Entrega II

# Definição do esquema relacional

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| Relation reference | Relation Compact Notation |
| R01 | users(id, name **NN**, email **NN UK**, wallet **DF** 0.0, country) |
| R02 | studio(id, name **NN UK** , description) |
| R03 | game(id, title **NN**, price **NN**, rating **DF** 50, publisher -> Studio, developer -> Studio) |
| R04 | achievement(id, name **NN**, description **NN**, game -> Game) |
| R05 | users\_achievement(users -> users, achievement -> achievement) |
| R06 | review(users -> users, game -> game, body, rating **NN**) |
| R07 | ownership(users -> users, game -> game) |
| R08 | wishlist(users -> users, game -> game) |
| R09 | follow\_studio(users -> users, studio -> studio) |
| R10 | friendship(user1 -> users, user2 -> users **CK** user2 != user1) |
| R11 | communities(id, name **NN**) |
| R12 | post(id, title **NN**, body **NN**, rating **DF** 50, author -> users, community -> communities) |
| R13 | comment(id, body **NN**, rating **DF** 50, author -> users, post -> post) |
| R14 | privileges(users -> users, community -> communities, is\_administrator **DF** false) |

where **UK** means **UNIQUE KEY**, **NN** means **NOT NULL**, **DF** means **DEFAULT** and **CK** means **CHECK**.

# Análise de Dependências Funcionais e Formas Normais

|  |  |
| --- | --- |
| **Table R01** | users |
| **Keys** | {id, email} |
| **Functional Dependencies:** |  |
| FD0101 | {id} -> {name, email, wallet, country} |
| FD0102 | {email} -> {id, name, wallet, country} |
| **Normal Form** | BCNF |

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| **Table R02** | studio |
| **Keys** | {id, name} |
| **Functional Dependencies:** |  |
| FD0201 | {id} -> {name, description} |
| FD0202 | {name} -> {id, description} |
| **Normal Form** | BCNF |

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| **Table R03** | game |
| **Keys** | {id} |
| **Functional Dependencies:** |  |
| FD0301 | {id} -> {title, price, rating, publisher, developer} |
| **Normal Form** | BCNF |

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| **Table R04** | achievement |
| **Keys** | {id} |
| **Functional Dependencies:** |  |
| FD0401 | {id} -> {name, description, game} |
| **Normal Form** | BCNF |

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| **Table R05** | users\_achievement |
| **Keys** | {users, achievement} |
| **Functional Dependencies:** |  |
| (None) |  |
| **Normal Form** | BCNF |

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| **Table R06** | review |
| **Keys** | {users, game} |
| **Functional Dependencies:** |  |
| FD0601 | {users, game} -> {body, rating} |
| **Normal Form** | BCNF |

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| **Table R07** | ownership |
| **Keys** | {users, game} |
| **Functional Dependencies:** |  |
| (None) |  |
| **Normal Form** | BCNF |

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| **Table R08** | wishlist |
| **Keys** | {users, game} |
| **Functional Dependencies:** |  |
| (None) |  |
| **Normal Form** | BCNF |

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| **Table R09** | follow\_studio |
| **Keys** | {users, studio} |
| **Functional Dependencies:** |  |
| (None) |  |
| **Normal Form** | BCNF |

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| **Table R10** | friendship |
| **Keys** | {user1, user2} |
| **Functional Dependencies:** |  |
| (None) |  |
| **Normal Form** | BCNF |

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| **Table R11** | communities |
| **Keys** | {id} |
| **Functional Dependencies:** |  |
| FD1101 | {id} -> {name} |
| **Normal Form** | BCNF |

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| **Table R12** | post |
| **Keys** | {id} |
| **Functional Dependencies:** |  |
| FD1201 | {id} -> {title, body, rating, author, community} |
| **Normal Form** | BCNF |

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| **Table R13** | comment |
| **Keys** | {id} |
| **Functional Dependencies:** |  |
| FD1301 | {id} -> {body, rating, author, post} |
| **Normal Form** | BCNF |

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| **Table R14** | privileges |
| **Keys** | {users, community} |
| **Functional Dependencies:** |  |
| FD1401 | {users, community} -> {is\_administrator} |
| **Normal Form** | BCNF |

# Interrogações

Int1: σ game\_id = 1 (review) τ rating, DESC

Int2: π achievement.name (σ users\_achivement.user\_id = 2 ∧ game.id = 1 ((users\_achivement ⨝ achievement) ⨝ game))

Int3: π game.title, game.price (σ user\_id = 6 (game ⨝ wishlist) )τ game.price, DESC

Int4: σ game.publisher\_id = 1 ∨ game.developer\_id = 1 (game)

Int5: game ← π game.price = 30 (σ game.id = 3 (game))

Int6: privileges ← π is\_administrator = true (σ user\_id = 4 ∧ community\_id = 1(privileges))

Int7: review ← review - σ game\_id = 1 ∧ user\_id = 5 (review)

Int8: σ post\_id = 1 ∧ reting > 33 (comment) τ rating, ASC

Int9: π game.title, users.name ((π F1.user1 (σ F1.user2 = 5 (friendship F1)) ∪ π F2.user2 (σ F2.user1 = 5 (friendship F2)) ⨝ ownsership) ⨝ game) τ game.id, DESC

Int10: π id ((π F1.user1 (σ F1.user2 = 5 (friendship F1)) ∪ π F2.user2 (σ F2.user1 = 5 (friendship F2)) ⨝ ownsership) ⨝ (π GAME.id (σ publisher\_id = 1 (game GAME)))) - π game\_id (σ user\_id = 5 (ownership))

# Gatilhos