Hogwarts School of Witchcraft and Wizardry

Database System Documentation

Group B1

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1 DBMS

We chose and installed the following DBMS: Oracle 21c Express Edition. We also installed Oracle SQL Developer - software that helps to manage the Oracle database and allows generating an image with all relations. At last, we created the whole database structure with SQL code visible below and generated the aforementioned image of all relations (Fig. 1)
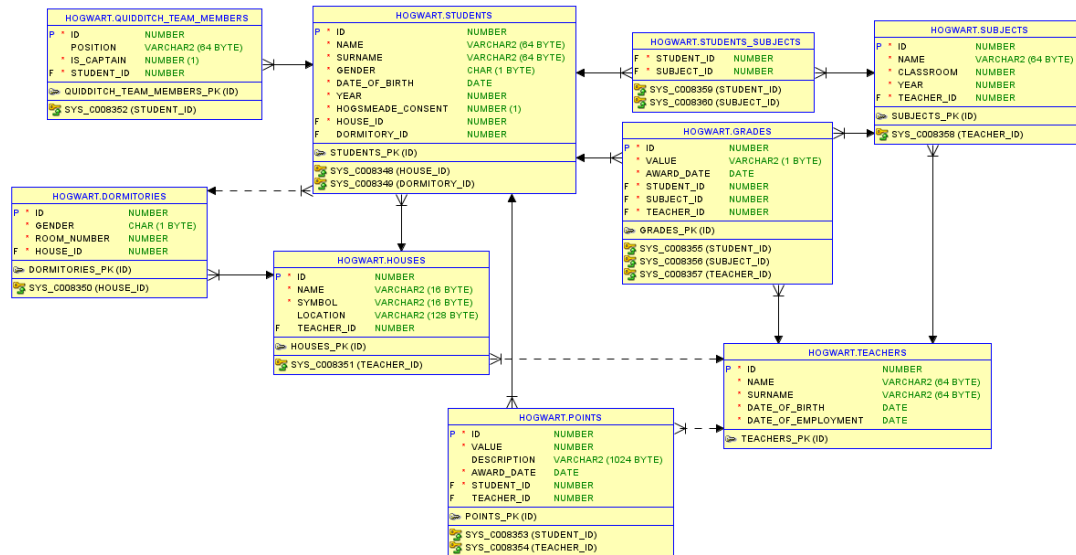

Figure 1: Database schema generated with Oracle SQL Developer Software

```
CREATE TABLE Students (
    id NUMBER NOT NULL PRIMARY KEY,
    name VARCHAR2(64) NOT NULL,
    surname VARCHAR2(64) NOT NULL,
    gender CHAR NOT NULL,
    date_of_birth DATE NOT NULL,
    year NUMBER NOT NULL,
    hogsmeade_consent NUMBER(1) DEFAULT 0 NOT NULL,
    house_id NUMBER NOT NULL,
    dormitory_id NUMBER
);

CREATE TABLE Dormitories (
    id NUMBER NOT NULL PRIMARY KEY,
    gender CHAR NOT NULL,
    room_number NUMBER NOT NULL,
    house_id NUMBER NOT NULL
);

CREATE TABLE Houses (
    id NUMBER NOT NULL PRIMARY KEY,
    name VARCHAR2(16) NOT NULL,
    symbol VARCHAR2(16) NOT NULL,
    location VARCHAR2(128),
    teacher_id NUMBER
);

CREATE TABLE Quidditch_Team_Members (
    id NUMBER NOT NULL PRIMARY KEY,
    position VARCHAR2(64),
```

```
      is_captain NUMBER(1) DEFAULT 0 NOT NULL,
      student_id NUMBER NOT NULL
);

CREATE TABLE Teachers (
      id NUMBER NOT NULL PRIMARY KEY,
      name VARCHAR2(64) NOT NULL,
      surname VARCHAR2(64) NOT NULL,
      date_of_birth DATE NOT NULL,
      date_of_employment DATE NOT NULL
);

CREATE TABLE Points (
      id NUMBER NOT NULL PRIMARY KEY,
      value NUMBER NOT NULL,
      description VARCHAR2(1024),
      award_date DATE NOT NULL,
      student_id NUMBER NOT NULL,
      teacher_id NUMBER
);

CREATE TABLE Grades (
      id NUMBER NOT NULL PRIMARY KEY,
      value VARCHAR2(1) NOT NULL,
      award_date DATE NOT NULL,
      student_id NUMBER NOT NULL,
      subject_id NUMBER NOT NULL,
      teacher_id NUMBER NOT NULL
);

CREATE TABLE Subjects (
      id NUMBER NOT NULL PRIMARY KEY,
      name VARCHAR2(64) NOT NULL,
      classroom NUMBER NOT NULL,
      year NUMBER NOT NULL,
      teacher_id NUMBER NOT NULL
);

CREATE TABLE Students_Subjects (
      student_id NUMBER NOT NULL,
      subject_id NUMBER NOT NULL
);


ALTER TABLE Students
    ADD FOREIGN KEY (house_id) REFERENCES Houses(id);

ALTER TABLE Students
    ADD FOREIGN KEY (dormitory_id) REFERENCES Dormitories(id);

ALTER TABLE Dormitories
    ADD FOREIGN KEY (house_id) REFERENCES Houses(id);

ALTER TABLE Houses
    ADD FOREIGN KEY (teacher_id) REFERENCES Teachers(id);

ALTER TABLE Quidditch_Team_Members
    ADD FOREIGN KEY (student_id) REFERENCES Students(id);
```

```
ALTER TABLE Points
    ADD FOREIGN KEY (student_id) REFERENCES Students(id);

ALTER TABLE Points
    ADD FOREIGN KEY (teacher_id) REFERENCES Teachers(id);

ALTER TABLE Grades
    ADD FOREIGN KEY (student_id) REFERENCES Students(id);

ALTER TABLE Grades
    ADD FOREIGN KEY (subject_id) REFERENCES Subjects(id);

ALTER TABLE Grades
    ADD FOREIGN KEY (teacher_id) REFERENCES Teachers(id);

ALTER TABLE Subjects
    ADD FOREIGN KEY (teacher_id) REFERENCES Teachers(id);

ALTER TABLE Students_Subjects
    ADD FOREIGN KEY (student_id) REFERENCES Students(id);

ALTER TABLE Students_Subjects
    ADD FOREIGN KEY (subject_id) REFERENCES Subjects(id);
```