**A5: Esquema relacional, validação e melhoramento**

Este artefacto contém o esquema relacional obtido através do mapeamento do modelo conceptual de dados. O esquema relacional inclui o esquema de relações, atributos, domínios, chaves primárias, chaves estrangeiras e outras regras de integridade: UNIQUE, DEFAULT, NOT NULL, CHECK.

**Esquema Relacional**

|  |  |
| --- | --- |
| R01 | user(id, username **UK NN**, password **NN**, email **UK NN**, registDate **NN DF** Today,  firstName **NN**, lastName **NN**, imagePath, city\_id → city **NN**) |
| R02 | event(id, name **NN**, date **NN** date > Today, description **NN**, owner\_id → user **NN**, localization\_id → localization **NN**, image\_id → image,  type **NN CK** type IN Types, category **NN CK** category IN Categories) |
| R03 | done(event\_id → event, rating **NN CK** rating > 0 AND rating < = 5) |
| R04 | notDone(event\_id → event) |
| R05 | paticipant(user\_id → user**,** event\_id → event) |
| R06 | owner(user\_id → user**,** event\_id → event) |
| R07 | image(id, path **NN UK**) |
| R08 | localization(id, name, address **NN**, latitude, longitude, city\_id → city **NN**) |
| R09 | city(id, name **UK NN**, country\_id → country **NN**) |
| R10 | country(id, name **UK NN**) |
| R11 | post(id, description **NN**, date **NN DF** Today, event\_id → event **NN**,  user\_id → user **NN**, image\_id → image) |
| R12 | poll(id, post\_id → post **NN**) |
| R13 | option(id, description **NN**, poll\_id → poll **NN**) |
| R14 | admin(id, username **UK NN**, password **NN**, email **UK NN**) |
| R15 | friendRequest(id, answer, sender\_id → user **NN,** receiver\_id → user **NN**) |
| R16 | friendActivity(id, sender\_id → participant **NN,** receiver\_id → user **NN**,  event\_id → event **NN**) |
| R17 | eventInvite(id, answer, event\_id → notDone **NN**, owner\_id → owner **NN**,  receiver\_id → user **NN**) |

**Domínios**

|  |  |
| --- | --- |
| Today | DATE DEFAULT CURRENT\_DATE |
| Types | ENUM(‘Public’, Private’) |
| Categories | ENUM(‘Music’, ‘Sports’, ‘Entertainment’, ‘Educational’, ‘Business’, ‘Other’) |

**Dependências funcionais e validação do esquema**

|  |  |
| --- | --- |
| **Table R01** (user) | |
| **Keys:** {id}, {username}, {email} | |
| **Dependências Funcionais** | |
| FD0101 | {id} → {username, email, password, registDate, firstName, lastName, image, city} |
| FD0102 | {username} → {id, email, password, registDate, firstName, lastName, image, city} |
| FD0103 | {email} → {id, username, password, registDate, firstName, lastName, image, city} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R02** (event) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD0201 | {id} → {name, date, type, category, description, localization, owner, image\_id} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R03** (done) | |
| **Keys:** {event\_id} | |
| **Dependências Funcionais** | |
| FD0301 | {event\_id} → {rating} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R04** (notDone) | |
| **Keys:** {event\_id} | |
| **Dependências Funcionais** | |
| (none) | |
| **Forma Normal** | BCNF |

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| --- | --- |
| **Table R05** (participant) | |
| **Keys:** {user\_id, event\_id} | |
| **Dependências Funcionais** | |
| (none) | |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R06** (owner) | |
| **Keys:** {user\_id, event\_id} | |
| **Dependências Funcionais** | |
| (none) | |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R07** (image) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD0701 | {id} → {path} |
| **Forma Normal** | BCNF |

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| --- | --- |
| **Table R08** (localization) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD0801 | {id} → {name, address, latitude, longitude, city\_id} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R09** (city) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD0901 | {id} → {name, country\_id} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R10** (country) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1001 | {id} → {name} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R11** (post) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1101 | {id} → {description, date, event, user\_id, image} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R12** (poll) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1201 | {id} → {post} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R13** (option) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1301 | {id} → {description, poll} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R14** (admin) | |
| **Keys:** {id}, {username}, {email} | |
| **Dependências Funcionais** | |
| FD1401 | {id} → {username, email, password} |
| FD1402 | {username} → {id, email, password} |
| FD1403 | {email} → {id, username, password} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R15** (friendRequest) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1501 | {id} → {answer, sender\_id, receiver\_id} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R16** (friendActivity) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1601 | {id} → {sender\_id, receiver\_id, event\_id} |
| **Forma Normal** | BCNF |

|  |  |
| --- | --- |
| **Table R17** (eventInvite) | |
| **Keys:** {id} | |
| **Dependências Funcionais** | |
| FD1701 | {id} → {answer, event\_id, owner\_id, receiver\_id } |
| **Forma Normal** | BCNF |

**SQL código**

--Types Enums

CREATE TYPE category\_type AS ENUM(

'Music',

'Sports',

'Entertainment',

'Educational',

'Business',

'Other'

);

CREATE TYPE event\_type AS ENUM(

'Public',

'Private'

);

--Tables

CREATE TABLE admin (

id SERIAL NOT NULL,

username text NOT NULL,

password text NOT NULL,

email text NOT NULL

);

CREATE TABLE city (

id SERIAL NOT NULL,

name text NOT NULL,

country\_id INTEGER NOT NULL

);

CREATE TABLE country (

id SERIAL NOT NULL,

name text NOT NULL

);

CREATE TABLE done (

event\_id INTEGER NOT NULL,

rating INTEGER NOT NULL,

CONSTRAINT rating\_ck CHECK (((rating > 0) AND (rating <= 5)))

);

CREATE TABLE event (

id SERIAL NOT NULL,

name text NOT NULL,

date TIMESTAMP WITH TIME zone NOT NULL,

description text NOT NULL,

owner\_id INTEGER NOT NULL,

localization\_id INTEGER NOT NULL,

image\_id INTEGER NOT NULL,

type event\_type NOT NULL,

category category\_type NOT NULL,

CONSTRAINT date\_ck CHECK ((date > now()))

);

CREATE TABLE eventInvite (

id SERIAL NOT NULL,

answer text NOT NULL,

event\_id INTEGER NOT NULL,

owner\_id INTEGER NOT NULL,

receiver\_id INTEGER NOT NULL

);

CREATE TABLE friendActivity (

id SERIAL NOT NULL,

sender\_id INTEGER NOT NULL,

receiver\_id INTEGER NOT NULL,

event\_id INTEGER NOT NULL

);

CREATE TABLE friendRequest (

id SERIAL NOT NULL,

answer text NOT NULL,

sender\_id INTEGER NOT NULL,

receiver\_id INTEGER NOT NULL,

event\_id INTEGER NOT NULL

);

CREATE TABLE image (

id SERIAL NOT NULL,

path text NOT NULL

);

CREATE TABLE localization (

id SERIAL NOT NULL,

name text NOT NULL,

address text NOT NULL,

latitude FLOAT,

longitude FLOAT,

city\_id INTEGER NOT NULL

);

CREATE TABLE notDone (

event\_id INTEGER NOT NULL

);

CREATE TABLE option (

id SERIAL NOT NULL,

description text NOT NULL,

poll\_id INTEGER NOT NULL

);

CREATE TABLE owner (

user\_id INTEGER NOT NULL,

event\_id INTEGER NOT NULL

);

CREATE TABLE participant (

user\_id INTEGER NOT NULL,

event\_id INTEGER NOT NULL

);

CREATE TABLE poll (

id SERIAL NOT NULL,

post\_id INTEGER NOT NULL

);

CREATE TABLE post (

id SERIAL NOT NULL,

description text NOT NULL,

date TIMESTAMP WITH TIME zone NOT NULL,

event\_id INTEGER NOT NULL,

user\_id INTEGER NOT NULL,

image\_id INTEGER NOT NULL

);

CREATE TABLE user (

id SERIAL NOT NULL,

username text NOT NULL,

password text NOT NULL,

email text NOT NULL,

registDate TIMESTAMP WITH TIME zone DEFAULT now() NOT NULL,

firstName text NOT NULL,

lastName text NOT NULL,

imagePath text NOT NULL,

city\_id INTEGER NOT NULL

);

-- Primary Keys and Uniques

ALTER TABLE ONLY admin

ADD CONSTRAINT admin\_pk PRIMARY KEY (id);

ALTER TABLE ONLY admin

ADD CONSTRAINT admin\_email\_uk UNIQUE (email);

ALTER TABLE ONLY city

ADD CONSTRAINT city\_pk PRIMARY KEY (id);

ALTER TABLE ONLY city

ADD CONSTRAINT city\_name\_uk UNIQUE (name);

ALTER TABLE ONLY country

ADD CONSTRAINT country\_pk PRIMARY KEY (id);

ALTER TABLE ONLY country

ADD CONSTRAINT country\_name\_uk UNIQUE (name);

ALTER TABLE ONLY done

ADD CONSTRAINT done\_pk PRIMARY KEY (event\_id);

ALTER TABLE ONLY event

ADD CONSTRAINT event\_pk PRIMARY KEY (id);

ALTER TABLE ONLY eventInvite

ADD CONSTRAINT eventInvite\_pk PRIMARY KEY (id);

ALTER TABLE ONLY friendActivity

ADD CONSTRAINT friendActivity\_pk PRIMARY KEY (id);

ALTER TABLE ONLY friendRequest

ADD CONSTRAINT friendRequest\_pk PRIMARY KEY (id);

ALTER TABLE ONLY image

ADD CONSTRAINT image\_pk PRIMARY KEY (id);

ALTER TABLE ONLY image

ADD CONSTRAINT image\_path\_uk UNIQUE (path);

ALTER TABLE ONLY localization

ADD CONSTRAINT localization\_pk PRIMARY KEY (id);

ALTER TABLE ONLY notDone

ADD CONSTRAINT notDone\_pk PRIMARY KEY (event\_id);

ALTER TABLE ONLY option

ADD CONSTRAINT option\_pk PRIMARY KEY (id);

ALTER TABLE ONLY owner

ADD CONSTRAINT owner\_pk PRIMARY KEY (user\_id, event\_id);

ALTER TABLE ONLY participant

ADD CONSTRAINT participant\_pk PRIMARY KEY (user\_id, event\_id);

ALTER TABLE ONLY poll

ADD CONSTRAINT poll\_pk PRIMARY KEY (id);

ALTER TABLE ONLY post

ADD CONSTRAINT post\_pk PRIMARY KEY (id);

ALTER TABLE ONLY user

ADD CONSTRAINT user\_pk PRIMARY KEY (id);

ALTER TABLE ONLY user

ADD CONSTRAINT user\_name\_uk UNIQUE (name);

ALTER TABLE ONLY user

ADD CONSTRAINT user\_email\_uk UNIQUE (email);

-- Foreign Keys

ALTER TABLE ONLY city

ADD CONSTRAINT city\_country\_id\_fk FOREIGN KEY (country\_id) REFERENCES country(id) ON DELETE SET NULL;

ALTER TABLE ONLY done

ADD CONSTRAINT done\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON UPDATE CASCADE;

ALTER TABLE ONLY event

ADD CONSTRAINT event\_owner\_id\_fk FOREIGN KEY (owner\_id) REFERENCES user(id) ON UPDATE CASCADE;

ALTER TABLE ONLY event

ADD CONSTRAINT event\_localization\_id\_fk FOREIGN KEY (localization\_id) REFERENCES localization(id) ON DELETE SET NULL;

ALTER TABLE ONLY event

ADD CONSTRAINT event\_image\_id\_fk FOREIGN KEY (image\_id) REFERENCES image(id) ON DELETE SET NULL;

ALTER TABLE ONLY eventInvite

ADD CONSTRAINT eventInvite\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES notDone(event\_id) ON DELETE CASCADE;

ALTER TABLE ONLY eventInvite

ADD CONSTRAINT eventInvite\_owner\_id\_fk FOREIGN KEY (owner\_id) REFERENCES owner(user\_id) ON DELETE SET NULL;

ALTER TABLE ONLY eventInvite

ADD CONSTRAINT eventInvite\_receiver\_id\_fk FOREIGN KEY (receiver\_id) REFERENCES user(id) ON DELETE SET NULL;

ALTER TABLE ONLY friendActivity

ADD CONSTRAINT friendActivity\_sender\_id\_fk FOREIGN KEY (sender\_id) REFERENCES participant(user\_id) ON DELETE SET NULL;

ALTER TABLE ONLY friendActivity

ADD CONSTRAINT friendActivity\_receiver\_id\_fk FOREIGN KEY (receiver\_id) REFERENCES user(id) ON DELETE SET NULL;

ALTER TABLE ONLY friendActivity

ADD CONSTRAINT friendActivity\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON DELETE CASCADE;

ALTER TABLE ONLY friendRequest

ADD CONSTRAINT friendRequest\_sender\_id\_fk FOREIGN KEY (sender\_id) REFERENCES user(id) ON DELETE CASCADE;

ALTER TABLE ONLY friendRequest

ADD CONSTRAINT friendRequest\_receiver\_id\_fk FOREIGN KEY (receiver\_id) REFERENCES user(id) ON DELETE CASCADE;

ALTER TABLE ONLY localization

ADD CONSTRAINT localization\_city\_id\_fk FOREIGN KEY (city\_id) REFERENCES city(id) ON DELETE SET NULL;

ALTER TABLE ONLY notDone

ADD CONSTRAINT notDone\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON UPDATE CASCADE;

ALTER TABLE ONLY option

ADD CONSTRAINT option\_poll\_id\_fk FOREIGN KEY (poll\_id) REFERENCES poll(id) ON DELETE CASCADE;

ALTER TABLE ONLY owner

ADD CONSTRAINT owner\_user\_id\_fk FOREIGN KEY (user\_id) REFERENCES user(id) ON UPDATE CASCADE;

ALTER TABLE ONLY owner

ADD CONSTRAINT owner\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON DELETE SET NULL;

ALTER TABLE ONLY participant

ADD CONSTRAINT participant\_user\_id\_fk FOREIGN KEY (user\_id) REFERENCES user(id) ON UPDATE CASCADE;

ALTER TABLE ONLY participant

ADD CONSTRAINT participant\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON DELETE SET NULL;

ALTER TABLE ONLY poll

ADD CONSTRAINT poll\_post\_id\_fk FOREIGN KEY (post\_id) REFERENCES post(id) ON DELETE CASCADE;

ALTER TABLE ONLY post

ADD CONSTRAINT post\_event\_id\_fk FOREIGN KEY (event\_id) REFERENCES event(id) ON DELETE CASCADE;

ALTER TABLE ONLY post

ADD CONSTRAINT post\_user\_id\_fk FOREIGN KEY (user\_id) REFERENCES user(id) ON DELETE CASCADE;

ALTER TABLE ONLY post

ADD CONSTRAINT post\_image\_id\_fk FOREIGN KEY (image\_id) REFERENCES image(id) ON DELETE SET NULL;

ALTER TABLE ONLY user

ADD CONSTRAINT user\_city\_id\_fk FOREIGN KEY (city\_id) REFERENCES city(id) ON DELETE SET NULL;

**GRUPO1765, 21/03/2018**

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