«Министерство образования и науки Российской Федерации Федеральное государственное бюджетное образовательное учреждение высшего образования «Алтайский государственный технический университет им. И.И. Ползунова»

Факультет информационных технологий

Кафедра прикладной математики

Отчёт защищён с оценкой\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Преподаватель Ананьев П.И.

«\_\_\_\_\_»\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2022 г.

Отчёт

По лабораторной работе №4

«Создание модели данных с помощью CASE-средства, поддерживающего ER-моделирование»

Студент группы ПИ-92 Шульпов В.М.

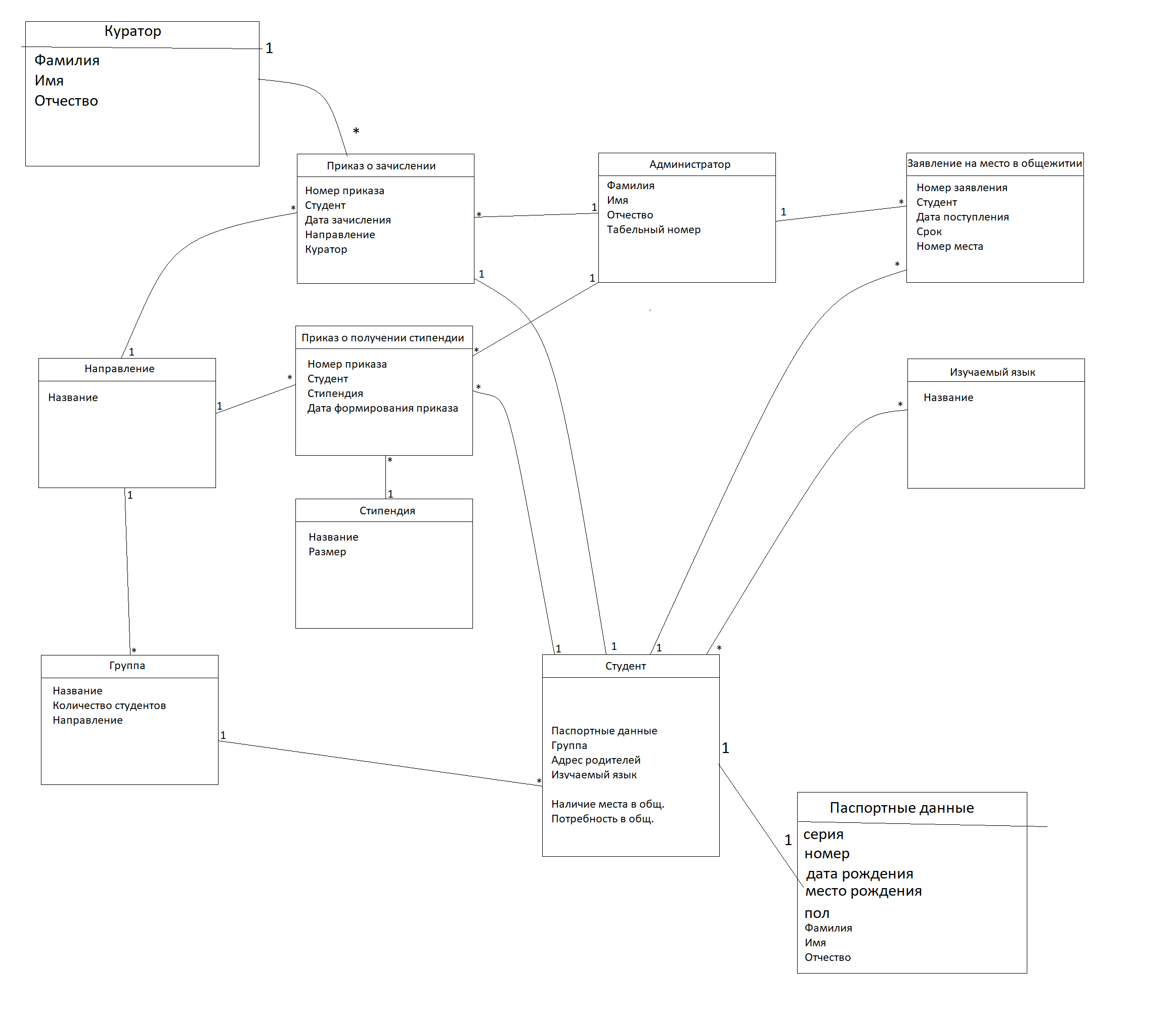
Преподаватель доцент Ананьев П.И.

Барнаул 2022

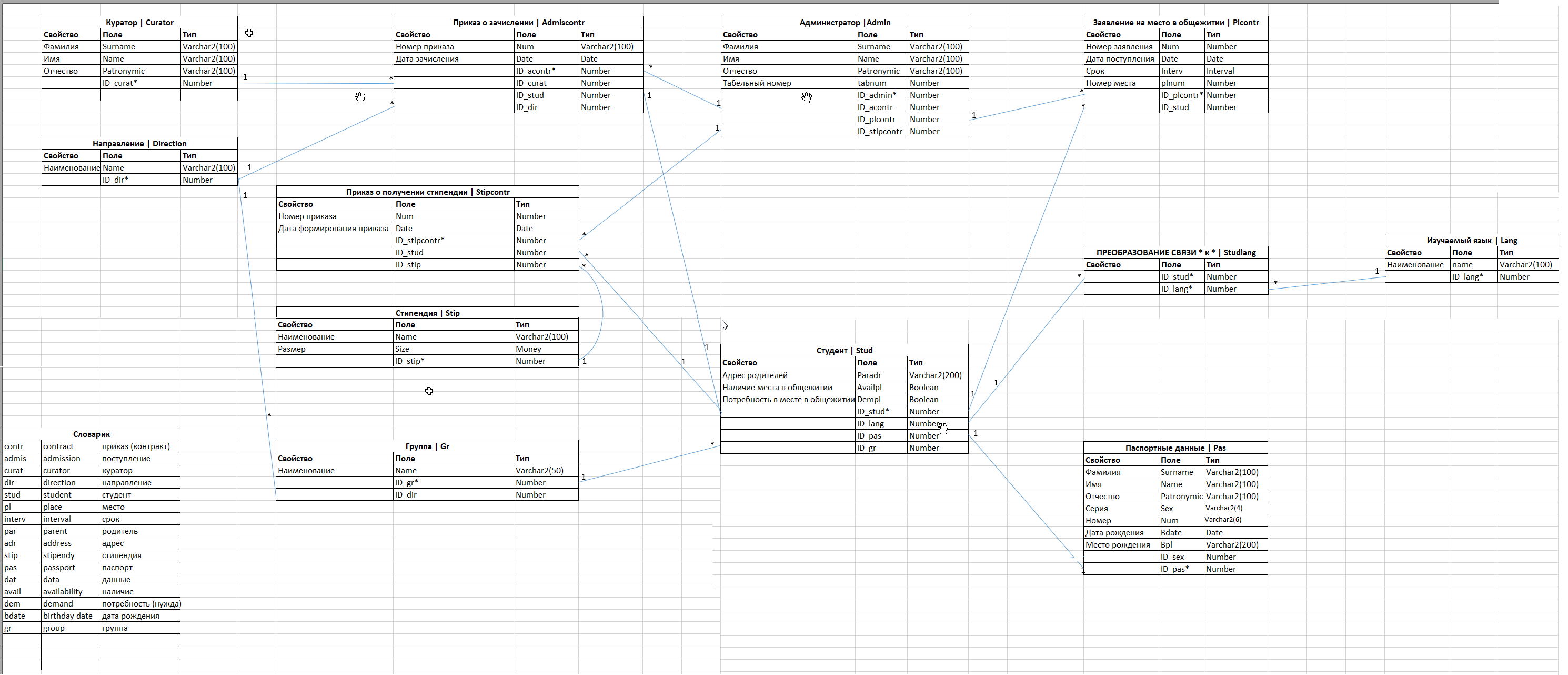
**Вариант 34**

Кадры студентов. Паспортные данные, группа, адрес родителей, изучаемый язык, размер стипендии, наличие места в общежитии (или потребность в нем).

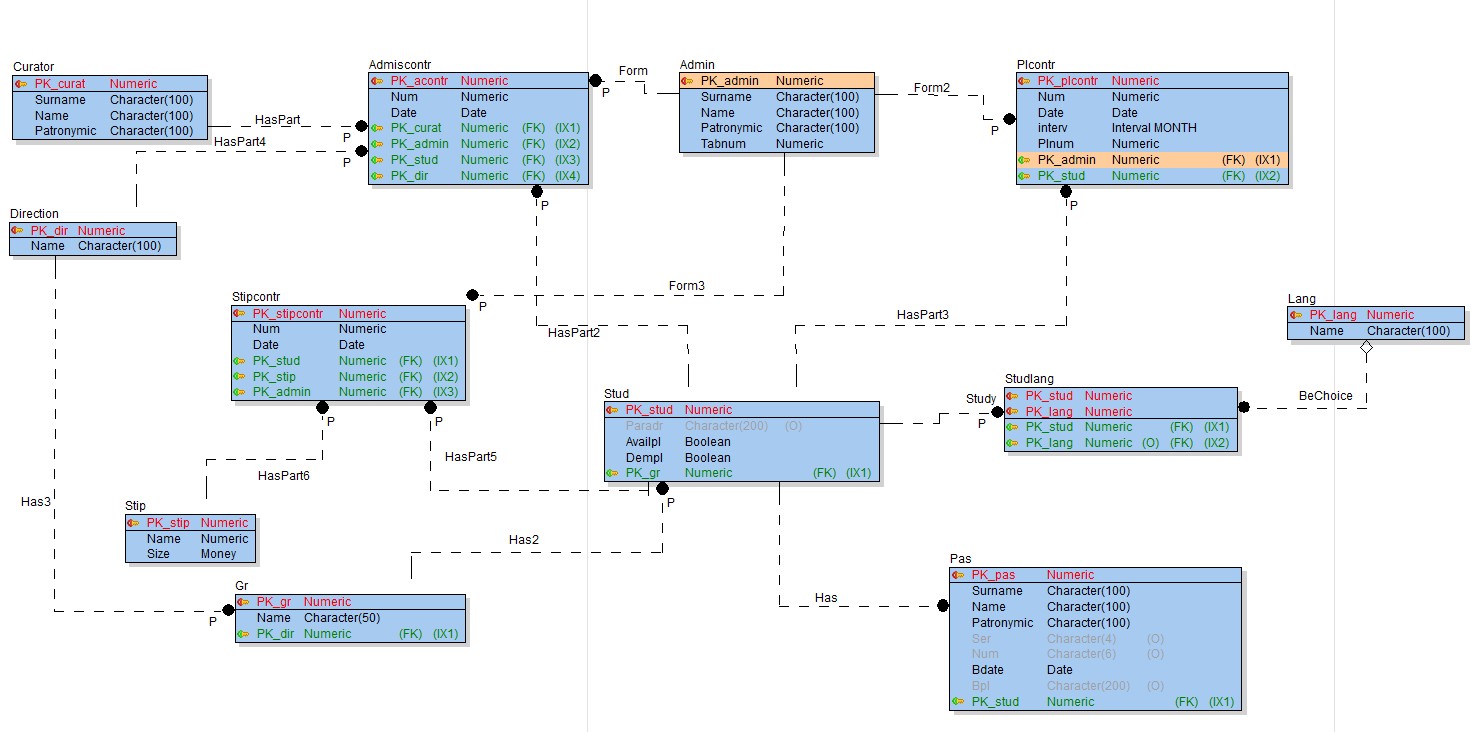
Концептуальная модель



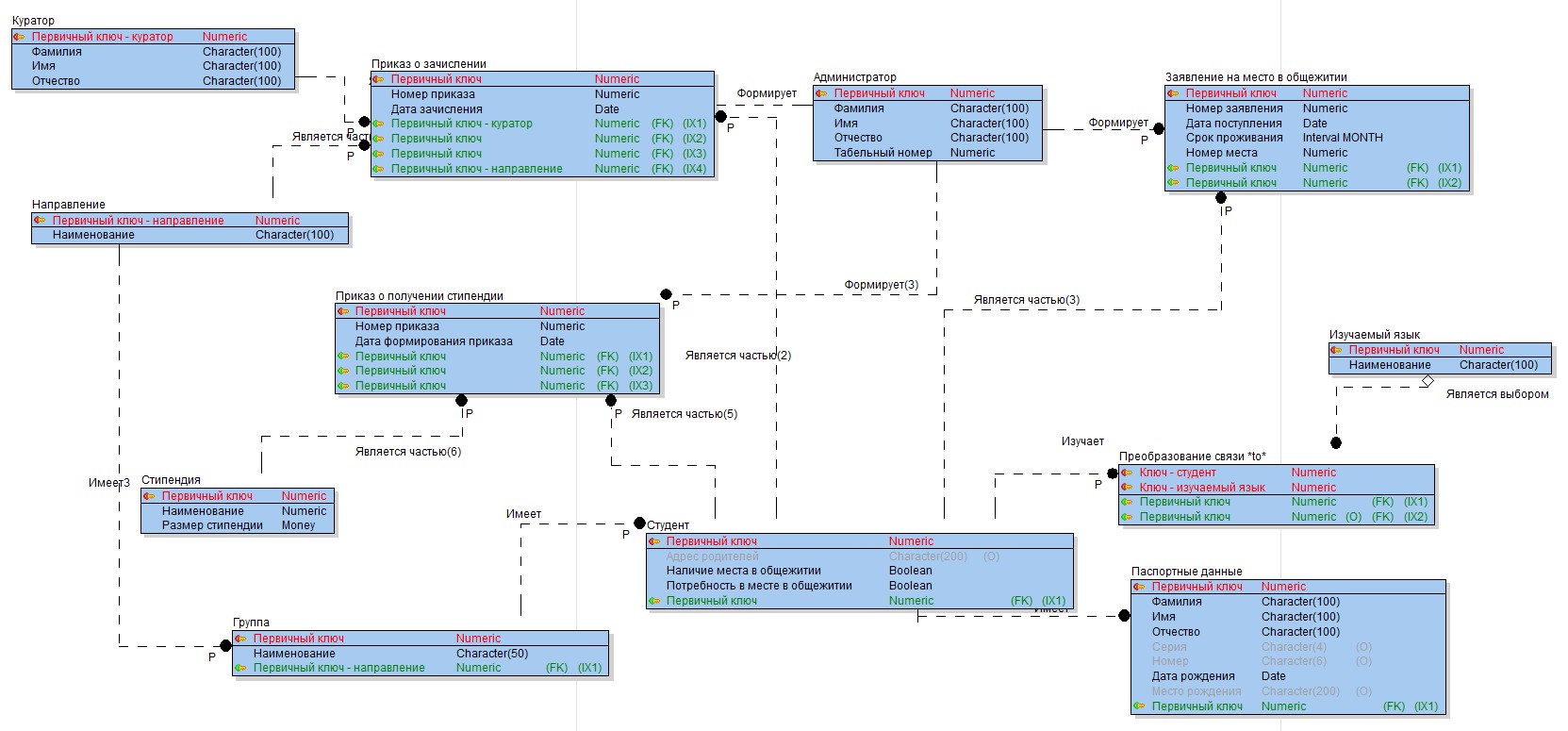
Реляционная модель



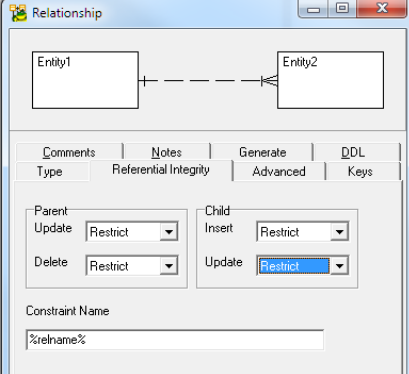
Логическая модель в технологии IDEF1X



Логическая модель в технологии IDEF1X (captions)



**Ссылочная целостность не нарушается** благодаря методу обработки restrict

*Restrict – проверяет, имеются ли в подчиненной таблице записи, удовлетворяющие значению текущего первичного ключа, и при их наличии запрещает изменение первичного ключа ( запрещает добавление записи к подчиненной таблице, если в главной таблице отсутствует запись с подходящим значением ключа)*

**Сгенерированный DLL скрипт**

/\*

Created: 09.04.2022

Modified: 10.04.2022

Model: PostgreSQL 12

Database: PostgreSQL 12

\*/

-- Create tables section -------------------------------------------------

-- Table Curator

CREATE TABLE "Curator"

(

"Surname" Character(100) NOT NULL,

"Name" Character(100) NOT NULL,

"Patronymic" Character(100) NOT NULL,

"PK\_curat" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

ALTER TABLE "Curator" ADD CONSTRAINT "PK\_Curator" PRIMARY KEY ("PK\_curat")

;

-- Table Direction

CREATE TABLE "Direction"

(

"Name" Character(100) NOT NULL,

"PK\_dir" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

ALTER TABLE "Direction" ADD CONSTRAINT "PK\_Direction" PRIMARY KEY ("PK\_dir")

;

-- Table Admiscontr

CREATE TABLE "Admiscontr"

(

"Num" Numeric NOT NULL,

"Date" Date NOT NULL,

"PK\_acontr" Numeric NOT NULL,

"PK\_curat" Numeric NOT NULL,

"PK\_admin" Numeric NOT NULL,

"PK\_stud" Numeric NOT NULL,

"PK\_dir" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship2" ON "Admiscontr" ("PK\_curat")

;

CREATE INDEX "IX\_Relationship3" ON "Admiscontr" ("PK\_admin")

;

CREATE INDEX "IX\_Relationship5" ON "Admiscontr" ("PK\_stud")

;

CREATE INDEX "IX\_Relationship13" ON "Admiscontr" ("PK\_dir")

;

ALTER TABLE "Admiscontr" ADD CONSTRAINT "PK\_Admiscontr" PRIMARY KEY ("PK\_acontr")

;

-- Table Admin

CREATE TABLE "Admin"

(

"Surname" Character(100) NOT NULL,

"Name" Character(100) NOT NULL,

"Patronymic" Character(100) NOT NULL,

"Tabnum" Numeric NOT NULL,

"PK\_admin" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

ALTER TABLE "Admin" ADD CONSTRAINT "PK\_Admin" PRIMARY KEY ("PK\_admin")

;

-- Table Plcontr

CREATE TABLE "Plcontr"

(

"Num" Numeric NOT NULL,

"Date" Date NOT NULL,

"interv" Interval MONTH NOT NULL,

"Plnum" Numeric NOT NULL,

"PK\_plcontr" Numeric NOT NULL,

"PK\_admin" Numeric NOT NULL,

"PK\_stud" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship4" ON "Plcontr" ("PK\_admin")

;

CREATE INDEX "IX\_Relationship6" ON "Plcontr" ("PK\_stud")

;

ALTER TABLE "Plcontr" ADD CONSTRAINT "PK\_Plcontr" PRIMARY KEY ("PK\_plcontr")

;

-- Table Studlang

CREATE TABLE "Studlang"

(

"PK\_stud" Numeric NOT NULL,

"PK\_lang" Numeric NOT NULL,

"PK\_stud" Numeric NOT NULL,

"PK\_lang" Numeric

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship9" ON "Studlang" ("PK\_stud")

;

CREATE INDEX "IX\_Relationship10" ON "Studlang" ("PK\_lang")

;

ALTER TABLE "Studlang" ADD CONSTRAINT "PK\_Studlang" PRIMARY KEY ("PK\_stud","PK\_lang")

;

-- Table Lang

CREATE TABLE "Lang"

(

"Name" Character(100) NOT NULL,

"PK\_lang" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

ALTER TABLE "Lang" ADD CONSTRAINT "PK\_Lang" PRIMARY KEY ("PK\_lang")

;

-- Table Pas

CREATE TABLE "Pas"

(

"Surname" Character(100) NOT NULL,

"Name" Character(100) NOT NULL,

"Patronymic" Character(100) NOT NULL,

"Ser" Character(4),

"Num" Character(6),

"Bdate" Date NOT NULL,

"Bpl" Character(200),

"PK\_pas" Numeric NOT NULL,

"PK\_stud" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship11" ON "Pas" ("PK\_stud")

;

ALTER TABLE "Pas" ADD CONSTRAINT "PK\_Pas" PRIMARY KEY ("PK\_pas")

;

-- Table Stud

CREATE TABLE "Stud"

(

"Paradr" Character(200),

"Availpl" Boolean DEFAULT False NOT NULL,

"Dempl" Boolean DEFAULT False NOT NULL,

"PK\_stud" Numeric NOT NULL,

"PK\_gr" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship12" ON "Stud" ("PK\_gr")

;

ALTER TABLE "Stud" ADD CONSTRAINT "PK\_Stud" PRIMARY KEY ("PK\_stud")

;

-- Table Stipcontr

CREATE TABLE "Stipcontr"

(

"Num" Numeric NOT NULL,

"Date" Date NOT NULL,

"PK\_stipcontr" Numeric NOT NULL,

"PK\_stud" Numeric NOT NULL,

"PK\_stip" Numeric NOT NULL,

"PK\_admin" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship15" ON "Stipcontr" ("PK\_stud")

;

CREATE INDEX "IX\_Relationship16" ON "Stipcontr" ("PK\_stip")

;

CREATE INDEX "IX\_Relationship17" ON "Stipcontr" ("PK\_admin")

;

ALTER TABLE "Stipcontr" ADD CONSTRAINT "PK\_Stipcontr" PRIMARY KEY ("PK\_stipcontr")

;

-- Table Stip

CREATE TABLE "Stip"

(

"Name" Numeric NOT NULL,

"Size" Money NOT NULL,

"PK\_stip" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

ALTER TABLE "Stip" ADD CONSTRAINT "PK\_Stip" PRIMARY KEY ("PK\_stip")

;

-- Table Gr

CREATE TABLE "Gr"

(

"Name" Character(50) NOT NULL,

"PK\_gr" Numeric NOT NULL,

"PK\_dir" Numeric NOT NULL

)

WITH (

autovacuum\_enabled=true)

;

CREATE INDEX "IX\_Relationship14" ON "Gr" ("PK\_dir")

;

ALTER TABLE "Gr" ADD CONSTRAINT "PK\_Gr" PRIMARY KEY ("PK\_gr")

;

-- Create foreign keys (relationships) section -------------------------------------------------

ALTER TABLE "Admiscontr"

ADD CONSTRAINT "HasPart"

FOREIGN KEY ("PK\_curat")

REFERENCES "Curator" ("PK\_curat")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Admiscontr"

ADD CONSTRAINT "Form"

FOREIGN KEY ("PK\_admin")

REFERENCES "Admin" ("PK\_admin")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Plcontr"

ADD CONSTRAINT "Form2"

FOREIGN KEY ("PK\_admin")

REFERENCES "Admin" ("PK\_admin")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Admiscontr"

ADD CONSTRAINT "HasPart2"

FOREIGN KEY ("PK\_stud")

REFERENCES "Stud" ("PK\_stud")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Plcontr"

ADD CONSTRAINT "HasPart3"

FOREIGN KEY ("PK\_stud")

REFERENCES "Stud" ("PK\_stud")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Studlang"

ADD CONSTRAINT "Study"

FOREIGN KEY ("PK\_stud")

REFERENCES "Stud" ("PK\_stud")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Studlang"

ADD CONSTRAINT "BeChoice"

FOREIGN KEY ("PK\_lang")

REFERENCES "Lang" ("PK\_lang")

ON DELETE NO ACTION

ON UPDATE NO ACTION

;

ALTER TABLE "Pas"

ADD CONSTRAINT "Has"

FOREIGN KEY ("PK\_stud")

REFERENCES "Stud" ("PK\_stud")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Stud"

ADD CONSTRAINT "Has2"

FOREIGN KEY ("PK\_gr")

REFERENCES "Gr" ("PK\_gr")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Admiscontr"

ADD CONSTRAINT "HasPart4"

FOREIGN KEY ("PK\_dir")

REFERENCES "Direction" ("PK\_dir")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Gr"

ADD CONSTRAINT "Has3"

FOREIGN KEY ("PK\_dir")

REFERENCES "Direction" ("PK\_dir")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Stipcontr"

ADD CONSTRAINT "HasPart5"

FOREIGN KEY ("PK\_stud")

REFERENCES "Stud" ("PK\_stud")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Stipcontr"

ADD CONSTRAINT "HasPart6"

FOREIGN KEY ("PK\_stip")

REFERENCES "Stip" ("PK\_stip")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;

ALTER TABLE "Stipcontr"

ADD CONSTRAINT "Form3"

FOREIGN KEY ("PK\_admin")

REFERENCES "Admin" ("PK\_admin")

ON DELETE RESTRICT

ON UPDATE RESTRICT

;