  'HvacEquipment' (
  'equipmentId' int NOT NULL,
  'code' varchar(20) NOT NULL,
  KEY 'equipmentId' ('equipmentId'),
  KEY 'code' ('code')
) DEFAULT CHARSET=utf8;

CREATE TABLE  'OwnershipModel' (
  'code' varchar(20) NOT NULL,
  'name' varchar(50) NOT NULL,
  PRIMARY KEY ('code')
) DEFAULT CHARSET=utf8;

CREATE TABLE  'PostalCode' (
  'postalCode' int NOT NULL,
  'countryId' int NOT NULL,
  'state' varchar(100) NOT NULL,
  PRIMARY KEY ('postalCode','countryId')
) DEFAULT CHARSET=utf8;

CREATE TABLE  'ResidentialBuilding' (
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 'buildingId' int NOT NULL,
 'noOfUnits' int NOT NULL,
 PRIMARY KEY ('buildingId')
) DEFAULT CHARSET=utf8;


CREATE TABLE  'ResidentialBuilding_OwnershipModel' (
 'code' varchar(20) NOT NULL,
 'buildingId' int NOT NULL,
 KEY 'code' ('code'),
 KEY 'buildingId' ('buildingId')
) DEFAULT CHARSET=utf8;


CREATE TABLE  'ServiceEvent' (
 'installationId' int NOT NULL,
 'serviceDate' date NOT NULL,
 'serviceManInitials' varchar(5) NOT NULL,
 'description' text NOT NULL,
 PRIMARY KEY ('installationId','serviceDate')
) DEFAULT CHARSET=utf8;


CREATE TABLE  'Street' (
 'streetId' int NOT NULL AUTO_INCREMENT,
 'streetName' varchar(100) NOT NULL,
 'postalCode' int NOT NULL,
 'countryId' int NOT NULL,
 PRIMARY KEY ('streetId'),
 KEY 'countryId' ('countryId','postalCode')
) DEFAULT CHARSET=utf8;


ALTER TABLE  'ConveyanceInstallation' ADD FOREIGN KEY ( installationId ) REFERENCES
EquipmentInstallation( installationId ) ;

ALTER TABLE  'EquipmentInstallation' ADD FOREIGN KEY ( buildingId ) REFERENCES
Building( buildingId );

ALTER TABLE 'EquipmentInstallation' ADD FOREIGN KEY (equipmentModelId) REFERENCES
EquipmentModel(equipmentId);

ALTER TABLE 'EquipmentModel' ADD FOREIGN KEY (equipmentTypeCode) REFERENCES
EquipmentType(code);
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ALTER TABLE `HvacEquipment` ADD FOREIGN KEY (equipmentId) REFERENCES
EquipmentModel(equipmentId);

ALTER TABLE `HvacEquipment` ADD FOREIGN KEY (code) REFERENCES
EnergySourceType(code);

ALTER TABLE `PostalCode` ADD FOREIGN KEY (countryId) REFERENCES Country(countryId);

ALTER TABLE `ResidentialBuilding` ADD FOREIGN KEY (buildingId) REFERENCES
Building(buildingId);

ALTER TABLE `ResidentialBuilding_OwnershipModel` ADD FOREIGN KEY (code)
REFERENCES OwnershipModel(code);

ALTER TABLE `ResidentialBuilding_OwnershipModel` ADD FOREIGN KEY (buildingId)
REFERENcES ResidentialBuilding(buildingId);

ALTER TABLE `ServiceEvent` ADD FOREIGN KEY (installationId) REFERENCES
EquipmentInstallation(installationId);

ALTER TABLE `Street` ADD FOREIGN KEY (countryId, postalCode) REFERENCES
PostalCode(countryId, postalCode);

—- Inserts

INSERT INTO OwnershipModel VALUES ('BL', 'Borettslagsleilighet');
INSERT INTO OwnershipModel VALUES ('Leie', 'Utleieleilighet');
INSERT INTO OwnershipModel VALUES ('Selv', 'Selveierleilighet');

INSERT INTO EquipmentType (code) VALUES ('PHeis');
INSERT INTO EquipmentType (code) VALUES ('VHeis');
INSERT INTO EquipmentType (code) VALUES ('RTrapp');
INSERT INTO EquipmentType (code) VALUES ('RBånd');

INSERT INTO Country (country) VALUES ("Norway");

INSERT INTO PostalCode VALUES (1850, (SELECT countryId FROM Country WHERE country =
'Norway'), "Østfold");

INSERT INTO Street (streetName, postalCode, countryId) VALUES ("Torggaten", 1850, (SELECT

countryId FROM Country WHERE country = 'Norway'));

INSERT INTO Building (streetId, streetNo) VALUES ((SELECT streetId FROM Street WHERE streetName="Torggaten" AND postalCode=1850 LIMIT 1), 17);

INSERT INTO ResidentialBuilding VALUES ((SELECT buildingId FROM Building ORDER BY buildingId DESC LIMIT 1),11);

INSERT INTO EquipmentModel (equipmentTypeCode, manufacturer, modelNo) VALUES ('PHeis', 'ThyssenKrupp', 'EVOLUTION BLUE BC 61 F 00 - 40');

INSERT INTO EnergySourceType (code) VALUES ('A');

INSERT INTO EquipmentInstallation (buildingId, installationDate, equipmentModelId) VALUES ((SELECT buildingId FROM Building ORDER BY buildingId DESC LIMIT 1), DATE("2010-11-23"), (SELECT equipmentId FROM EquipmentModel ORDER BY equipmentId DESC LIMIT 1));

INSERT INTO ConveyanceInstallation VALUES ((SELECT installationId FROM EquipmentInstallation ORDER BY installationId DESC LIMIT 1), 800, 125);

INSERT INTO ServiceEvent (installationId, serviceDate, servicemanInitials)
VALUES ((SELECT installationId FROM EquipmentInstallation ORDER BY installationId DESC LIMIT 1), DATE("2010-11-15"), 'PK'), ((SELECT installationId FROM EquipmentInstallation ORDER BY installationId DESC LIMIT 1), DATE("2012-11-15"), 'OAK');